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TH1 INTERPRETING THE ARCHAEOLOGICAL RECORD

Archaeological material remains and archaeological records of the past are the main sources of archaeological research. Growing ranges of methodological tools now help to interpret that record. The way in which we use these methods to define and decode the past predetermines the way in which the scientific goals of our research agendas are achieved. New research questions in archaeology go far beyond those posed using traditional methods of analysis and treatment of material cultural remains. An absence of evidence is no longer considered evidence of absence. Research now seeks to identify the potential cultural ‘presence’ behind absence in the record. Using new techniques, new analytical equipment and new procedures, in appropriate theoretical frameworks and contextual proxies, archaeological research continues to refine its interpretation of the past.

This theme is inviting sessions dealing with technology, survey, typology, statistics, ethnoarchaeology, geoarchaeology and other scientific applications to the research of archaeological evidence and artefacts. It is also a call for papers that address new questions to the technological records now available to research. What is sought is a diachronic perspective that reflects new methods of decision-making in research strategies and our understanding of social agency in archaeology. This theme seeks to address our cognitive and post-processual reading of the past as a tool in defining ‘artefact’ and biography, and informing our creation of narratives.

TH1-01 ARCHAEO-ORNITHOLOGY: FIGURATIONS OF HUMAN-BIRD INTERFACES IN PREHISTORY AND EARLY HISTORY

Thursday, 1 September 2016, 9:00-16:00
Faculty of Philosophy, Room 214p
Author - Kost, Catrin, Munich University, Munich, Germany (Presenting author)
Co-author(s) - Hussain, Shumon, Faculty of Archaeology, Leiden, Netherlands
Keywords: animal turn, archaeo-ornithology, human-bird interfaces
Presentation Preference - Regular session

Birds are exceptional beings. Present in almost every environment, they are often visually and/or auditorily prominent and have abilities that humans can never dream of – for example flying. This alone makes them one of the salient targets of sociocultural meaning and conceptualisation.

Archaeology – despite having entered the ‘age of symmetry’ and ‘post-humanism’ and regardless of paradigmatic shifts and re-orientations such as the ‘animal turn’ – has so far largely ignored birds and their contributions to human lifeways. This session is dedicated to fill that void. It aims to trace the construction of human-bird interfaces through prehistory and early history in order to re-assess the changing role of birds in human societies. Although birds – qua animals – are increasingly regarded as historical agents in their own right, the focus of the session lies on the intricate interplay of bird and human lifeworlds and behaviours. Through a diachronic approach the session hopes to explore how different modes of human existence are reflected in the nature of human-bird interfaces, and in particular how different forms of human society and spatiality as well as different characteristics of bird behaviour and appearance imprint themselves in the materiality of human-bird relationships. Since the intersection of human and bird activities can be expected to differ severely from that of humans and other animals – for example mammals – the investigation of the human-bird interface ultimately provides a fresh angle to expose some new and so far unexplored aspects of past human earthly dwelling.

The session invites scholars from different fields and any specialisation to contribute to this debate (and the many additional questions that will probably arise along its path) and thus to take first steps towards an archaeology of human-bird relationships – Archaeo-Ornithology. We welcome theoretical contributions, review papers as well as case studies.
TH1-01 Abstract 03

Spirit Birds at Neolithic Çatalhöyük

Author: Professor Russell, Nenisa, Cornell University, Ithaca, NY, United States of America (Presenting author)

Keywords: Anatolia, Neolithic, zooarchaeology

Presentation Preference: Oral

As they soar into the air and dive below the water’s surface, birds inspire awe for their superhuman capacity to pass among earth, air, and water. They are often seen as belonging to the spirit world. They at least as messengers and to and from that world. Whereas at earlier sites in the region birds made a significant contribution to human diet, at Neolithic Çatalhöyük in Central Anatolia their nutritional significance is small. Body part distributions suggest that for the most part feathers were more important than meat. Bird remains, mainly the feathery parts of wings, appear in a number of special deposits at Çatalhöyük. Together with artistic representations, these deposits suggest that cranes and vultures played key roles in life cycle transitions and were invoked mimetically through dance. Additionally, waterbirds, particularly in association with newborn human infants, may have mediated between human and spirit worlds. Although there is little indication that Çatalhöyük residents made much use of brightly colored feathers, bird wing deposits do attest to the importance of color symbolism at the site. Thus bird remains offer material evidence of aspects of Neolithic cosmology and ontology.

TH1-01 Abstract 04

The Human-Bird Interfaces in the Eneolithic period from Balkans

Author: Dr. Lazar, Catalin, National History Museum of Romania, Bucharest, Romania (Presenting author)

Co-author(s): Balasescu, Adrian, National History Museum of Romania, Bucharest, Romania

Keywords: Balkans, Birds figurines, Eneolithic

Presentation Preference: Oral

The aim of this paper is to explore the complex interaction between humans and birds in the Koçjuk-Dermen-Guemlinia-Karanovo VI communities (ca. 4500-3800 BC) from the Balkans (Romania and Bulgaria). Thus, our investigation will cover the bird figurines iconography study from some key-sites in the target area (e.g. Meriuta, Sutlana, Vlahesti, Yunkalata, etc.), in correlation with the zooarchaeological analyses, in order to identify the significance of avian species in the Eneolithic societies, both symbolically and economically. A special attention will be granted to some hybrid type of figurines that combines the anthropomorphic and zoomorphic elements of humans and birds because it reflects the best interface specific artifacts (the hybrid human-bird figurines) have the potential to redefine the role of birds in the human societies. This research is funded by a grant of the Romanian National Authority for Scientific Research, CNCS – UEFISCDI project numbers PN-II-ID-PCE-2011-3-1015.

TH1-01 Abstract 05

Birds in the cave painting during the recent Prehistory in the south of the Iberian Peninsula

Author: Profesora Lazarric, María, Universidad de Cadiz, Cadiz, Spain (Presenting author)

Co-author(s): Ramos-Gil, Antonio, Universidad de Cadiz, Cadiz, Spain

Co-author(s): González, Juan Luis, Universidad de Cadiz, Cadiz, Spain

Co-author(s): Mañ, Manuela, Universidad de Cadiz, Cadiz, Spain

Co-author(s): Cruz, María José, Universidad de Cadiz, Cadiz, Spain

Keywords: bird rock painting, megalithic tombs, Recent Prehistory

Presentation Preference: Oral

Birds were not one of the favourite issues in order to be used for rock paintings in the Iberian Peninsula. In spite of that, in the southern end of Spain it is focused the greatest amount of this kind of artistic manifestations. We are referring to the shelter of Taü de las Figuras (Benalu- Casas Viejas, Cádiz), which represents the 99.94% of the total bird representations of postpalaeolithic rock paintings in the Iberian Peninsula. In 17 square meters of wall surface 962 pictograms are represented, of which 208 are sociocultural contexts of the East-Central European Gravettian, we show that owls are salient agents for Middle Upper Palaeolithic foragers which are thrown into these ecocultural constellations. The spatio-ecological and sociocultural conditions of human-owl interactions might therefore explain the praxiology for materially representing owls in this context. The paper concludes by pondering on some implications for how we might interpret the ‘foreign’ ontology of Gravettian and Pavlovian people in East-Central Europe.

TH1-01 Abstract 06

Omniscient or just omnipresent? The perceived role of birds in Early Iron Age Slovenia

Author: Filip, Adrienne, University of Wisconsin-Milwaukee, Milwaukee, United States of America (Presenting author)

Keywords: Birds, Iconography, Iron Age

Presentation Preference: Oral

Human-bird relationships in Early Iron Age Slovenia are marked by apparent contradictions – remains of birds are extremely rare in the zooarchaeological record as a whole, and completely absent from mortuary contexts that are otherwise notable for the deposition of animal remains. Yet birds are the most commonly represented animal in Early Iron Age art, and artifacts decorated in the local Silita Art style depict birds in almost every scene. Experience of birds would have been relatively constant – birds are almost always present, yet human relationships with them were likely based more on observation than direct interaction. The distinction of these animals was drawn upon and reinforced in local artistic representations, cementing their place as ideologically significant and set apart from domesticates and other wild animals. In this case study, depictions of birds from the Doljanka Hallstatt culture of southeastern Slovenia will be presented in the context of local human-bird interactions, and modes of depiction as well as contextual associations of avian imagery will be presented to demonstrate how the Hallstatt experience and ideologies. It is proposed that not only were birds considered important observers of human action, but in additional birds may have played an important role in ritual, mediating between humens and other animals as well as between humans and extra-human forces.

TH1-01 Abstract 07

„No one was lucky enough to capture an ostrich“ - The sociocultural meaning of ostriches and eggs

Author: Dr. Gönster, Yvonne, Wuppertal, Germany (Presenting author)

Co-author(s): Dr. Hodos, Tamar, University of Bristol, Department of Archaeology and Anthropology, Bristol, United Kingdom

Co-author(s): Dr. Fletcher, Alexandra, The British Museum, Middle East Department, London, United Kingdom

Co-author(s): Dr. Caroline Cartwright, The British Museum, Department of Science, London, United Kingdom

Keywords: Iron Age, Mediterranean region, ostrich eggs/shells

Presentation Preference: Oral

As this quotation of Xenophon (Anabasis I, 5) suggests, ostriches were the ultimate free-ranging animal during the Iron Age (c. 1200-310 BC). Their Mediterranean habitats covered North Africa, Egypt, Anatolia and further east. Their cultural significance is already well documented in the Bronze Age. Egyptian and Libyan pre-Iron Age rock art depict ostrich hunts. The ostrich was connected to the Babylonian goddess Tiamat, and in Egyptian mythology Maat, goddess of truth and justice, wears an ostrich feather. Well paintings and inscriptions show offerings of feathers and eggs to various Egyptian Pharaohs, and numerous archaeological finds demonstrate that ostrich eggs were used as votive offerings in temples; ostrich eggs were also among the cargo of the Uluburun shipwreck. The shells were manufactured as amulets or beads for necklaces and earrings, or reworked into containers, flasks, cups and other vessels.

During the Iron Age engraved or painted ostrich egg vessels were a luxury item shared between many Mediterranean civilisations, from Assyria, Egypt, Greece, Etruria and beyond. Aside from noting them in funerary and dedicatory contexts, no research to date has sought to understand their trade mechanisms. Iron Age Asyrian iconography depicts ostriches as wild beasts conquered only by the king/hero, and ostrich bones are rarely found in excavated Iron Age sites. This suggests ostrich eggs were obtained from the wild, only achievable if nest sites are known. The quantity of surviving ostrich eggs suggests they were a luxury Iron Age Mediterranean-wide trade. Could that demand be met simply from wild acquisition? Reliefs of Assyrian lion hunts show that wild lions were penned and hunts staged. Could the reality of ostrich egg acquisition have involved captive birds rather than opportunistic retrieval? Did this luxury trade therefore
stem from a managed environment? A pilot study conducted by myself and colleagues at the University of Bristol and the British Museum London has assessed where the eggshells originate from using a combination of SEM and isotopic analysis. Our results will provide a perspective on when and how these birds were obtained.

Birds were a small but important component of diet and economy in the past, particularly in islands, as a diverse range of birds, especially aquatic birds, thrived in coastal and island locations. Large colonies of gregariously breeding seabirds would have provided past populations of these locations with a concentrated resource base that could be targeted intensively or sporadically for meat, eggs, oil and fat. Bird use in the North Atlantic Islands is therefore integral to fully understanding life, diet and resource use in these settings.

This paper presents results from a large-scale investigation of Mesolithic to Post-Medieval bird use in the North Atlantic Islands that involved collecting pre-existing avian data and combining it with new, in-depth analyses. The archaeological dataset is considered alongside modern species profiles, and contextualised within the wider historically documented tradition of fowling. The zoological dataset reveals that whilst many birds were sourced locally, others required specific foraging trips to more distant areas of the landscape. Several key species exploited through time and space (such as gannets and guillemots) would have been acquired from dangerous areas of terrain such as cliffs. These targeted avian species demonstrate that foraging was part of a wider picture of mobility and interconnectivity in marine resource use that involved moving around the seascape and to different island landscapes. Changes are seen in the exploitation of locally sourced taxa resulting from preference, seasonality, and species populations (including sustainability issues as evidenced in the great auk’s decline and extinction). The creation of unique foraging profiles responding to specific needs (e.g. netting of waders in winter to supplement the diet) indicates a degree of fluidity in these landscapes. Historically documented case studies such as the fowlers of St Kilda characterise the duality of isolation and connection in these island locations and their human resource networks.

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**Keynotes:**
- Avian Archaeology
- Islands
- Seabirds

**Presentation Preference:** Oral

**Acknowledgments:** The authors acknowledge the contributions of various institutions and researchers involved in the project, including the British Museum, University of Bristol, and other collaborating institutions.

**References:**
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- Pitt, Jacqueline, Bournemouth University, Bournemouth, United Kingdom

**Abstract:**
This paper presents results from a large-scale investigation of Mesolithic to Post-Medieval bird use in the North Atlantic Islands that involved collecting pre-existing avian data and combining it with new, in-depth analyses. The archaeological dataset is considered alongside modern species profiles, and contextualised within the wider historically documented tradition of fowling. The zoological dataset reveals that whilst many birds were sourced locally, others required specific foraging trips to more distant areas of the landscape. Several key species exploited through time and space (such as gannets and guillemots) would have been acquired from dangerous areas of terrain such as cliffs. These targeted avian species demonstrate that foraging was part of a wider picture of mobility and interconnectivity in marine resource use that involved moving around the seascape and to different island landscapes. Changes are seen in the exploitation of locally sourced taxa resulting from preference, seasonality, and species populations (including sustainability issues as evidenced in the great auk’s decline and extinction). The creation of unique foraging profiles responding to specific needs (e.g. netting of waders in winter to supplement the diet) indicates a degree of fluidity in these landscapes. Historically documented case studies such as the fowlers of St Kilda characterise the duality of isolation and connection in these island locations and their human resource networks.

**Keywords:**
- Avian Archaeology
- Islands
- Seabirds
THI-01 Abstract 14

Changes in goose and duck use from the early Roman period until the post-medieval period in Britain

Author - Poland, Gud, The University of Sheffield, Sheffield, United Kingdom (Presenting author)
Co-author(s) - Dr. Grau Sologestoa, Idoia, The University of Sheffield, Sheffield, United Kingdom

Presentation Preference - Oral

Geese and ducks have been used in Britain from late prehistory until the present day for a multitude of reasons including for their meat, eggs, their feathers, and their fat. We know from historical sources that the economic and cultural significance of these animals has changed over time. From the Roman period, geese were generally not considered as a popular food, although they did play a role in certain parts of society. With the post-medieval period, there was a shift towards increased consumption of geese and ducks, particularly in urban areas.

Slight differences of an eggshell's microstructure can provide evidence of its potentially incubated state. These modifications result from the avian embryo resorbing calcium from the shell to form its skeleton. However, although the recovered eggs of other animals allow for clear identification, these alterations were not uniform among different species, making identification more challenging.

THI-01 Abstract 15

Food for the Dead or Symbol of Rebirth?
Culinary offerings and incubated eggs from a Roman cemetery

Author - Sichert, Benjamin, Universities of Basel (Switzerland) and Freiburg (Germany) (Presenting author)

Keywords: antiquity, archaeozoology, eggshell

Presentation Preference - Oral

The late Roman site of Oster-Olm provides a fascinating example of unusual rich food offerings in a funerary context. Alongside the deceased, the remains of entire meals could be recovered, often still on plates and in bowls. Although it is unknown for whom these meals were intended – the dead or other abstract beings – archaeologists gained insight into their selection and preparation but also their presentation to the community attending the funerary event.

Yet, not all faunal remains could be interpreted as food. This was particularly the case for two goose eggs found in a woman’s grave. Because it was assumed that the egg’s function is closely connected to the state in which they were placed inside the burial – originally fresh eggs rather served as meal, incubated remains possibly had a symbolic, eg. (re)birth related significance – they were more closely analyzed. Slight differences of an eggshell’s microstructure can provide evidence of its potentially incubated state. These modifications result from the avian embryo resorbing calcium from the shell to form its skeleton. However, although the recovered eggs of other animals allow for clear identification, these alterations were not uniform among different species, making identification more challenging.

This poster explores examples of rare cases of incubated and not-incubated spots. This could possibly have a taphonomic origin. It is for this reason that we’re now conducting experiments with unfertilized eggs. Due to better excavation techniques eggshell is also increasingly discovered on other archaeological sites. A deeper understanding of the taphonomic processes influencing their microstructure is vitally important in order to distinguish between the shells of hatched birds and eggs that served as food.

THI-01 Abstract 16

Birds: bones & images in Iberian Culture 6th-2nd cent BC use & symbolism in East Iberian Peninsula

Author - Dr. Iborra Eres, Maria Pia, IVOR Cultiventris Generalitat, Valencia, Spain (Presenting author)

Keywords: birds, bone figures, symbolic role

Presentation Preference - Poster

The term Iberian Culture, is used to define the group of people who inhabited the eastern strip of the Iberian Peninsula roughly between 6th-2nd century BC. Iberian society was highly urbanised and socially stratified (Bonet and Mata 2009; Ruiz 2000; 2003; Ruiz and Molinos 1989). The society was still predominantly agrarian, with agriculture and livestock husbandry constituting the basis for subsistence. However, the area was already incorporated in the Mediterranean trading routes in order to participate in those trading networks mainly with Phoenicians and Greeks (Bonet and Mata 2009; Sammarti 2009). This world was structured into a variety of territories characterised by a complex pattern of hierarchical settlement. The main population nucleus was the oppidum, a large site of around 10-15 hectares and the capital of the political area. The other settlements were small, and, depending on their size, are categorised as small towns, hamlets, farms, hillforts or military establishments. Ritual sites, mainly sanctuaries and cemeteries, have also been found (Grau 2002; Ruiz 1996; 2000; Vives Fernández 2013).

Birds bones are normally recovered in the sites, sometimes as waste from daily life and others as result of ritual actions. In this last case birds go with human remains inside urns and pits such as domestic or funerary offerings. The identified species are: chicken (Gallus gallus domesticus), patridge (Alectoris rufa), golden eagle (Aquila chrysaetos), griffon vulture (Gyps fulvus), mallard (Anas platyrhynchos), little bustard (Tetrax tetrix), gogom (Columba livia/livon), little owl (Athene noctua), barn owl (Tyto alba), Eagle owl (Siulo buho ), white stork (Ciconia ciconia), gull (Larus sp.) and Corvus sp. Their use as musical instruments (Iborra 2004; Iborra and Pérez Jordal 2009). This world was structured into a variety of territories characterised by a complex pattern of hierarchical settlement. The main population nucleus was the oppidum, a large site of around 10-15 hectares and the capital of the political area. The other settlements were small, and, depending on their size, are categorised as small towns, hamlets, farms, hillforts or military establishments. Ritual sites, mainly sanctuaries and cemeteries, have also been found (Grau 2002; Ruiz 1996; 2000; Vives Fernández 2013).

Birds pictures (figures) are usually represented on ceramic vessels, where they appear in different types of scenes. Scenes of hunting, war, funerary and domestic life. Although they can also be find others materials such as ceramic, sculpture and metal craft. To what extent are birds important in Roman gardens?

Author - Mgr. Uranovala, Valèria, Institute for Classical Archaeology, Prague, Czech Republic (Presenting author)

Keywords: birds, Roman garden, aviary, mosaic, frescoe

Presentation Preference - Poster

Viewing various species of birds, especially the peacock, peasant, guinea fowl, patridge, duck, is a frequent motif on floor mosaics with a garden theme in the Roman world. There are also wall frescoes depicting gardens full of birdlife for example from Linia’s house at Primagonda near Rome from the 1st century AD and from a house at Villanov (today’s Zollfeld) in the Roman province of Noricum from the 2nd century AD. But does it reflect keeping birds in garden itself? On some particular sites are remains of architectural structures reckoned as aviaries, which will be displayed on example from the Roman province of Gaul on Main-Taunus site from the 3rd century AD and for further comparison those from Maison de Valérie in Carthage in province of North Africa from the beginning of the 3rd century AD. Either many types of cages are painted on garden frescoes or it is possible to rely on literary sources as well. Thus the iconographic sources represent a graphic image transmission of an aviary or a hunting park, (in analogy to the mosaic in North Africa, which belonged to the villa and which is otherwise difficult to prove. It may also represent an auxepium, hunting wild birds within venatio/munera, which is mentioned in Palladius’ s work. Similarly in this way is also reflected a higher social status of the villa owner. Based on literary, iconographic and archaeological sources it is obvious that birds were kept in Roman gardens for pleasure or some use. The meaning of bird’s presence in focus amoens is still not sufficiently clarified.
TH1-02 Abstract 01

Petrifaction: a concrete comprehensive diachronic concept for past process comparison

Author - Dr. Hueglin, Sophie, Newcastle University, Basel, Switzerland (Presenting author)

Keywords: early medieval stone building, materialism, theory

Presentation Preference - Oral

The moment we want to describe, quantify and compare processes over large distances, from different periods and in diverse materials, we need abstract concepts. To do this in a highly materialistic subject like Archaeology, a concept will have to be as concrete and measurable as possible. At the same time, it must be transferable to the intangible as well as to the – in our conception – magical minds of the people we study. Such a seemingly simple concept is petrifaction. Apart from its obviously Christian roots (Apuleius Petrus) it describes increasing durability, weight and rigidity in objects and processes.

My personal approach to petrifaction comes from the study of the reintroduction of stone architecture in the medieval period. This – according to M. Shapland – conscious choice of stone over wood as building material especially for churches, town walls and funerary monuments is connected with other phenomena like the attempt to normalise calendars, the transition from oral to written in communication – a.g. the production of books and especially of historio- and hagiography in the Roman tradition. The introduction of Rome-centred Christianity probably also led to deforestation, parcelling of the land and hierarchisation of society. What can be described as processes of petrifcation.

Petrification leads not only to physical boundaries in the landscape, but also to differentiation of concepts in our minds. Essentially, how we divide the past into distinctive periods is a result of this separation process. In our conception and description of the past we seem ‘petrified’ because phases of petrifaction can be perceived more easily and thus tend to be overestimated. A diachronic sequence like this – attempting to ignore the barriers between epochs and to a certain extent time itself – will at the same time be a challenge and a chance. Petrifaction offers a concept with which we can observe, describe and compare processes without judging them emotionally or morally. The opposite concept of petrifaction could be called ‘equilibration’, it will be the topic of a follow-up session.

TH1-02 Abstract 02

Liquid time, petrified objects. Concepts of historical change in archaeology

Author - Dr. Gramsch, Alexander, German Archaeological Institute, Frankfurt a. M., Germany (Presenting author)

Keywords: material culture, petrifaction, transmogrification

Presentation Preference - Oral

While we as session organisers are far from agreeing upon what ‘Petrification’ means, we were trying to circumscribe it with terms such as ‘consolidation’, ‘stabilisation’ and ‘classic style’, referring to changes both in societies and material culture. That said, we know that notions of stability, consolidation and steadiness are deeply linked to our understanding of both time and material culture. So this introductory talk addresses notions of time, change and material culture in archaeology. From traditional culture-historical archaeology to post-processualism and from spatial to cultural and other turns to current scientifically driven archaeology as we as archaeologists need to connect the material culture we study to notions of transformation and development. How do we conceptualise periods of stability or ‘equilibrium’ vs. periods of change or break-up? How do we conceptualise periods at all? Which conceptual steps to take to infer the petrifation of a society from the archaeological record? Do we perceive petrifation as one instant in a succession of distinct instants or as a process within a process.
The quantitative analysis of the observable materials can suggest different attention was played in setting figurines in connection with concepts like durability and social transmission of messages. Anyway, other formation processes of the archaeological record are relevant: too factors of preservation of different materials should bring more caution in evaluating the presence/absence of less durable materials as used in the production of figurines and statues. The use of different materials can also underlie different strategies of dissemination of information, of its personal use and of “democratization” of the impact of the underlying message. The case can be raised of contradictions in the social context of message transmission.

The theoretical situation and a model of analysis will be explained through cases involving a trans-Mediterranean perspective (i.e. both in Africa and in the Near East and in Mediterranean Europe), during the Neolithic and up to the Bronze Age.

TH1-02 Abstract 06

The temporality of stone: communities and early sculptural traditions in late prehistoric Iberia

Author - Dr. Diaz-Guardamino Uribe, Marla, University of Southampton, Southampton, United Kingdom (Presenting author)

Keywords: ibera, Later Prehistory, Sculpture

Presentation Preference - Oral

Stone is regarded as ‘eternal’ in many cultures, past and present, across the globe. It appears to be frequently linked to monumentality and ancestor worship, phenomena that are seemingly universal. When investigating stone in the context of human-related events and processes, its durability instantly turns into a central issue in the articulation of social, cultural, and historical narratives. In this context, stone is considered to play a key role in the so-called ‘petrification’ or ‘stilisation’ of social structures and institutions. Indeed, if compared to human temporality, stone has the potential to work across much longer-lasting temporal frames. However, while stone persists it is not eternal neither static nor stable. Stones are in constant flux. They transform as they interact with a broad variety of agents, from air, water, and acids, to living organisms, including microorganisms, animals, or people. And as they interact, stones engage in the crafting of complex meshes of social relationships with varying temporalities (and spatialities).

This paper seeks to explore the temporality of stone and its role in the late prehistoric communities of western Iberia through the analysis of their sculptural traditions. Western Iberia is home to an extraordinary collection of stone stelae and statue-menhirs that were placed in the landscape and represent life-size human bodies decorated with weapons and elements of dress and adornments.

Much attention has been given to the classification and cultural affiliation of stelae and statue-menhirs based on their iconographies. Less attention, however, has been put on the very nature of these stones as monuments, on their persistence and the role of this property in the fashioning of iconicographic standardization, the long-term crafting of these sculptural traditions and, ultimately, the social reproduction of the communities associated with them. This paper will address these issues while also taking into account the variability and constant changeability of these stones, their workings within short-term temporalities and cultural imaginaries.

TH1-02 Abstract 07

Genetics, Migrations and Language Dispersals: Re-theorizing mobility and the formation of culture and language among the Corded Ware Cultures in Europe

Author - Prof. Kristiansen, Kristian, University of Gothenburg, Göteborg, Sweden (Presenting author)

Presentation Preference - Oral

We are now finally in a position where migrations can be documented rather than debated. This has lifted an interpretative burden from archaeology, in much the same way as C14 dating did when it was introduced. The new freedom can instead be invested in properly theorising and interpreting local processes of migration, integration and assimilation, which has been an underdeveloped field of research. By integrating recent results from archaeology, isotopic tracing and historical linguistics this will in turn allow us to formulate better-founded models for the interaction of invading and settling groups, the formation of a new material culture, and consequently also for language dispersals and language change. In this paper I forward a theoretical model that accounts for the formation of Corded Ware cultures as a result of local adaptations and interaction of migrant Yamnaya populations with still existing Neolithic cultures.

TH1-02 Abstract 08

Tracing “petrification” in prehistoric architectural processes

Author - Dr. Romaniewicz, Tanja, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)

Keywords: architectural analysis, prehistoric architecture, Scottish roundhouses

Presentation Preference - Oral

Even ephemeral archaeological remains of prehistoric buildings can be studied as evidence for architectural processes. In this definition, these processes started with thinking and shaping prehistoric space via a structure, but did not stop once this structure was built. Prehistoric architecture was also transformed by unplanned events during construction, use and abandonment of the buildings. Architectural analysis reads these deliberate and fortuitous processes from pits and postholes, wear patterns and structural remains. In this way, the creating, shaping and sheltering of prehistoric life can be traced, as well as any changes in architectural practice.

The proposed paper will focus on such changes, specifically from fluid to more solid concepts of later prehistoric architectures, described in this session as “petrification”. It starts with recent work on Bronze Age timber roundhouses in northeast Scotland. This identified reactive, shape-shifting architecture responding to the activities and energies produced by the form seems, however, unrelated to the building materials as such practices can also be recognised in roughly contemporary Scottish stone houses. Yet by the Iron Age, external shape and form seemingly had solidified. The paper will map such developments of architectural concepts through time and space, from organic and dissolved plans and forms to more rigid structural shells. Drawing on later prehistoric and early medieval evidence from Britain, Scandinavia and the continent for comparison, architectural analysis will trace such patterns of “petrification” within the domestic sphere.

TH1-02 Abstract 09

Stony landscape, petrified society? Relations between landscape and society

Author - Dr. Mikloš, Dimitrij, University of Ljubljana, Institute for the protection of Cultural heritage of Ljubljana, Slovenia (Presenting author)

Keywords: landscape, petrification, prehistory

Presentation Preference - Oral

Relations between landscape and society are recursive – we are born in landscape made by our ancestors, but we immediately begin rearranging it. I want to explore how permanent, stable landscapes emerge through the process of life in the landscape. My point of departure is Strum and Latour’s difference between complex and complicated societies. Complexity in this context mean that society is performed only through bodies, using social skills and social strategies. Society is performed ex nihilo at every social encounter, every face-to-face interaction. The society can disappear if not performed. Nothing fixes and stabilises it. Stable societies emerge only when additional, material resources are mobilised. Material resources can be used to build and maintain societal forms. They permit the shift of social life away from complexity to what Strum and Latour call “complication”, i.e. social life made out of succession of simple operations. Individuals continue to perform society, but on much more durable and less complex scale. I want to explore how the landscape is used to simplify task of ascertaining and negotiating the nature of social order. Nature of social interaction is stabilised by the use of durable material resources. Based on a case study from prehistory of Karst, carstic stony landscape in in western Slovenia, I want to explore how the use of landscape features, use of stone, manipulation of landscape texture and building of landscape structures has “petrified”, stabilised and structured specific social relations. I will explore the relations between landscape and social order, focus on questions of inertia and long term stability, but also change, resistance and creative improvisation in such landscapes.

TH1-02 Abstract 10

Prehistoric dry-stone structures at high-altitude in the Alps: social, economic and cultural drivers

Author - Dr. Carrer, Francesco, Newcastle University, Newcastle upon Tyne, United Kingdom (Presenting author)

Keywords: Alpine pastoralism, Bronze & Iron Age, Dry-stone structures

Presentation Preference - Oral

Pastoralism is a long-lasting strategy of human-environment interaction at high-altitude. In the alpine arc, in particular, the upland landscapes (>1600 m asl) have been shaped by pastoral activities since the Neolithic. Pastoral groups have contributed to the modification of plant communities of the high-altitude environments, and they also created different types of seasonal structures. The most effective assessment of the alpine landscape integrates the study of these pastoral structures within an environmental framework comprising woodlands, pastures, streams and peaks. Huts are exploited by the herders for different types of activities, corrals and byres are used to stable the animals, and cellars for cheese-maturing. Most of these structures are made of stone or timber posts leaning on a stone basement. Recent archaeological projects shed new light on human colonisation or exploitation of high-altitudes, showing that the earliest dry-stone structures (tentatively related to pastoralism) occurred in the alpine pastures since the late third millennium BC, and became common throughout the Alps during the second and first millennium BC. Interestingly enough, the appearance of these structures does not correspond to the first evidence of pastoralism.
activity in the alpine uplands (suggested mainly by palaeoenvironmental proxy data), as if the earliest pastoral groups exploited much more ephemeral shelters. This observation opens a series of interpretative questions: What triggered the construction of these permanent structures during the Bronze and Iron Age? Was it just for functional reasons or was it also a way to facilitate ‘possession of this marginal environment’?

In this paper the origin of dry-stone pastoral structures in the Alps will be investigated. The available archaeological data will be revised, to assess the chronology of their diffusion and to find structural similarities that might mirror functional and cultural aspects. Insights from recent ethnoarchaeological investigations will enabled the role of these structures within the upland landscapes to be inferred.

TH1-02 Abstract 11
Set in stone? The influence of petrification on Mediterranean urbanism (c. 700-300 BCE)

Author: Dr. Maschek, Dominik, Department of Classics, Ancient History & Archaeology, University of Birmingham, Birmingham, United Kingdom (Presenting author)

Keywords: archaeology of urban centres, Greek colonization, urbanism

Presentation Preference - Oral

Research on pre-modern cities has mainly focused on two aspects of the ancient Greek polis: On the one hand, the polis has been seen as the substrate for urban culture based on a politically active class of citizens. On the other hand, many scholars have emphasized the ‘straight’ qualities of ancient Greek cities: In this view, the ‘petrified’ shapes of public buildings and meeting places have been taken as direct indicators for social and cultural ideas. However, recent approaches in urban studies, sociology and classical studies tend to contradict such a straightforward separation between materiality and semantics of ancient cities.

First of all, the meaning of public urban spaces as well as their basic definition and ideal-typical description were constantly changing both in time and due to human agency. Urban designs which were theoretically conceptualized for future generations could be fundamentally transformed by changing courses of real-life-cycles, losing their historical eminence in the process. Especially in the Greek colonies throughout the central Mediterranean, processes of petrification played an important role in the formation of urban communities. Archaeological evidence allows for the conceptualization of petrification as combining both resource management and social negotiation amongst the inhabitants of newly defined urban centres. Furthermore, our written sources need to be put into perspective using the results of archaeological investigations. Literary descriptions from the 5th century BCE onwards stand against ample archaeological evidence for a high degree of regional diversity in both centre and periphery of the Greek world. The present paper thus aims at comparing the different sets of sources and their respective interpretive potential. In a second step, the concept of public space in Greek cities shall tentatively be defined by looking at discontinuities and interactions between ‘petrified’ urban fabric, social space and normative discourses.

TH1-03 Abstract 01
Medieval Play and Archaeology: an Introduction and a Challenge

Author: Dr. Willemsen, Annemarieke, National Museum of Antiquities, Leiden, Netherlands (Presenting author)

Keywords: material culture, mobility, play

Presentation Preference - Oral

Medieval Play and Archaeology: an Introduction and a Challenge Before looking at archaeological remains of play, we need to try and understand what that concept meant to a medieval person. In his ‘Homo ludens’, Huizinga defined play as a free act, intentionally outside ordinary life, without direct material profit, within a distinct time and space, orderly to certain rules, and creating communal ties. People can play in sober earnest - like children, footballers and chess players - but still know well they are playing and that it is not the real world.

Following this, we should be looking at a large variety of medieval ‘playful’ activities. Until recently, the archaeology of medieval play has been largely limited to the recognizable material remains of board games, and children’s toys, while specific designated areas for play have been touched upon as part of excavated buildings or landscapes. The way forward may be, in the wake of Huizinga, to see play and its material dimension less as an isolated outside category and more as a fixed part of most medieval activities.

This paper can provide a historiographical and theoretical background to the session ‘Homo ludens medievalis’.

TH1-03 Abstract 02
Playing the Heroic Hunter: The Role of Play in the Design and Utilization of Medieval British Parks

Author: Dr. Maitly, Kevin, University of Wyoming, Saint Paul, United States of America (Presenting author)

Keywords: Nature, Play, Performance, Scotland, Parks, Medieval

Presentation Preference - Oral

Medieval British park landscapes are often discussed in terms of aristocratic leisure and the prestige associated with ownership and use of such impressive feats of monumental architecture. As hunting grounds, these enclosures offered social venues for...
royals and noblemen to participate in performance and play, providing arenas where heroic fantasies could be fulfilled in gaudy fashion. By combining archaeological, historical, and environmental evidence this study explores how play and performance influenced medieval park design, function, and meaning, and ultimately shaped the landscape during the Middle Ages. This work argues that the intricate designs and organizations of parks through the incorporation of dramatic topography and managed natural resources, like wood, represent the medieval perception of an idealized nature. Furthermore, by hunting often-voluntary animal species, providing opportunities for hunting queries to escape, performing such displays in front of crowds, and designing a “natural” habitat contributed to a more exhilarating and realistic experience to an otherwise pacified form of hunting. Thus, the theatrical hunting displays carried out within park confines is representative of an effective form of medieval play that centered around the symbolism of domination over nature, war, and the mythic hero, subsequently reinforcing signals of power.

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TH1-03 Abstract 03
Ludens at play: an archaeological exploration of Medieval and early modern bear-baiting

Author - Dufour, Jean-Yves, INRAP, Villeneuve, France (Presenting author)
Keywords: bear-baiting, blood sports, London
Presentation Preference - Oral

Animals were an integral part of entertainment and play for many people in the Medieval and post-Medieval periods. In England bear-baiting had royal approval, and on special occasions the monarchs and their guests would view baits at a variety of venues in London and at their Royal Palaces. Purpose-built bear-baiting arenas were erected on the south bank of the Thames to accommodate spectators from all levels of society, and it appears that the costs of attending a baiting were the same as those for the theatre. There has been extensive literary research on references to bears in Shakespeare’s plays and discussions of whether or not live bears were ever on stage in London, but there has been much less interest in bear-baiting. The bears used in the baits were valuable animals, and some were even named (e.g. George Stone), so going to a baiting may have been akin to seeing a favourite actor on stage. How did such entertainments work and what is the evidence for bear-baiting in London? Drawing on documentary records as well as archaeological information on the bear-baiting structures, bear-related material culture, and the remains of the dogs and bears themselves, I will explore what this type of play tells us about Medieval and early-modern London.

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TH1-03 Abstract 04
King Louis Xlll’s real tennis court at Versailles

Author - Dufour, Jean-Yves, INRAP, Villeneuve, France (Presenting author)
Keywords: game, tennis court, Versailles
Presentation Preference - Oral

This paper gives an account of some of the archaeological discoveries made in the courtyard of the Great Commons of the chateau, where the King’s real tennis court (jeu de paume) was excavated. The architectural project was the work of Philibert Le Roy, architect to the King. Architectural features of Louis XIII’s tennis court are described, and compared with textual data. Three of the four inner walls are bordered by covered galleries for public enjoying the game. The shape given to the room for the court paume game has allowed historians to propose two hypotheses for the medievial origins of the game. It may have originated in the cloisters of monasteries or in the streets. The change in the flooring of the real tennis court, terracotta and stone paving first, then stone paving only from 1629 onwards, gives some information on the way the points were scored.

The ancillary structures associated with the tennis court are a water cistern, latrines and the house of the maître paumier or games master, an artisan who managed and maintained the court and acted as an umpire for the game. He also made balls and rackets. There was also a changing room used for rest and refreshments, to play dice.

What was the place of real tennis in medieval and modern society? The exercise of power has its implications for the body: it must be robust. The games of the Middle Ages were rough with hard physical contact: wrestling, soule, hockey, jousts and tournaments still fill contemporary popular imagery. Tennis is the first such game to be developed which does not involve direct contact with the opponent. In 1596, Francesco Gregory d’Ierni observed in Paris, two hundred and fifty fine and well furnished tennis courts, which … gave liveliness to some seven thousand people: guardians, masters of games, linesmen, racket makers, …. This was indeed the golden age for the game. Playing tennis requires dexterity, strength and reflection, even strategy, all qualities which are required of a prince. By bringing out the qualities of a player, by allowing a privileged moment of interaction between those who play, tennis is also an art of the Court. Under Louis XIII, tennis was considered as an art by the puritans and as a game by the populace, but not yet as a sport.

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TH1-03 Abstract 05
Ludic space in the late Middle Ages cities on the south Baltic coast

Author - Dr. Romanowicz, Paulina, Center for Medieval Archaeology of the Baltic Region IAE PAS, Szczecin, Poland (Presenting author)
Keywords: amusement, space, toys
Presentation Preference - Oral

There are no any written sources left that could tell us anything about how and where people living in the cities situated on the south Baltic coast used their so called free time. Archaeological sources rarely found in this places are the only evidence of the amusement present there. The aim of this paper is to present the model of the ludic space in those cities constructed on the basis of archaeological finds of toys and play accessories. There is visible difference on how was treated public and private space, so this will be the main categories used in this model.

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TH1-03 Abstract 06
Whose game is it anyway? Mobility, cultural transfer and board games

Author - Hall, Mark, Comhairé na n Eilean Siar, Isle of Benbecula, United Kingdom (Presenting author)
Keywords: cultural transfer, mobility, play
Presentation Preference - Oral

This paper will explore board games as a facet of play in the context of mobility, mobility at both the micro (on the board) and the macro (within and across cultures) scales. Here that mobility is characterised not as diffusionism but as the complex cultural interaction between and across societies and cultures, exploiting trade, military conquest, gift giving and religion and ritual as avenues of exchange and interaction.

Considering board games within the framework of mobility raises some key issues around their social significance: how and why did they spread? Movement is, of course, essential to games (as it is to all play) both for the games to work - they are at the core of the ‘capacity to move’ that is the definition of its mobility in its Latin origin - and for them to spread across cultures and between peoples. Like other forms of play they allow the individual to perceive their existence through performance, through combining physical, sensory reactions with mental agility and strategic thinking. At their most successful they can produce a feeling of flow. Reflexively they allow an escape from the world as a means of re-defining it (including re-locating the individual within it). Board games speak to the mobility of people - physically, intellectually and spiritually. They help to reify and crystallise rituals and social orders whilst at the same time opening up a space for encounters that might change things. They are both of this world and allow movement away from it or the making of new worlds. Board games are both structured by and structure mobility. The next move is yours!

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TH1-03 Abstract 07
The Mystery of the Shield-Biting Warders. Reconstructions of Chess in Medieval Northern Europe

Author - Teichert, Matthias, Goettingen University, Goettingen, Germany (Presenting author)
Co-author(s) - Dufour, Jean-Yves, INRAP, Villeneuve, France (Presenting author)
Keywords: cultural transfer, mobility, play
Presentation Preference - Oral

The First object of this paper is to detect the route by which the game of chess entered Scandinavia and to roughly determine the timeframe in which this sweeping process took place. Drawing on theories put forward by erlöff scholarship I will set out to demonstrate that chess actually reached Scandinavia twice: one time via the East in the Viking Age, and a second time a slightly later date via the South and the West.

The paper’s second goal is to reveal how the two early Scandinavian chess versions and the autochthonous game of hnefatafl interacted in order to produce such marvellous artifacts like the Lewis Chessmen.

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TH1-03 Abstract 08
The attraction of the exotic - Whalebone gaming pieces from early medieval Scandinavia

Author - PhD student Henrius, Andreas, Uppsala University, Uppsala, Sweden (Presenting author)
Co-author(s) - Gustavsson, Rudolf, SAU, Societas Archaeologica Upsaliensis, Uppsala, Sweden
Keywords: gaming pieces, raw material, resource colonization
Presentation Preference - Oral
This paper concerns Scandinavian gaming pieces from the Vendel and Viking periods (c. 550-1050 CE). The main focus is on the raw materials used but also on questions of chronology, typology, and distribution. Gaming pieces can be made from a wide variety of exclusive or eye-catching materials, such as glass, amber, ivory, walrus tusk and horse teeth. Most commonly, however, gaming pieces are described as being made of unspecified bone or antler. A recently conducted study has made clear that a majority of these are in fact made from whalebone, which also could be considered to be an exotic and scarce product.

The aim of this paper is to shed some light on the vast number of gaming pieces in Swedish museums, and also to discuss what implications the study of the raw material has for our understanding of medieval gaming culture. There are also considerable implications for our understanding of the use of resources and the importance of coastal landscapes during the period in a broader sense. It is most probable that the whalebone gaming pieces were traded from the north Norwegian coast to large parts of central Sweden and beyond. The large geographical distribution of whalebone artefacts bears witness to developed international trading networks in Northern Europe, already during early medieval times.

The raw material used in gaming pieces can be seen in the light of a colonization of new landscapes in the search for new and exotic raw materials, which we would also like to address in the discussion.

TH1-03 Abstract 09

Early medieval Sandomierz Chess Set: confrontation of old and new excavations results

Author - master Stempin, Agnieszka, Pszarni Archaeological Museum, Poznań, Poland (Presenting author)

Keywords: Archaeology, Games, Chess, Objects

Presentation Preference - Oral

The chess defined as „Sandomierskie” were unearthed on the stand no 7 in Sandomerz on the Old Town Hill. According to the tradition passed over by Jan Długosz (polish chronicler: 1415-1480), this place is considered to be the oldest part of this town. From the year 1958 on through the period of 10 consecutive years systematic archeological works were carried out on some other part of the hill. On October 9, 1962 in the south-western corner of the homestead some unique find was uncovered, namely, an almost complete set of chess with only three pawns missing, made of antlers in the Arabic style, now known as “The Chess of Sandomerz”.

This definitely not only one of the most interesting discoveries of the Early Middle Ages chess pieces on the territory of Poland but also one of the most valuable ones of on the territory of the Early Middle Ages Europe. The area then examined, not widened due to the requirement of finishing the works, allowed to determine the place of the discovery as a small, modest half unburied. In the material gathered at that time the chess figures were the only such spectacular finds, others being ceramics from the 12th century.

Such a picture of the circumstances of finding The Chess of Sandomerz was dominating in the professional literature for long years constituting a source of many hypotheses and speculations on the reasons of finding the figures on such an unexpected site. The hut being the only dwelling place in this area did not belong to any settlement and was a phenomenon of its own difficult to be interpreted. It was supposed to be a poor half unburied of a small size in which two almost complete sets of chess figures from the Early Middle Ages were found. For over half a century the site of discovering the chess was not researched archeologically. Undertaking the verifying works in the year 2014 was connected with the willingness to recognize a wider scope of the problem of chronology and the space relations of the stand no 7 and to determine the context of the appearance of the Chess of Sandomerz in this area. During the two research seasons (2014-2015) many artefacts connected with the elite culture were registered within the area the hut occupied. The exclusive character of the items uncovered both in the hut with the chess and its neighbourhood seems to confirm the above mentioned interpretation of this context as an environment more like a manor house rather than an ordinary dwelling place. The discovery of a vast homestead or a manor house which was burnt down around the mid-13th century and which might have been the seat of the local elite was very surprising. This offers a new opportunity of interpreting the mysterious presence of The Chess of Sandomerz in this place.

TH1-03 Abstract 10

Medieval game pieces with a square base from Central Europe – interpretations

Author - Wlodzia, Ewa, Inowroclaw, Poland (Presenting author)

Keywords: board games, game pieces, medieval games

Presentation Preference - Poster

Game pieces in the shape of a low pyramid with a square or almost square base, with surfaces often ornamented or marked with punched or drilled dots and incline lines, are found in numerous archaeological sites in Central Europe. These small, plain objects, made mostly of bone, are dated between the 12th and 19th centuries and are generally identified as board game pieces, but it’s unknown how exactly and in which types of games they were used. The following poster presents new interpretations of their function based not only on their physical characteristics, but also on their archaeological context and on the current knowledge about medieval games.

TH1-04 Abstract 01

Close encounters. Setting a new research agenda to understand migration beyond explanatory models

Author - PhD Revello Lami, Martina, University of Amsterdam, Amsterdam, Netherlands (Presenting author)

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Keywords: Ethnic identity, Migration, Mobility

Presentation Preference – Oral

Although studies on mobility have been the focus of greater attention in archaeology over the past 150 years, they evolved in constant tension with those emphasising the notion of indigenous evolution. Consequently, the long-standing debates between ‘immoblist’ criticism and migration-driven theory inevitably affected the ways of thinking about the role of migration in the past, preventing the discipline from developing more elaborate interpretative frameworks. Moreover, such an approach to migration has not kept pace with the ever-growing and ever more sophisticated data produced by the innovative analytical tools commonly applied to archaeological research, which cannot be convincingly understood by applying polarising explanatory models. Clearly, investigating the archaeological record only to substantiate opposing arguments in favour or against migration is fundamentally misleading, and greatly reduces the potential of studying any populations’ movement.

In this paper, we argue in favour of a more open notion of mobility, which needs to be considered as a dynamic process and not only as a vector of material change. Migrations may be large-scale phenomena, taking place independently from local or individual agency, as well as more subtle types of demic spread, taking place on a small-scale and depending on individual agency. Likewise, the traces left behind by people on the move need to be addressed by combining different disciplines and analytical methods. The shift from generalising models to a multi-scalar notion of mobility brings on the table new questions and a new research agenda. By gathering a wide array of case studies, crossing...
TH1-04 Abstract 02
Changing world changing creativity?
Human mobility dynamics and late Paleolithic handicrafts

Author: Iovino, Maria Rosa, Istituto Italiano Paleontologia Umana, Rome, Italy (Presenting author)
Co-author(s): ZAMPETTI, D., Istituto Italiano Paleontologia Umana, Rome, Italy

Keywords: material imagination, mobility dynamics, traditions

Presentation Preference - Oral

Italy is a very peculiar area where to carry on research for past and also recent human migration events.
By interdisciplinary analysis on engraved and painted signs on stones of sites from Italian territory we try to reconsider people movement and human-environment interaction around 12,000-10,000 BP. The analysis of decorative technologies (e.g.: engraving, pitting, piercing, painting, sticking) helps to understand and to trace styles/traditions, methods and ability, the analysis of mineral and of organic materials used as decorative medium help to explore and to trace substance provenance and to better focus on what is a "local" tradition about the use of a substance and what is not.
In this paper, we mainly focus on sites from southern Italy (Puglia, Calabria and Sicily) in comparison with other sites from Italian territory and from wider Mediterranean and Alpine contexts, to discuss the insight of human creativity and perception and to evaluate human mobility dynamics in relationship with their potential original ethnicity, the raising of new creativity and the ways of making material imagination.

TH1-04 Abstract 03
Migration or Acculturation? The Mesolithic-Neolithic conundrum

Author: Templer, Michael, Neuchâtel University, Enges, Switzerland (Presenting author)

Keywords: Mesolithic, Neolithic, Transition

Presentation Preference - Oral

Archaeology is often governed by national boundaries or focussed on particular cultures. The evolution of the Neolithic is seen as a multifarious process occurring over many millennia in several formative zones of Anatolia, the Levant and Cyprus, and its study is only partially governed by national boundaries. The spread westward of the Neolithic is imperfectly understood, with numerous archaeologists attempting to draw the "big picture", often supplying or endorsing one or several "models" to explain the process.
The spread of the Neolithic into Western Anatolia and Europe occurred over several millennia, involving migrants as well as local players. The reasons for the spread are complex, as are the manner in which the spread occurred. In the Central Mediterranean Basin, the first archaeological evidence for Neolithic attributes goes back to 9000 BC in the Aegean Basin, and at the head of the Adriatic the Transition to the Neolithic is completed by 4500 BC in the Trentino-Alto Adige. Why so early and why so late? What happened in between in time and space? Who were the players? If archaeology is the means by which to write prehistoric history, we need to visualise the players in their environment, and try to understand their lifeways, motivations and evolution over many generations to pretend to grasp the extent of the Transition from a life lived in symbiosis with nature to one in which nature is controlled, and which, unknown to the players, heralded the legacy of explosive demographic growth.
In this paper we will present some of the possible reasons for the spread of the Neolithic, and how some of the autochthonous populations responded, using a few case studies from the Neolithic and Adriatic Basins. Sicily and the Balkans, from which we can glean an insight into the highly complex human behaviour and response, when faced with the phenomenon.

TH1-04 Abstract 04
Pioneer interactions. Contacts between Lake Onega and South-Eastern Finland during colonization

Author: Tarasov, Alexey, INVP KRC of RAS / ILLH KRC of RAS, Petrozavodsk, Russia (Presenting author)
Co-author(s): Manninen, Mikaik, University of Oulu, Museum of Cultural History, Department of Archaeology, Oulu, Norway

Keywords: Petrozavodsk, Russian Federation

Presentation Preference - Oral

Since the discovery of a row of Late Preboreal sites in Finland and the Ladoga Lake area during the last two decades, up to this moment the Lake Onega region and other eastern and northern parts of Karelia remained a "white spot" on the map of the earliest human colonization of Eastern Fennoscandia. The Late Preboreal habitation close to Lake Onega could be suspected, but was not supported by solid evidence. This evidence was obtained in 2015 after dating a number of calcined animal bones from Mesolithic sites located on the highest hypsometric positions on the northern shore of the Onega Lake. Two of the dates testify human presence in this area in the Late Preboreal and at the turn from the Preboreal to the Boreal period. These dates, as well as paleogeographical data, confirm that the Onega Lake area was also included in the early migrational processes in Eastern Fennoscandia.
Recent finds from the earliest Mesolithic site in Finland - Jokivarsi 1, which is located some 250 kilometers west of the western shore of Lake Onega, reveal one interesting aspect of the earliest colonization of the region. The excavation assemblage contains artefacts made of a rock most closely resembling lidite - a low grade metamorphosed silicidary sedimentary rock. In northeastern Europe deposits of this rare rock type can be found only on the north-western shores of Lake Onega in Russia. Investigation of these samples with the aid of a variety of petrological laboratory methods suggest an origin of this material in the Lake Onega lidite deposits.
Maintenance of contacts between the first colonizers of Eastern Fennoscandia with the southern core areas is evidenced by the presence of first artifacts in the majority of the earliest sites, and this aspect has already pointed out by many researchers. Our new findings show that resources of the recently inhabited territories were also involved in the flow of materials within the appearing interaction networks.
The paper was prepared with the support of the Russian Scientific Fund (grant 14-17-00766) and the North Karelia Fund of the Finnish Cultural Foundation.

TH1-04 Abstract 05
Keep on walking: Linearbandkeramik migrations beyond colonisation

Author: Dr. Hofmann, Daniela, Humburg University, Hamburg, Germany (Presenting author)

Keywords: LBK, migration, Neolithic

Presentation Preference - Oral

Archaeogenetic evidence has now established the importance of large-scale population movements in the spread of the central European Linearbandkeramik culture, while continued individual mobility (in terms of patriolny after marriage, or perhaps while herding cattle) is strongly suggested by isotopic analyses. What has not yet been fully explored is the possible continued importance of group mobility and migration after the initial phase of expansion. This paper argues that far from being a one-off event, movements of larger groups continued to be practiced. As a longer-term cultural behaviour, these migration events had a lasting impact on some aspects of LBK worldview. They could also form an alternative model of identity creation and social competition, helping to counter-balance rigid models of lineage status argued on the basis of isotopic evidence.

TH1-04 Abstract 06
Deciphering cords: a case study in Bulgarian Early Bronze Age

Author: Semmoto, Masaao, Ancient Orient Museum, Iseshima, Japan (Presenting author)

Keywords: Bulgaria, Early Bronze Age, Pottery with cord decoration

Presentation Preference - Oral

Pottery with cord decoration dated into the late 4th millennium BC to the 3rd millennium BC from the southeastern Europe has been regarded as one of the most representative components of Yamnaya cultural block, which was formed in the North Pontic-Caspian area (Malloy 1991, Harrison and Heyd 2007). While this kind of statements have been often made in terms of topics of
signs of migration in the megalithic graves of Western Sweden?

In this presentation, I deal with two points. The first is to make the integrated analysis in Typology and pottery provenance analysis of the northeastern Upper Thracian (South Bulgaria) as a case study. The second is to compare the pottery with cord decoration from the Upper Thracian with that from the eastern part of the Peninsula.

In conclusion, I point out two things in order to understand mobility of the bearer of the cord decoration. Firstly, I will demonstrate a different form of migration in the following stage after the introduction of the cord decoration into the northeastern Upper Thracian, which spread to the southeastern Upper Thracian, the western Upper Thracian and the northern Greece, where no Kurgans were erected. Secondly, the provenance of the cord decoration from the Upper Thracian was presumably connected with that from the eastern Romania, other than the real provenance area, supposedly the northeastern Pontic area.

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**TH1-04 Abstract 07**

**Signs of migration in the megalithic graves of Western Sweden?**

**Author:** Dr. Svensson, Emma, Uppsala University, Uppsala, Sweden (Presenting author)

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**Keywords:** ancient DNA, isotopes, Neolithic

**Presentation Preference:** Oral

During the Neolithic period in Scandinavia the Funnel Beaker complex gave way to the Battle Axe complex, which was later replaced by the more homogenous Late Neolithic complex. This culture produced the finest flint work in Scandinavian Prehistory and the last megalithic tombs.

Immigration from various regions has been proposed as an explanation for the geographical distribution of megalithic burial in western Sweden, another alternative is that the tombs were used by populations from all areas. However, osteological and archaeological research suggests that the graves were used by local family groups. Earlier research suggests that 25% of the migrants were women and children. In the Late Neolithic this number increased to almost 60%.

In the Late Neolithic, the number of graves in Falbygden increased from 44 in the middle Neolithic population buried in the megalithic tombs were of non-local birth. However, in the Late Neolithic there was an increased variation in diet, which can be seen in the Late Neolithic as the result of an increased human mobility.

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**TH1-04 Abstract 08**

**Adriatic Seafarers, Mobility and Social Practices at the End of the 3rd Millennium BCE**

**Author:** Dr. Gori, Maïa, University of Heidelberg, Heidelberg, Germany (Presenting author)

**Co-author(s):** Recchia, Giulia, University of Foggia, Foggia, Italy

**Keywords:** Adriatic, Early Bronze Age, Mobility

**Presentation Preference:** Oral

The diffusion of Cetina pottery is a well-recognized phenomenon interpreted as the material traces of migration of small groups on the move from the Dalmatian coast to Italy, Greece, and Malta. This migration is connected to the spread of pottery styles, funerary structures and practices, and prestige items. The so-called Cetina culture is, indeed, an indicator for mobility of the communities inhabiting eastern Mediterranean at the end of the 3rd millennium BCE. It is difficult to understand the exact nature of the “Cetina phenomenon” and the “directions” of these contacts, it is evident, however, that in the northeastern Mediterranean there existed a lively and “international” cultural network. Through the analysis of Cetina features and their contexts, this paper will explore different types of mobility and their influence on societal and cultural change.

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**TH1-04 Abstract 09**

**Invisible traces of the exogamous mobility in Late Bronze Age?**

**Author:** Skvor Jernejcic, Brina, Freie Universität Berlin, Berlin, Germany (Presenting author)

**Keywords:** cemeteries, exogamous mobility, Late Bronze culture

**Presentation Preference:** Oral

In the contribution we would like to present the results of a comparative analysis made on the grave-goods, attires and burial practices from Late Bronze Age cemeteries (BrD - Ha) in the western Danube basin. At the end of Middle and in the beginning of the Late Bronze Age, first cremated graves were documented in the western Alpine region (excluding the graves from Copper Age). We know of some other individual graves or smaller cemeteries containing several tens of graves. On this basis, we presume that these cemeteries were inhabited only for certain deceased members of particular Bronze Age communities. Additionally, the numerous simultaneous metal hoards from Slovenia, which are similar in composition as the rich male graves in the territory of northern Pannonia and Slovenia, could also be in part interpreted as testimonies to the movement. Cemeteries from Northern Carpathian area are in this period on the other hand more numerous and they contain some hundreds of graves.

According to our analysis we can state that the best analogies for several grave-goods from the cemetery in Ljubljana (Slovenia) can be found in the objects (specially urns) from distant archaeological sites, pertaining to Pištiny and Suciu de Sus culture in the northern Carpathian basin. These analogies, not only in grave-goods, but also in burial rite (cremation in an urn), grave stone constructions and social practices (hording of special objects in a special manner) point to very intensive, probably direct contacts between the sites regions of the Late Bronze Age. Taking into account that urns, which contained the ashes of the deceased, acted as representations of the human body, it is interesting to emphasize that in both research areas special types of vessels (jugs, cups) were use as urns only in female and children graves. Besides the similarities in the architectural finds between two research areas, we observe also the similarities in the stone grave constructions. Both in Ljubljana and in Radzovca a grave construction made out of one stone slab were documented. Likewise, the graves containing only cremated bones placed on the stone plate were found on both sites.

According to archaeological and anthropological data, intercultural contacts between the southwestern Alpine region and the northern Carpathian area can be observed mostly from the funerary artifacts found to female sex. Having in mind the fact that most of these object are totally absent in the territories between two research work areas (Transdanubia, Middle Danubian Umland Culture), we can argue, that we cannot interpret these similarities in the archaeological record as simple result or effect of exchange. According to the data, we can presume, that they reflect directions of the migration of individuals or smaller groups. Which were the motives and mechanisms for these intensive contacts in this particular period? How can we interpret this archaeological data - as traces of an exogamous mobility of women in Late Bronze Age?
TH1-04 Abstract 10
Greek Migration along the Ionian Coastline (Southern Italy)

Author - PhD Student Crudo, Maurizio, University of Groningen, Roma, Italy (Presenting author)
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Keywords: Cultural Encounters, Greek Colonization, Pottery

Presentation Preference - Oral

Since the beginning of times, people have relocated and migrated in search for better conditions, raw materials, or in order to obtain trade relations with foreign markets and cultures. For decades, ancient migrations were primarily explained based on the occurrence and quantities of imported artefacts, thus reaching interpretations that were aligned with the later ancient written sources.

This was the case with the Greek migrations in Southern Italy, often referred to as the 'Greek colonisation'. The present paper will focus on different waves of Greek migration in Southern Italy, taking the area of the Sibaritide as focal point, as well as on the methods for identifying these foreign ventures within the archaeological record.

From the end of the 9th century BC onwards, an Eubean presence is detectable in the western Mediterranean, including Northern Africa, Spain and Italy. The Eubeans settled in the Sibaritide, where Greek-indigenous coexistence emerged in the settlement of Timpepe della Motta in the first half of the 8th century BC. This coexistence entailed a shared and mixed cultural framework at the site, which is visible in the pottery production as well as in the production of textiles taking place within the sanctuary at the site. In late 8th century BC, the Sibaritide witnessed another Greek migration, that is, the Achaean migration, which most famously led to the founding of the socalled colony of Sybaris.

Based on analyses of knowhow and techniques within textile and pottery production, including anthropological as well as archaeometric analyses, the present paper seeks to shed light on the possibilities and limitations of these methods for identifying migration in the archaeological record.

TH1-04 Abstract 11
The viability of the invisibles: new evidence through technological studies and material analyses

Author - PhD candidate Raulino, Anna, La Trobe University, northcote, Australia (Presenting author)
Co-author(s) - Tyvett, Robert, University of South Florida, Tampa, United States of America
Co-author(s) - Vianello, Andrea, Independent Researcher, London, United Kingdom

Keywords: archaeometry, contacts, Iron Age

Presentation Preference - Oral

This study attempts to identify and analyse processes of cultural transformation in south-eastern Sicily when indigenous populations came into contact with ancient Greek settlers during the eighth and the seventh centuries B.C. Historically, it is a crucial moment for Sicily because it initiated an irreversible process of modification of the original indigenous culture. This event brought profound and significant changes to the material culture of the indigenous communities. Earlier studies explain this revolution in material culture as the result of “Hellenisation”, a seemingly one-way process of adopting the “superior” Greek culture, with little influence traveling in the opposite direction. However, recent socio-anthropological studies claim that such cultural interactions are more complex and can incorporate not only a two-way process but also enable the maintenance of distinct cultural and ethnic identities through the careful selection of cultural features. In order to develop more comprehensive models of cultural contacts and the relationships established between indigenous Sicilians and Greek during this specific period, a multi-disciplinary approach was adopted. This paper focuses on the archaeological analysis of materials discovered in southeastern of Sicily and in particular from the indigenous habitation site of Monte Finochietto. The site is a critically important case study to understand the complex relationship between indigenous Sicilians and Greek migrants. During the end of the eighth century BC new pottery types, evoking and imitating Greek models, appear in indigenous Sicilian graves as a consequence of these cultural changes. The archaeometric analysis allowed us to recognize different clay fabrics, to distinguish Greek imports, Sicilian copies and adapted designs as well as entirely new Sicilian forms. The archaeological method permits us to recognize different cultural material objects. The results will be extremely advantageous in tracking indigenous activities, adaptation and adoption and elucidate how the Greek immigration impacted Sicilian societies and local culture. The goal of this study is also to look beyond the cultural material, in order to understand the technology of pottery production and the possible coexistence of imported and local fabrics within a given chronological horizon. In this specific archaeological context, the application of archaeometry, in combination with the archaeological and anthropological methods, is a successful method to understand the social, ideological and material interactions of the indigenous Sicilian community of Monte Finochietto with the Greeks.

TH1-04 Abstract 12
Migration through artifacts – recent researches in the Prislop pass, Eastern Carpathians (Romania)

Author - Bobina, Bogdan, County Museum of History and Archaeology Maramures, Bistrita, Romania (Presenting author)
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Keywords: mountain passage, paleolithic, post Roman, trade route

Presentation Preference - Poster

Beginning with 2012 a region in the Eastern Carpathians of Northern Romania was systematically surveyed for the first time. The focus of this research is to, is to date, the study of the mountain passage ways between two historical regions, that of Maramureş and Bucovina. The field surveys carried since 2012 and their results so far indicate at least two major mountain passes, one through a glacial valley that reaches 1550 m a.s.l. in the Rodnei Mountains and the other one further north in the Maramureş Mountains. The archaeological finds, consisting of lithics and pottery, are confirming a human presence at these altitudes, from Paleolithic until the Roman period. Through the use of specific archaeological analyses the activity within the area will be presented as a search for raw materials by the prehistoric populations followed in the post-Roman period by the establishment of a trade route gateway between the two sides of the mountains.

TH1-04 Abstract 13
Origin and Development of Babals Stelae

Author - MA Jenik, Pawel, Antiquity of Southeastern Europe Research Centre University of Warsaw, Legionsvo, Poland (Presenting author)

Keywords: Kurgan, Nomads, Stele

Presentation Preference - Poster

Kurgan stele, also known as babas (Russian: камень деда, Polish baby kamienie; Kyrgyz: жашын) are anthropomorphic stone statues or slabs set atop, within or around kurgans (barrows/tumuli), in kurgan cemeteries or special sacred zones on the territory of the Eurasian Great Steppe and surrounding areas. This custom is in practice from the Eneolithic to almost Modern Times. The term babal came from a turkic word meaning “ancestor” or “grandfather”. The earlier examples of these statues are associated with Sredny Stog and Yamna (Pit Grave) cultures and dated to the 4th millennium BC. Although this custom existed incessantly on many various territories from the Eneolithic to Modern Times, however it was extremely popular in stephan culture, Turkic Kaganate and among Cumans (Кипчаки). Usually these objects were memorials honouring the dead, but there were some exceptions. For most periods kurgan stele represent mostly males, however in the Kuman Period female stele were very popular. Babals commonly depict warriors holding weapons and drinking horns or bowls. There might also depict so many other items like bails and tools. Probably from babals may derives other kinds of steles, for example: deer stones, Bahkali lion tombstones and stone rams and horses from Azerbaijan.

The purpose of my poster is the introduction to evolution and development of kurgan stele and show differentiation this kind of art and culture and the investigative methodology of babals.

TH1-04 Abstract 14
New research on animal production and herd management in Swiss and French Alpes during the Neolithic

Author - post docutrate Chiquet, Patricia, Museum d’histoire naturelle, Geneva, Switzerland (Presenting author)

Keywords: Alps, neolithic, pastoralism

Presentation Preference - Poster

This poster will present the first results of the zooarchaeological analysis of several neolithic settlements located in the upper part of the Rhone Valley in Switzerland and in the Northern French Alps and dated between 5500 and 2209 cal BC. The study of the bone remains shows that domestic animals, especially caprines are predominant in the swiss region examined here, even at the beginning of the Neolithic, while in the Northern French Alps, wild game appears to be more hunted. Taking into account the long term occupation of some settlements, animal production and herd management are explored to define the subsistence strategies of these neolithc communities and the possible movement of the herds to seasonal pastures. Through a comparison of these two regions, we try to gain a better understanding of the territorial and economic organisation of these alpine communities.
The Avellino event: a volcanic eruption and mass migration in South Lazio during the Bronze Age?

Author - Dr. Doorenbosch, Mariele, University of Leiden, Leiden, Netherlands (Presenting author)
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Co-author(s) - Van Leusen, M.H., University of Groningen, Groningen, Netherlands
Keywords: Avellino, Vesuvius, Italian Bronze Age, landscape reconstruction, palaeoecology, geology, archaeology
Presentation Preference - Poster

During the Early Bronze Age, a giant eruption of Mount Vesuvius (Italy) buried a flourishing landscape of villages and fields in the plains to the north and east of the volcano under more than a meter of ash. Inhabitants of the closest sites such as Nola (‘the Bronze Age Pompeii’) could barely escape with their lives. Italian archaeological research since the 1980s has conclusively shown that the population of the Campanian plain did not fully recover for several centuries after this so-called ‘Avellino Event’. Given the topography of central-southern Italy, the most likely refuge area will have been to the north, in the wetland coastal plains of Latium Vetus: the Fondi basin and the Pontine Plain. In these areas, long-standing Dutch research programs have recently been able to find the Avellino volcanic ash layer, which can be used as a chronological marker. This means that archaeological and palaeoecological observations of the necessary high chronological resolution and quality can be made to identify changes occurring immediately after the eruption. A joint research program between Groningen and Leiden universities, in collaboration with Italian geologists and archaeologists, aims to demonstrate and document any significant impacts that would result from the presence of the postulated Early Bronze Age refugee population in South Lazio. Because we feel that only the combination of different data can provide reliable answers, a careful design strategy has been built. This includes a detailed landscape and environmental reconstruction, by means of geological and palaeoecological corer, an archaeological investigation of the differences and similarities in ceramic typology between Latium Vetus and Campania, petrographic and isotope analysis. The first results of landscape reconstruction and potential excavation sites will be presented in the poster.

New monuments of Sintashta period in the Southern Pre-Ural as an indication of population migrations

Author - PhD Evgenyev, Andrey, Orenburg State Pedagogical University, Orenburg, Russian Federation (Presenting author)
Keywords: Late Bronze Age, Potapovka culture, Sintashta period
Presentation Preference - Poster

One of the most controversial problems of the boundary of the Late Bronze Age archaeology is interaction of the population during the Sintashta period. Sintashta culture was allocated on the monuments of South Ural (Chelyabinsk region), and the most well-studied in this region. The settlements (Arkaim, Sintashta, Ustye I, Kamenny Ambar, Kuyask, etc.) and burial grounds (Sintashta, Krivoe Ozero, Kamenny Ambar, Stepnoe VII, Bolshekaragansky etc.) are investigated here. In the steppes of the Southern Pre-Ural area (Orenburg region) monuments of Sintashta period are few. Meanwhile, the region is of interest in connection with a problem of population migrations, especially interaction between Sintashta and Potapovka cultures. In 1970-1990s Sintashta complexes were investigated in the burial grounds of New Kumak, Ishkinovka II, Gerasimovka II, Bularovo cemetery (Berezovaya mountain). New monuments of the beginning of 2nd millennium BC were studied in recent years by Orenburg archaeological expedition.

In 2012 the multilayered settlement Maloyuldashevo I was investigated. The materials of excavations contained the triple burial, accompanied by numerous metal implements and pottery. The funeral ceremony (not typical for the Late Bronze Age position of the buried, the subordination of the two forcibly sacrificed people to the “main” scelerus) reflects the interaction of different cultural traditions - Yamnaya and Catacomb cultures. Sintashta culture and monuments of the Potapovka type. Pottery has many analogies in the Sintashta ceramics. The original rectangular vessel is an indicator of preservation of Catacomb traditions in Sintashta society. Metal artifacts such as knife, bracelets, rings, awls, beads are typical for Sintashta culture.

The funeral ceremony and inventory of Maloyuldashevo complex are typical mainly for Sintashta culture, however there are signs of other cultural traditions. This is connected with the location of this complex in the intermediate area between Sintashta and Potapovka monuments. Most likely, one of the construction horizons of the Maloyuldashevo settlement belongs to the Sintashta period. This is supported by analogies with the settlements of the Sintashta-Petrovka period and the Sintashta pottery in the cultural layer of the settlement.
TH1-05 All that glitters is not gold: New approaches to sumptuous burials between Western Europe and the Eurasian Steppe

Saturday, 3 September 2016, 14:00-18:30
Faculty of Philosophy, Room 209
Author: Dr. Fernández-Götz, Manuel, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)
Co-author(s): Mr. Johnson, James, University of Chicago, Chicago, United States of America
Keywords: Sumptuous Burials, Identity, Power, Performance
Presentation Preference - Regular session

Ostentatious burials remain the primary means by which we understand socio-economic structures and elite/non-elite binary identity formations. Seemingly, such burials lend themselves to easier modes of quantification as well as qualification given their 'obvious' connections between numbers, types, and placement of grave goods as well as treatment and/or modification of the deceased individual's body with status. In addition, the focus of this session is to consider alternative theoretical frameworks and methodologies that have great potential to tease out more nuanced information regarding the mortuary practices from Western Europe to the Eurasian steppe. In particular, we are interested in combinations of vibrant theoretical frameworks and robust methodologies, including analyses such as isotopic, metallurgical, GIS-based, and multivariate statistics to name only a few. Ultimately, we seek not to necessarily overturn inferences regarding ostentatious burials and elite status. Rather we encourage session participants to more critically interrogate how these formulations are arrived at and what new information can be gleaned from burials and burial mounds that have already been excavated and analyzed.

TH1-05 Abstract 01
Is it gold that matters? The role of sumptuous burials of women in Bronze and Iron Age Europe

Author: Prof. Dr. Metzner-Nebelsiek, Carola, LMU Munich, Munich, Germany (Presenting author)
Keywords: sumptuous burials of women Bronze Age Iron Age
Presentation Preference - Oral

Ostentatious burials are often exclusively seen within a close typo-chronological framework in time-space related cultural units. Thus archaeologists often analyze sumptuous graves in relation to burials of seemingly lesser importance from the same cultural unit either in order to reconstruct social hierarchies or in order to distinguish specific cultural traits. In these traditional analyses of ostentatious burials female graves have played little or no role. Analyses which have dealt with female graves have dealt with female graves dating between the 2nd and first half of the 1st millennium BC have nearly concentrated on gender specific topics such as the importance of costumes in relationship to age-groups, regional identities and social standing. Sumptuous female graves are however rarely thematized systematically.

In this paper I will examine ostentatious graves of women in a wide chronological as well as geographical scope in order to ask under which conditions sumptuous female burials occur, how they relate to contemporary male burials in quantitative as well as qualitative aspects and why in some cases they seem to be absent in the archaeological record? I will focus on cases ranging from the Early Bronze Age in Eastern and Central Europe, the late Bronze Age in Central Europe to the early Iron Age between the so-called Western Hallstatt Culture and the Scythians princely graves of the east European steppes.

TH1-05 Abstract 02
Scarcity and dearness: an obvious link? Elite’s graves (1300-300 BC) in north-alpine world

Author: Dr. Trémaud, Caroline, UMR 6215 Trajectoires, LYON, France (Presenting author)
Keywords: Bronze and Iron Ages, Hierarchies, Methods
Presentation Preference - Oral

During the Late Bronze Age to La Tène B, in north-alpine societies, we see a multiplication of elite’s graves. These ones, characterized by an impressive funerary hoarding and so called “princely graves” ask a lot of questions about hierarchisation, status of those individuals and social structures. These questions are supported by a key issue: how deal with the funerary data to express the wealth notion? Such an approach needs to take into account the difficulties to estimate values. In preliterate societies, emic approach is not possible; the etic approach is the only one. Thus we need to develop methodological tools in order to class graves against each other.

The focus of my presentation will be to present a methodology developed during my PhD of ranking funerary data, so as to detect social structures. This work is based on a database from more than 1000 graves with 721 elite’s graves, from Late Bronze Age to La Tène B, spread over north-eastern France, southern Germany and Bohemia.

TH1-05 Abstract 03
(Inter)regional identities - performance in EIA sumptuous burials of the Low Countries

Author: Dr. Schumann, Robert, University of Hamburg, Hamburg, Germany (Presenting author)
Co-author(s): Van der Vaart-Verschoof, Sasja, Leiden University, Leiden, Netherlands
Keywords: Early Iron Age, Low Countries, Sumptuous Graves
Presentation Preference - Oral

The emergence of the lavish burials known as Hallstatt chieftains’ or princely graves reflects one of the most noteworthy developments in Early Iron Age Europe. These elaborate elite burials of the Hallstatt C period contain beautiful weaponry, bronze vessels and elaborately decorated wagons and horse-gear and are found primarily in Southern Germany and Bohemia. There is, however, also a small cluster of these burials in the Low Countries. These Dutch and Belgian burials contain many of the same objects, all imports from the Hallstatt Culture in Central Europe. New finds and research, including the comprehensive study of all the Dutch and Belgian burials offer new insights into these graves. The elite burials of the Low Countries not only contain far more Central European ‘princely’ paraphernalia than thought, they also appear to contain smaller assemblages, challenging the established interpretation of these burials being feebile derivatives. These imported items, however, appear to have been re-contextualized in a regionally specific manner through a destructive buria services that involved the transformation of both the dead and their grave goods through fire, manipulation and fragmentation.

While the burial rituals seem to differ between the Hallstatt Culture and the Low Countries, detailed examination of rituals in both areas shows similarities as well. The objects interred in these sumptuous graves of the early Hallstatt Period in the Low Countries and those of the early Hallstatt Culture in southern Germany, western Austria and Bohemia also testify large-scale contacts as well as a potentially increasing social differentiation (or at least its representation in burials). The relationships that must have existed between these and other areas in the early Hallstatt period can be addressed and considered on a large scale. In this paper we present the possibilities of analyses by looking at the ostentatious burials from the Low Countries both from the regional and the international perspective, an approach that leads to a much better understanding of the performance of those exceptional burials.

TH1-05 Abstract 04
New Approaches to the Princely Burials of the Hallstatt Culture of the Heuneburg (Southwest Germany)

Author: Dipl.-Rest. Eisinger-Rist, Nicole, Landesamt für Denkmalpflege, Esslingen, Germany (Presenting author)
Co-author(s): Krause, Drh, Landesamt für Denkmalpflege, Esslingen, Germany
Keywords: Burials of change, modern excavation, Sumptuous Burial
Presentation Preference - Oral

The Heuneburg on the upper Danube is among the best-researched (intensively investigated) settlement centres of the Hallstatt culture in Central Europe. While the research regarding the settlement structures of the Heuneburg and the surrounding area has been a key element in German Early Iron Age research since the 1950s, controversy exploration of the apparent princely graves has been relatively neglected in the last 70 years. The targeted excavation of a richly endowed child’s burial site, and of a site in which princesses were interred, south of the Heuneburg, has given powerful testimony to the fragmentary state of our knowledge of the sociopolitical processes and structures of the 6th century BC. The presentation offers an exemplary look into the manner in which a...
The Gravettian is a Not-So-Private Place: Elite Multiple Burials in Early Iron Age West-Central Europe

Author: Prof. Arnold, Bettina, University of Wisconsin-Milwaukee, Milwaukee, WI, United States of America
Co-author(s): Fernandez Goetz, Manuel, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)

Keywords: Iron Age; mortuary analysis, multiple burials

Presentation Preference - Oral

In his 1984 survey of multiple burials in prehistoric Europe Claus Oestiger noted that burials containing more than one individual are frequent not only in single large chamber graves. The sample of multiple burials has expanded significantly in the intervening years and it may be time to revisit this mortuary category in light of new evidence. While most multiple burials contain two adults, often a female and a male, male/female, female/female and male/child or female/child combinations are also known. These configurations have traditionally been interpreted as reflecting familial relationships but recently excavated burials indicate that more complex associations for this category of burial are likely. We argue that the early Iron Age elite multiple burial category should be re-evaluated with reference to ethnographic analogy, archaeological evidence from other areas of western central Europe, and recent burials excavated in the vicinity of the early Iron Age Hellenistic period.

Discernable Traces in Textile Archaeology

Author: Dr. Band-Burgess, Johanna, Landesamt für Denkmalpflege, Esslingen, Germany (Presenting author)

Keywords: mortuary ceramics, princely grave Hochdorf-Eberdingen, Textile Archaeology

Presentation Preference - Oral

The uniqueness of the late Hallstatt-period textile assemblage from the princely grave at Eberdingen-Hochdorf (SW-Germany) is not limited to its highlighting textile manufacturing as an economic focus in this region, providing differentiated insights into burial customs, the sequences of mortuary ceremonies or insights into concepts about the afterlife. It is relevant that this finds assemblage demonstrates that textiles can only function as indicators of socio-economic structures when they are considered within their archaeological context. This means that conclusions, based on isolated observations of details of manufacturing technique but disregarding the context, remain of limited value with regard to contents and may even be questionable. Deriving from the function of the textiles in the grave the question is not only for what and with which intention this function was associated, but also whether it is at all sensible to distinguish between burial textiles and the textiles of the living.

Barbarian chief’s “secret” burials in the forest-steppe zone of Eastern Europe

Author: Dr. Shcheglova, Olga, Institute for the History of the Material Culture, St. Petersburg, Russian Federation (Presenting author)

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Keywords: burials, prestigious gold objects, Great Migration period, sumptuous complexes, kings and military leaders

Presentation Preference - Oral

By the beginning of the Great Migration period Chernyakhov archaeological culture (its last stage) was spread in the left bank of the Dnieper in forest-steppe zone. At the same time (periods D1 and D2 European chronology – 360 / 370-440 / 450’s AD) on the same area occur several extremely rich sumptuous complexes consisting of prestigious gold objects (brooches, bracelets, neck-rings), the Byzantine silverware production, gold-embroidered garments, ceremonial weapons and horse harness. Findings of individual objects belonging to a prestigious culture of the time are known too. These complexes are not associated with burial grounds of Chernyakhov culture. They were found by chance and were considered hoards. Only one of them (Beloy Kamenets) was published by L.A. Matsulevich in 1934. The study how complexes have been discovered reveals that they are the burials. In Beloy Kamenets burial was in a stone crypt, built at the base of a high bank of a creek, which flows into the river Dnieper. Mapping of all finds indicates the exclusive relationship with the sources of large creeks flowing in deep canyons and at the same time associated with the watersheds of river systems. Discussed sumptuous complexes are very different from the burials of the Chernyakhov culture, even at its highest level examples. There are simple common explanations for this difference: 1. “Chronological”, when the sumptuous burials attributed to later Hun period (the period D3, ie, 450-470 / 480’s AD), when the Chernyakhov culture no longer exist. 2. “Ethnic.” Both of these explanations are not satisfactory: 1. Late burials at Chernyakhov cemeteries in the area between the Dnieper and Don rivers dated to stages D1 and D2 of European chronology. The presence of glass cups (as set for the feast) is a feature that distinguishes prestigious burial of ordinary cemeteries. 2. There are no grounds for attributing elite single burials to the Huns neither by ritual, nor by the inventory. Prestigious items belong to a common in Hunnic time polychrome decorations. Rather we can speak about a direct link with the Late Antique Bosporus whence come the closest analogues of prestigious weapons, harness and silver vessels. Discussed finds belong to the common European horizon of burials of the nobility, the leaders of the barbarian kingdoms, which arose at the beginning of the Great Migration period on the periphery of the ancient world. Often death caught up with kings and military leaders of the Great Migrations in the territory and the environment in which they had no historical roots, nor stable relations. Their tombs and grave structures are unlikely to be perceived as a place of worship and a landmark of the traditional movement. Perhaps this explains the absence of grave structures and the great efforts spent on to hide the ordinary burials of high-level persons, mortuary remains, beyond the ordinary general cemetery in protected, perhaps a sacred place. The exceptional volume and value of inventory corresponds to the rank of the deceased in his lifetime. The concept of “center of power” is applicable to the single “princes” and “military chiefs” burials.

Commoners and Elites in Southeast Kazakhstan: Kurgans and Settlements of the Iron Age society

Author: Dr. Chang, Claudia, Sweet Briar College, Sweet Briar, United States of America (Presenting author)

Co-author(s): - Tourtellotte, Penny, Sweet Briar College, Sweet Briar, United States of America

Presentation Preference - Oral

The spatial distribution of Iron Age kurgan and settlement sites from the Talgar alluvial fan (ca. 550 sq km) derived from survey reconnaissance and Soviet period site inventories indicates the presence of both commoner graves and elite kurgans burials. The GIS database of the Talgar sites also includes valuable information such as the natural hydrological system, dated geological terraces, and other important topographic features. Our goal is to model a socio-natural system that describes the Iron Age socio-economic, agro-pastoral system and its demographic components. In addition to understanding the relationship between the natural-physical landscape and a mortuary and settlement landscape, we also wish to set the foundation for understanding social hierarchy and the nature of commoner-elite relations.

This mortuary landscape, often robbed in antiquity and destroyed by Soviet agriculture, lacks information on individual burial inventories or skeletal material. Therefore our model relies upon kurgan size dimensions, locations, and density counts in order to model the ancient demography of the Talgar region and its surrounding environs. Future research in Talgar and neighboring alluvial fans will test demographic models for: (1) population pressure on farming and herding resources; (2) territorial boundaries that defined socio-political units within nomadic confederacies; and (3) the rise of social hierarchy within circumscribed regions such as the Talgar fan and its surrounding areas.

By focusing upon landscape features, burial mounds and graves as demographic indicators, new approaches can be developed for modeling changing social landscapes across a branch of the Silk route. This circumscribed region can serve as the first step for building a regional settlement system that incorporates demography, social hierarchy, political organization of territories, and intervening and ritual landscapes that cross-cut diverse regions through an aesthetic known as ‘animal-style’ art.

Miniaturization in the Production of Funerary Aesthetics in the Pontic Iron Age, ca. 600 - 300 BC

Author: Dr. Johnson, James, University of Chicago, Chicago, United States of America (Presenting author)

Keywords: Aesthetics, Burials, Iron Age

Presentation Preference - Oral

Funerary practices, including processions, construction of burial mounds, and the deposition of bodies and grave goods, are the primary means by which Iron Age social structure continues to be investigated and inferred. However, the scholarly focus on single massive burial mounds and the amount of interest grave goods, such as found at Alexandria or Sokolka in present-day south-central Ukraine, skew our sense of the importance of the ‘produced’ nature of funerary performance and aesthetics. In favor of static (and more easily quantifiable) monumental and ostentatious displays, few studies of Iron Age mortuary practices critically explore how a different approach utilizing the lens of production (in a performative/theatrical sense) might highlight often hidden political facets of burial in Iron Age contexts, as well as more broadly.

Several scholars (Stearns 2005) have noted of the ‘remarkable’ elements of identification chosen to be iconic of distinct periods and events assigned to individuals to demonstrate how burial arts are acted stepped in political intentionality and power relations. I contend that funerary performances, including audience participation, were miniaturized sensibly, and perhaps
Interpreting the Archaeological Record

TH1-05 Abstract 10

The Kurgans of Scythian Nobility in the Eurasian Steppes

Author - Dr. Habil. Ochir-Goryeva, Maria, Institute of archaeology Tashkent academy of sciences, Kazan, Russian Federation (Presenting author)

Keywords: Eurasia, kurgan, Scythian epoch, nobility

Presentation Preference - Oral

Several thousands of burial sites of the Eurasian steppes dating to the Scythian epoch are associated with a number of archeological cultures of the Scythian type. Their funeral rite has been examined in a number of special papers and monographs, which were largely based on a comparative study of kurgans between each other in terms of their particular parameters. The present paper proceeds from a comparative study of all graves and other elements within one and the same mound in terms of their depth and arrangement to other, as well as in terms of their orientation, according to the cardinal points, on the mound map, i.e. their planigraphy. To my knowledge, this is the first attempt of this kind. The undertaken analysis of the planigraphy of the kurgans is based on the data concerning every component of a mound earthwork such as walls, tunnels, bridges, stone embankments, etc., as well as every grave of one and the same kurgan, including central and secondary burials, horse interments and those of servants, servants and human sacrifices. Such complex earthwork structures, as well as numerous central and secondary burials are to be found only in the case of kurgans of the royal class, hence these are of major importance for planigraphical analysis.The graves located within the mounds have been analyzed to produce a number of their arrangement patterns with respect to the spatial representation of kinship and family hierarchy of the Scythian society and to their system of geographical orientation in terms of cardinal points. Importantly, the regional differences on a spatial pattern shown on the kurgan planigraphical profiles seem to be associated with the specific spatial arrangement of the entire burial constructions in terms of the cardinal points. Moreover, if these are taken into consideration, it is no longer possible to maintain the idea of the Scythian-Siberian unity of the archeological cultures of the region, where in fact one deals with two distinct cultural communities. Also, as the present work has shown, there is a logical association between the spatial arrangement of the kurgans of the elite and the ideas the ancient populations had about the location of the world of the dead, as well as their geographical worldview, which belongs to the basic conceptualizations of every ethnic group and finds reflection in archeological cultures as well.

TH1-05 Abstract 11

On the Edge: The Politics of Death at the Ends of the Silk Road, c. 100 CE

Author - Prof. Linduff Kathryn, University of Pittsburgh, Pittsburgh, PA, United States of America (Presenting author)

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Keywords: borderlands, Eurasia, Silk Road

Presentation Preference - Oral

Much has been made of the social and economic exchanges across the Silk Road, from Afghanistan in the west and China in the East, in the late first and early second millennium CE. Literary sources at both ends of the route document impressions of the ‘other’ as different from themselves – the residents of dominant state level societies. Material remains certify that the exchange was significant economically, but also culturally. Surely the most visible evidence of the value of that interaction was captured in the movement of specific objects, where material evidence exists to the local region surrounding and shreded the elite. This paper will consider what message the assorted choice of non-local or non-locally inspired grave deposits, arranged in the first millennium CE by looking closely at two assemblages, one in Afghanistan and one in China. Across Eurasia at this time foreign imagery, technologies and mortuary practices and use of artifacts derived from all sectors of that far-flung exchange network and we shall argue that this denotes and documents a cosmopolitan attitude about displaying one’s identity at death. More no telling of the eclectic and intercultural character of those expressions were the grave goods deposited in the six excavated tombs at Tillya Tepe, Afghanistan, found in a location that could be characterized as bordering on several powerful groups. Materials in those tombs connect imagery from the Near East, Hellenistic Central Asia, southwest Asia, present-day India and China.

Granulation, inlay and lostwax/lost wax technologies were imported into the region from Western Asia and China. At the far eastern edge of this indirect traffic of goods and technologies, in the later Han Dynasty Protectorate of the Western Regions, another set of burial, known from the excavations of Qushan, and particularly in the tomb of Qishan, at Baise, Xinjiang, display a similar mixture of goods and practices. There artifacts included gold appliques and ornaments with granulation and loops that made clear western Asian connections as well as a preference for more easterly burial practices and items from dynastic China.

The comparison of these two settings will document the preference for exotic typical of borderlands, especially in times of expansion, political ambition and unrest. Bearing in mind that the choice of materials for one’s tomb is deliberate and not incidental, we argue that the individuals buried were probably lesser leaders and their partners with some authority and that their tombs represent the unequal distribution of power. They were members of communities bordered by larger, more stable polities, making the politics of frontiers an important framework within which to understand these assemblages.

TH1-05 Abstract 12

Relative Chronology and Statistics of Bronze Age Cemeteries in the Southern Urals (Ural-Kazak steppe)

Author - Schreiber, Finn, University Berlin, Berlin, Germany (Presenting author)

Co-author(s) - Usmanova, Emma, Karaganda State University, Kazakhstan

Keywords - Bronze Age, Eurasia, Multivariate Statistics

Presentation Preference - Poster

During the EAA meeting in Vlnius I would like to present a poster from my PhD thesis, which I am currently working on. My PhD project is on the chronology and dynamics of Bronze Age cemeteries in the Southern Urals (Russia/Kazakhstan). For establishing a relative chronology, mainly based on ceramics, I use statistical tools like seriation and correspondence analysis on a selection of archaeological burial grounds. The sites belong to different cultural complexes, like Abashevo, Sintashta and Andronovo and are dated to the Middle and Late Bronze Age.

My poster is about the results of multivariate statistical methods used in archaeology to establish a relative chronology for cemeteries, which I demonstrated here from some examples from my current investigations. Information will be provided for scientists without statistical experience. There is also brief information on the geographical and cultural background of these sites. The poster allows that the multivariate statistics can lead to a more detailed understanding of the development and dynamics in Eurasian Bronze Age funeral archaeology and to a better understanding of cultural and social differences.

TH1-05 Abstract 13

Origin of the Polychrome Style Jewellery

Author - MA Janik, Paweł, Antiquity of Southeastern Europe Research Centre University of Warsaw, Legionowo, Poland (Presenting author)

Keywords: Humn, Migration Period, polychrome

Presentation Preference - Poster

One of the most characteristic element of the humnic culture of the Migration Period is the polychrome style jewellery. In this style the surfaces of gold or gilded objects were decorated with precious or semi-precious stones (like almandines, red garnets, carnelians) or pieces of glass, which usually were red. These ornamental elements were set within strips of gold foil, often surrounded with granulation or filigree. There was another version of this style called cloisonnè in which the glass or gemstones were set in compartments of soldered strips of metal foil, separated with wire, over a strip of metal foil. The polychrome style is used in ornamenting dress accessories, horse equipment, diadems, weapons, jewellery and other things. Many researchers have divergent opinions about provenance of this jewellery style. According to popular opinion, the polychrome style was not typical only for European Barbaricum like Carpathian Basin, West Europe or Black Sea region, but it existed also in Central Asia, north-west modern China and even Korean Peninsula. Moreover the polychrome style not occurred first time during the Migration Period, but much earlier. There are also some polychrome decorated artefacts from East Europe (Sarmatian culture) and Central Asia (Baku-Itshan culture and Kerkelt culture) dated to period between 17th century B.C. and 11th century B.C. These artefacts are very similar to polychrome style ornamented objects from the Migration Period. Some scholars (Arhemius 1971, 1988) claim that “barbaric” peoples had not such technology and knowledge to shape and stick gemstones and glass pieces to a gold foil. Other scholars (Schmider 2002: 237-58) affirm that polychrome style evolved from the hellenic jewellery traditions. The problem is that there are some polychrome-decorated artefacts from Iran and central Asia dated to Achaemenid Period! My poster consist of my investigations of the origin and development of the polychrome style jewellery.
Breaking and making the ancestors. Making sense of the inconspicuous 99% of urnfield graves

Author - Louwen, Arjan, Leiden University, Leiden, Netherlands (Presenting author)
Keywords: Personhood, Selection and Transformation, Urnfield graves
Presentation Preference - Poster

The many thousands of cremation graves of the urnfield period (Late Bronze Age/Early Iron Age) are perhaps the most prominent funerary legacy of prehistory in Northwest Europe. In the Low Countries alone more than 600 urnfield locations are known to us today.

The Hallstatt C chieftain’s graves, famous for their monumental burial mounds and lavish grave goods, belong to this legacy as well. But these make up even less than 1% of the total of urnfield graves. The other 99% are anything but spectacular: mostly they consist of no more than a handful of cremated bones and occasionally a small vessel or broken metal object. An urn does not even seem to have been a necessity. The funerary ritual of the urnfield period is therefore often regarded as simple and uncomplicated.

But are the 99% of urnfield graves really that different from the conspicuous chieftain’s graves? These chieftain’s graves tell us interesting stories about how people thought about their famous dead as ancestors: how these needed to be equipped with objects and which part of their complex social world was represented in the ‘after life’. Can similar stories be found with the inconspicuous 99% of urnfield graves as well? This is in short the question that is central to my PhD project.

Recent studies of cremated bones from urnfield graves already show clues of deliberate incomplete interment of human bodies. The objects on their turn show signs of careful transformation by burning, bending and breaking. Apparently there is indeed more to the urnfield graves after all.

By looking into the compositions of a large corpus of urnfield graves from the Netherlands, Belgium and Germany this study hopes to unravel the ideas about the dissolution and constitution of personhood at death as reflected in the urnfield graves. It will do so by mapping (a) the selection of objects and (b) the treatment of bones and objects prior to burial, (c) the arrangement of bones and objects within a grave and finally (d) the positioning of a grave in relation to other graves.

In this paper I will discuss some preliminary thoughts and present the first results of my research.
Vanity or Hygiene? Combs and mirror frames in the Vilnius Lower Castle

Author: Eglė Master Stankevičiūtė

Keywords: Archaeology, History of hygiene, Late medieval period

Presentation Preference: Oral

The complex of Vilnius Castles consists of the Upper Castle on a hill and the Lower Castle located in a valley at the foot of the Castle Hill. The cultural layer of the Lower Castle territory has been accumulating since the 13th century and is 8 meters thick in deepest places. The late medieval layers at the bottom are saturated with ground water and are rich with preserved organic artifacts and wooden infrastructure objects.

Over 3000 wooden or rush composite artifacts were found while investigating the territory of Vilnius Lower Castle. The findings which are conditionally attributed to hygiene segment compose small part of this collection and encompass combs and mirror frames. During the investigation 23 combs and 17 mirror frames were found, as well as 7 findings related with their production: blanks and wastes. These artifacts represent the period of the 14th - 16th centuries. The majority of combs are made of boxwood (Buxus sempervirens L.) but two items made of Rosaceae (subtribe Malhiae) wood were also determined by the wood anatomy analysis. The combs are rather uniform, double-sided, rectangular with lenticul profile and quite simply decorated.

The mirror frames are round-shaped with a round socket for a reflective plate. The majority of 9 frames are turned from softwood planks. One frame is made of pine (Pinus sylvestris L.), two – of spruce (Picea abies (L.) H. Karst) and three – from the wood of fir (Abies alba Mill.), which is not native in Lithuania. One mirror frame had two sockets on opposite surfaces and was made of a cross-section of lime (Tilia sp.) round-wood. This frame was decorated with carbon-black triangles. No traces of reflecting plates were found in any case but adhesive paste made of chalk and animal glue was detected in three frames. Fragments of tin used for decoration and also for undefined purpose were found. The specific production technology and the selection of material indicate that combs and at least a part of mirror frames could be imported.

Both combs and mirror frames are not massive finds in medieval old towns. In the Vilnius Castle the ratio of mirrors to combs is quite high as compared with other European archaeological sites. Mirrors and combs were used for beauty and personal hygiene. Being luxury goods they showed the social status of a person too. Perhaps the proportions of these items were influenced by Christian views of the prevalence of vanity in certain territories is coherent with the liturgical rites or rules of some monastic orders, the mirrors have been considered the symbol of vanity for a long time.

Tableware in the Vilnius Lower Castle: function, significance and evolution

Author: PhD student, Aivarasrautė-Pačiūnaitė, Skaitė, Vilnius University, Vilnius, Lithuania (Presenting author)

Keywords: dining, tableware, Vilnius Lower Castle

Presentation Preference: Oral

Recent research has continually been focused on the feasts and dining of the Middle Ages. Significant attention has been given to the types of food that was consumed during medieval times by different social classes of the time as well as the reconstruction of medieval recipes. Although tableware plays an integral part in feasts and dining culture, its exact development, function and importance to the different social classes and cultures has mostly been overlooked in these studies. The territory of Vilnius Lower Castle is chosen for the present study as it played a significant role during the late medieval period of the Lithuanian-Polish Commonwealth. Moreover, the territory distinguishes itself with continuous chronological records, dating back to the first mention of Lithuania as a state. The Palace of the Grand Dukes of Lithuania played a central role in this area as it was the residence of the grand dukes of Lithuania and the kings of Poland. Other buildings in order of importance were the Bishop’s Palace and the Cathedral, as well as the Arsenal and barracks, houses of nobles and ordinary townspeople. Therefore the entire territory of Vilnius Lower Castle reflects the lifestyle of the grand dukes, nobles, nobility, clergy and citizens, as well as their connections with Western cultures.

An analysis of function, significance and evolution of the tableware found in the Vilnius Lower Castle is presented in this paper. The aim is to explain the table culture and dining traditions through the investigation of the available archaeological and historical sources.

Iron nails of cultural layers from Klaipeda castle: a functional aspect

Author: Master Stankevičiūtė, Eglė, Palanga Resort Museum, Palanga, Lithuania (Presenting author)

Keywords: Iron nails, Klaipeda castle, Medieval

Presentation Preference: Oral

This study is dedicated to introduce the auditor with currently in Lithuanian archaeology not widely analysed archaeological findings – iron nails. In 2014, during archaeological excavations of Klaipeda castle, more than 13 000 units of nails and their fragments were collected, which, according to cultural layers, corresponds with Medieval and Modern ages of Klaipeda castle. The biggest collections of these artefacts not only in the eastern Baltic area, but also one of the biggest in the region of northern Europe. Based on this vast amount of archaeological material typology of iron nails were compiled, which resulted discussions about functionality of separate types of nails.

This study focuses on during archaeological excavations in year 2014 in Klaipeda castle obtained iron nails types function, their adaptability in the old Klaipeda city constructions and the mode of life. Latter research resulted more data about Medieval and Modern ages of Klaipeda castle, and also city historical development.
This presentation reports on on-going interpretive work following three months of excavations at four Medieval castle sites in Post Medieval Archaeology in Azerbaijan, Medieval Agsu Town, the perspectives of archaeological study of Shusha and Shaki cities were learnt as well. Excavations at four Medieval castle sites in Medieval Agsu Town since 2010 March made valid post medieval archaeology. Medieval Agsu town was the largest city of Medieval Agsu Town since 2010 March made valid post medieval archaeology. Medieval Agsu town was the largest city of Azerbaijan for the number of population and the area capacity in post medieval age. The town which was built in 1735 by Nader Shah covered 40 hectare area. The town exposed to attacks and had been capital of Shirvan Khanate. On March, 2010 Agsu Archaeological Expedition of ANAS Institute of Archaeology and Ethnography conducted excavations in Medieval Agsu Town under guidance of Professor Qafar Jabiyev and PhD Fariz Khalilli in initiative and with support of MIRAS Social Organization. During archaeological explorations for three years till 2012-December 1.5 hectare space was studied, and fortress walls, handicraft estates, houses, mosque, bath-complex, ice-house, stores, water and sewerage lines were revealed. Over 8000 gold, silver, copper, pottery, glassware, stone and bones were inventorized being found from 5 excavation sites; a part handed to museums and kept in Medieval Agsu Town Archaeological Tourism Complex. Along with Medieval Agsu Town, the perspectives of archaeological study of Shusha and Shaki cities were learnt as well.

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**TH1-06 Abstract 09**

**Post Medieval Archaeology in Azerbaijan**

**Author:** PhD Khalilli, Fariz, MIRAS Social Organization, Agsu, Azerbaijan (Presenting author)

**Keywords:** Archaeology, Azerbaijan, Post Medieval

**Presentation Preference:** Poster

The presentation reports on on-going interpretive work following three months of excavations at four Medieval castle sites in the context of the living, working castle environment.

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**TH1-07 Abstract 01**

**Introduction. The selective deposition of metalwork**

**Author:** professor Fontijn, David, Faculty of Archaeology, University of Leiden, Leiden, Netherlands (Presenting author)

**Keywords:** Bronze Age, deposition, metalwork

**Presentation Preference:** Oral

One of the intriguing things about the way objects become part of the archaeological record is that this often happened in a structured, patterned manner. This is particularly clear for metalwork from Bronze Age Europe. Can we make sense of this sorts of practices, and if so, how? This paper will introduce the main issues at stake, as well as the pitfalls, uncertainties and major challenges. It will bring us towards general concerns relating to both a renewed emphasis on site formation processes, as well as discuss the postulate of human behavior as being meaningful.

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**TH1-07 Abstract 02**

**Object deposition in Central Norway c. 2350-500**

**Author:** Phd Henriksen, Merete, Norwegian University of Science and Technology, Trondheim, Norway (Presenting author)

**Keywords:** Late Neolithic, Bronze Age, Object deposition, Central Norway

**Presentation Preference:** Oral

Object deposition, mainly in wetland environments such as bogs and lakes was practiced in Central Norway throughout the Late Neolithic and the Bronze Age (c. 2350-500 BC). In the Bronze Age, it was one of the northernmost regions in Europe where the deposition of metal work took place. However, although bronzes constitute a significant amount of the total number of objects deposited, the group as a whole is characterized by a variation in objects and materials and includes objects made of birch bark, amber, flint and wood alongside objects of bronze and gold.

Among these finds we find a well-preserved wooden stool with Bronze Age carvings from Høstad outside Trondheim, found together with wooden platters and cups probably used in a ritual meal. Although there are differences in how the various objects were treated and deposited, they all seem to follow the same distribution in time, with significant peaks in the late Neolithic/Early Bronze Age (c. 2350-c. 1500 BC) and at the end of the Bronze Age (c. 900-500 BC). Thus, they seem to represent related practices.
Taming the Might of Bronze – Localisation of Bronze-Related Ritual Practises in Bronze Age Finland

**Author:** MA Saipio, Jarkko, University of Helsinki, Helsinki, Finland (Presenting author)

**Keywords:** Bronze Age, Fennoscandia, Ritual archaeology, Structured deposition

**Presentation Preference:** Oral

The area of present-day Finland was a crossroads of Scandinavian and Russian bronze networks throughout the local Bronze Age (1900/1800–500 BCE). Even though the archaeological assemblage of Bronze Age bronze artefacts is not abundant in the area (numbering less than 200 specimens), relatively well-established relations to eastern and western bronze centres are indicated by both imported bronze objects (predominantly of Scandinavian origin) and local casting of Russian bronze artefact types.

Interestingly, while many of the bronze object types encountered in Finland were obviously connected with long-distance networks, their deposition patterns appear highly localised even within the area of Finland. Celts and daggers seem to have been especially prone to change their roles when travelling between eastern and western or southern and northern Finland. Such regional differences are discernible not only in differential treatment and significance of specific artefact categories but also in general relations between bronze technology, mortuary rituals and ritualisation of landscape. This paper suggests that local ritual practises of Stone Age origin had substantial impact on deposition patterns of bronze artefacts in Bronze Age Finland. Continued influence of Neolithic ritual frameworks may also have contributed to the general scarcity of bronze in the area throughout the Bronze Age.

**TH1-07 Abstract 04**

Early Bronze Age metalwork depositions in Denmark

**Author:** Vīšer, Mariāne, Leiden University, Faculty of Archaeology, Rotterdam, Netherlands (Presenting author)

**Keywords:** Denmark, Early Bronze Age, Metalwork depositions

**Presentation Preference:** Oral

Denmark is known for its rich, well-documented archaeological record dating to the Bronze Age. Metalwork has been found in bogs, on dry land and in burials. However, Denmark is a nonmetallogenic region, which means that all metal had to be imported. And yet, valuable metal objects were deposited and never recovered. Some very spectacular and famous finds have been found in Danish bogs, like the Trundholm Sun Chariot or the bronze lures. A strong tradition of interpreting these finds in terms of religious and social meanings exists in the area, going back to early archaeologists from the 19th century and their interpretations. Another research tradition distinguishes different categories of non-religious hoards, for example metalworkers’ hoards and traders’ hoards. However, these rigid classifications fail to fully explain these deposition practices.

More recent research has shown that patterns seem to have existed regarding deposition. In certain objects in wet areas, like bogs, and other objects in burials. The emergence of these deposition practices in the Early Bronze Age in Denmark, going back to the Neolithic, is the topic of the present study, with a particular focus on Jutland. Selective metalwork deposition practices in northwest Germany (western Schleswig-Holstein and Niedersachsen) and the north-western part of the Netherlands are part of the present study as well in order to acquire an increased understanding of the Danish patterns and to set these in a wider regional perspective.

**TH1-07 Abstract 05**

Horse harness in Late Bronze Age hoards in southern Scandinavia and the southern Baltic area

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**Keywords:** hoard, Horse harness, Late Bronze Age

**Presentation Preference:** Oral

In the summer of 2014, a late Bronze Age hoard was found and excavated in Northern Jutland, Denmark. The hoard not only contained both male and female items, but also several parts of horse harness and bitrils, bearing witness of the use of two-horse teams. Most surprisingly, several meters of leather straps were preserved. Furthermore, cheek pieces and phalerae were in situ on the leather straps allowing a reconstruction of parts of the bridle. Apparently, a similar tradition of deposition took place in a large area corresponding to Southern Scandinavia and the southern Baltic area.
Th1-07 Abstract 09

Fragmentation as a common feature in European Bronze Age hoarding

Author - Dr. Maraszek, Regina, Landesamt für Denkmalpflege Sachsen-Anhalt, Halle, Germany (Presenting author)

Keywords: Bronze Age, Deposition

Presentation Preference - Oral

Deliberate fragmentation is a well-known feature in Bronze Age hoards all over Europe, shifting in space and time. The aim of the paper is to discuss and specify the German term „Bruchertringe“ (scrap hoards) and to discuss these finds. We will consider especially depositions where broken pieces outnumber all other metal pieces. To illustrate this the central German „scrap hoard“ from Elsterwerda was chosen consisting of more than 320 bronze, most of them broken, bent, damaged or cut into pieces: casting debris, tools, ornaments and weapons. The aim is to identify the variability of fragmentation, the degree of typologically important bronze and the relation of regional versus imported artifacts. Similar structured scrap hoards from different European regions will be introduced and compared.

Are we dealing with a random choice of fragments collected for re-usage following regional weight systems? Do scrap hoards represent results of single exchange transactions? Following recently discussed theories the scrap hoards will be defined as a special hoard group, separated from so-called craftsmen’s deposits and the hoarding of raw metal (“Gusserz”).

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Th1-07 Abstract 10

Places of deposition of metalwork assemblages in West Bohemia

Author - Prof. assist. Jiřet, Luboš, Institute of Archaeology of CAS, Prague, Czech Republic (Presenting author)

Co-author(s) - Dr. Šumberová, Radka, Institute of Archaeology of CAS, Prague, Czech Republic

Keywords: Bronze Age, hoards, Landscape

Presentation Preference - Oral

One way to answer questions concerning the selective deposition of metalwork in the Bronze Age is the detailed analysis of the place where metalwork assemblages were deposited. A territorially and chronologically defined sample of such assemblages – hoards – was deliberately selected. We assume that if hoards had differing functions in different periods and/or territories in the past, the data obtained through a single analysis of a de facto heterogeneous set of objects would affect the quality of the final interpretation. Our chosen method, the targeted analysis of a closely-defined set of objects, helps eliminate this risk, and allows the subsequent testing of the newly-obtained data on an even wider set of objects that seem to show identical features, but have different territorial or chronological ambits. We therefore focused on 31 Umfol Period hoards recorded to date in the West Bohemia region. For our questions, it is important that it was possible to determine precisely the original location for 27 of the hoards. The field survey focused mainly on evaluating the subjective reception of the given space in order to assess potential links of the hoards to significant natural features. This analysis found a surprisingly narrow group of natural features that could have influenced the choice of a location suitable for hoarding: namely rocks or distinctly rocky terrain, dominant hills in the landscape, watercourses and ravines. The connection of West Bohemian bronze hoards to such features indicates their sacral function, likely as votive offerings.

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Th1-07 Abstract 11

The Copper Highway - An Overview of Early Bronze Age Hoards in South Bohemia

Author - Dr. John, Jan, University of South Bohemia, Ceske Budejovice, Czech Republic (Presenting author)

Co-author(s) - Chvojka, Ondrej, University of South Bohemia, Ceske Budejovice, Czech Republic

Keywords: copper ingots, Early Bronze Age hoards, South Bohemia

Presentation Preference - Oral

The territory of South Bohemia provided an important link between Danube valley and Central Bohemia in the Early Bronze Age. There are currently more than 60 hoards known from this area, a large part of them were discovered in the last two decades, thanks to a massive use of metal detectors. Not surprisingly, a number of hoards include cast copper ingots of various shapes, transported from the Alps to the north. Although copper ingots represented undoubtedly valuable items, thousands of them were deposited underground and never picked up again. In this presentation we are going to discuss possible interpretation of these hoards as votive offerings or merchant’s hoards. Attention will be paid also to the chronology and technology of artefacts found in Early Bronze Age hoards.
and Koszider ‘hoard horizons’ have provided ample material for such analyses. The turn towards a ritual interpretation of the deposition of metal in Bronze Age Europe has hardly been felt in local scholarship. The aim of our paper is to change this situation and to analyze Middle Bronze Age metalwork from the Carpathian Basin from the point of view of selective deposition. We will highlight the patterns observable in the composition of these hoards and compare them with other depositional contexts such as graves and settlement finds. Based on these comparative analyses we will attempt to reconstruct various social practices that involve the removal of metal objects from circulation.

TH1-07 Abstract 15
Late Bronze Age metal deposition practices on the southern outskirts of the Carpathian Basin

Author - Hrvoje, Katlahat, Institute of Archaeology, Zagreb, Croatia (Presenting author)
Keywords: Carpathian Basin, Late Bronze Age, settlements
Presentation Preference - Oral

When attempting to study the cultural manifestations of the Bronze Age, it is necessary to point out that the development of metalurgy intensified new social practices such as depositing metal objects.

The Carpathian Basin is a region with a high density of metalwork hoards present throughout all the phases of the Bronze Age. Its southern edges, the Sava and Drava River Basins, see the peak of bronze object deposition in the Late Bronze Age.

The earlier research of Late Bronze Age of the southern part of Carpathian Basin was almost exclusively focused on the phenomena of hoards, mostly observing such hoards as a feature separated from the communities that contemporaneously inhabited the area. This approach was the consequence of the fact that almost all available Late Bronze Age metal artifacts were found as parts of hoards, while at the same time context of such hoards and its relations to contemporaneous settlements and cemeteries is unclear. The main reason for this is the fact that a large number of hoards were found in time when archaeology was still developing discipline, so that context of find was not properly documented or even observed. In these circumstances the Late Bronze Age hoards were never studied as a part of the communities present, separated of its social and archaeological context.

In the Croatian part of the Carpathian Basin the numerous rescue excavations have been done due to intensified development of state infrastructure. In the last 30 years these extensive rescue excavations revealed large number of the Late Bronze Age settlements and cemeteries. These excavations revealed that metalwork deposits in this period are commonly found inside settlements. Fine example of this is the site of Čepinski Martinci-Outrava where a sword was found in the defense ditch near the settlement gate. This and similar finds open the possibility for the reinterpretation of previously excavated finds and for a more complex contextualization of metal object hoards deposited by Late Bronze Age communities.

TH1-07 Abstract 16
Hoards, burials, ornaments – selective depositions in Middle Bronze Age Hungary

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Keywords: Bronze Age, hoards, selective depositions
Presentation Preference - Oral

The standardised structure of the content of the so called Tolnánmedi type hoards (18 hoards from western Hungary, basically sets of ornaments and a few weapons and tools) is a clear indicator of the practice of selective deposition, and supports the assumption that this group of finds was buried for the same reason in the entire territory connected to Transdanubian Enucleated Pottery style during the Middle Bronze Age (2000-1500 BC). When comparing the numbers of the artefacts from these hoards with the data coming from the graves of the same region during the same period the numbers show the multiple of one person’s attire. This fact was important during interpretation of the Tolnánmedi type hoards. According to former assumptions these hoards were connected to military actions (wars) or to rites of passage. However, recent results of burial practice analysis of the period suggest another model. We would like to present the reinterpretation of the mentioned hoards concerning the results of statistical analysis of the jewellery types from burials and hoards, examinations of the microstructure of metal finds, and the study of a recently found clay human figurine of the same period with the depictions of the ornaments concerned.

TH1-07 Abstract 17
Patterns of metalwork deposition during the LBA in the Lower Danube region

Author - Matia, Florica, Alexandra Ioan Cuza University, Iasi, Romania (Presenting author)
Keywords: deposition patterns, LBA, Lower Danube region
Presentation Preference - Oral

In this paper I address the distinctiveness of the metalwork deposition patterns traced in the Lower Danube region during the Late Bronze Age (LBA). This calls for the analysis of hoards and single finds found in the region in terms of content, treatment, and context of deposition which may later on involve the interpretation of the underlying cycles of activity and the motivation behind deposition.

Based on the metal artefacts distribution within the landscape we observe that most of the hoards follow the main river streams, concentrating on the hills area or on the lowland, in the north and south of the Danube. The main metal artefacts in the study area are the socketed axes and sickles which are widely distributed, especially in hoards. If we analyse the patterns of deposition we can observe a group of hoards containing only a single type of artefacts. The preferred objects are the socketed axes of the sickles. Not only finished good quality artefacts were chosen for deposition; stone moulds used to obtain the bronze artefacts were also included in hoards. Two of the hoards contains moulds which were used to produce socketed axes widely distributed in the region, while the hoard from Pobít Kamák contains over 30 stone moulds, including some for objects not known to exist in this area in positive.

Through the Lower Danube, the Carpathian-Stara Planina interface was opened to Central Europe and to the north of the Black Sea. In order to trace how the bridging position of the region influenced the cultural landscape, firstly, a spatial and contextual analysis of the single finds and bronze hoards will be performed. The constituent objects of hoards will be investigated and compared in terms of quantity and association, but also in terms of artifacts treatment.

TH1-07 Abstract 18
Bronze Age hoards deposition in the Upper Tisa Basin: time, space and cultural context

Author - Kóbai, Józsi, Transcarpathian regional museum, Uzgorod, Ukraine (Presenting author)
Keywords: Bronze Age, Metal deposition, Ukraine
Presentation Preference - Oral

Characteristic feature of the European continent population in Bronze Age is metal works deposition in form of “hoards”. Upper Tisza Region (UTR) is one of the richest in Europe on the finds of “hoards” nearly 600. From the topographical point of view it’s very various, UTR, especially the eastern part, is rich on different mineral resources (such as salt, gold, copper). During Bronze Age at local population, by an insignificant exception, the cremation as a mortuary rite was dominated.

The first metal works hoards in UTR appeared at the beginning of Copper Age. At the Late Copper Age (Baden culture, Cotofeni culture) and in the Early Bronze Age (Mako culture, Nirség culture) the tradition of deposition was not continued. The Middle Bronze Age (BA2) is a new stage of hoarding in UTR. Culturally they belong to Ottoman-Füzesabony culture and early phase of Suciu de Sus culture. Geographically they belong to eastern part of UTR. The earliest hoards consists mainly of prestige objects (ornamented weapons and gold wires).

Author examines two versions of appearance of this phenomenon in UTR: 1) tradition of deposition arose up as a result of internal development of local Bronze Age society; 2) tradition of deposition arose up as a result of external contacts of local tribal elites. Development of this tradition continuing with maximal distribution in periods from BD-HaA1 (Suciu de Sus and Gava cultures) and till the end of Bronze Age.

TH1-07 Abstract 19
Going with the flow? Atlantic Bronze Age metalwork deposition practices

Author - Dr. Gibson, Catriona, University of Wales, Salisbury, United Kingdom (Presenting author)
Keywords: Atlantic Bronze Age, ebbs and flows, metalwork
Presentation Preference - Oral

As the title of this session proposes, the deposition of metalwork is one of the defining characteristics of the European Bronze Age. Superficially, certain types of objects were seemingly deposited in similar ways across supra-regional areas, suggesting widely shared socio-ideological practices. Scrutining below the surface, however, reveals a myriad of complex and competing traditions both across space and through time. In particular, regions rich in raw metal sources (e.g. copper, gold and silver) exhibit marked differences in depositional practices to those areas that lacked locally-available ores. This paper will draw upon a large relational database created for a research project on ‘Atlantic Europe in the Metal Ages’ to highlight a few of the key patterns
in metal depositional practices between 2800 and 800 BC. From Scotland in the north to Spain in the south, there is marked diversity, but also some striking similarities, in the nature and types of deposition. This will be demonstrated through focusing on specific artefact classes and associations, object biographies, contexts of deposition and their wider landscape relationships. The extent to which transformations in metal deposition reflected the fluctuating and volatile nature of metal demand and supply throughout Atlantic Europe during the Bronze Age will also be considered. The formation of one or more of the underlying metalworking depositional traditions and the ways in which metal was thought about, used, recycled and decommissioned. A more integrated approach will be adopted to help fine-tune several of the pertinent questions this session wishes to address.

TH1-07 Abstract 20

Structures and function of Bronze Age deposition in Ireland

Author: Dr. Becker, Katharina, University College Cork, Cork, Ireland (Presenting author)
Keywords: Bronze Age, Deposition, Ireland
Presentation Preference - Oral

The depositional record in Bronze Age Ireland (c. 2500 to c. 800 BC) is exceptionally rich, with both gold and bronze artefacts being deposited in hoards or singly in the natural landscape. Deposition as burial goods is rare and restricted to the earlier part of the period. This paper will demonstrate how type-specific depositional patterns structure the record and reflect deliberate selection processes regarding which materials and object types were suitable for deposition in specific types of context. This paper will outline the main characteristics of this practice, highlighting trends with great longevity throughout the Bronze Age. Based on a selection of case studies an interpretation will be suggested that transgresses conceptual boundaries between ‘ritual’ and ‘functional’ and may open up new avenues of thinking of the at first sight rather disparate parts of the depositional record – single finds, hoards, burials, gold, bronze - as part of one cohesive, but diverse, cultural practice.

TH1-07 Abstract 21

Creative Destruction - Early Bronze Age deposits in the broader Middle Rhine Valley

Author: Autorneith, Sabrina, Faculty of Archaeology, Leiden, Netherlands (Presenting author)
Keywords: Bronze Age, Deposition, Middle Rhine Valley
Presentation Preference - Oral

The Middle Rhine region is one of the best known examples of the excessive use of depositional practices of valuable objects in rivers. To understand this phenomenon, the focus from the river itself and their back swamps needs to be broadened to the adjacent area in the hinterland of Germany, France, Belgium and Luxembourg. In this region, we have the opportunity to compare a variety of depositional practices in wet and in dry contexts that have so far never been studied together. This will not only readjust the previous one of focus on river finds, but also reveal whether objects deposited in and lands represent a practice steered by ideas and motivations contrasting from those of river deposits. The aim of this research is to identify a potential cognisable correspondence between the rise and fall of wetery depostions and dry-land hoards and to reveal if communities in the Middle Rhine Valley shared the same ideology in the practice of deposition.

TH1-07 Abstract 22

Selective Deposition of Metalworking Remains in Bronze Age Britain

Author: Dr. Adams, Sophia, University of Bristol, Bristol, United Kingdom (Presenting author)
Co-author(s): Dr. Wobley, Leo, University of Bristol, Bristol, United Kingdom
Keywords: Bronze Age, Deposition, Metalworking
Presentation Preference - Oral

A range of archaeological remains provide evidence for the production of metal objects in Bronze Age Britain, from the extracted ore to the finished objects. This paper focuses on the deposition of the material in between, the copper and bronze artefacts used for and derived from melting, casting and finishing the metal objects: ingots, moulds, casting debris and tools. Just as patterns are visible in the placing of complete and deconstructed objects so too are patterns present in the deposition context and selection processes surrounding metalworking. By combining the results from a range of collection processes including archaeological excavation and metal detecting survey we can explore the content and context of these differing deposits and question the social processes and implications behind the choices that led to these variations. This evidence for the deposition of bronze moulds, smithing tools, casting waste and ingots will provide a valuable comparative database to the evidence for the deposition of finished, used and deconstructed objects.

TH1-07 Abstract 23

Deposition of Middle Bronze Age Metalwork on the Isle of Wight: GIS Based Approach

Author: - Kaleta, Robert, University College London, London, United Kingdom (Presenting author)
Keywords: Bronze Age, Metalwork, Spatial analysis
Presentation Preference - Oral

Selective deposition of Bronze Age metalwork in the British Isles is a well documented phenomenon which has been studied intensively by a number of researchers. Initial work focused primarily on establishing and refining typochronological frameworks based on patterns of association within hoards. With the realisation of the selective nature of Bronze Age depositions however, it became clear that the role of bronze extended beyond its value as a commodity buried for safe-keeping and storage, and that deposition was part of a long standing social practice represented in the archaeological record by buried metal objects. The landscape context where the structured depositions took place, must have been viewed as suitable for that purpose by individuals and communities involved in the act. As such we might expect to see an inherent structure in the depositional settings of metalwork, preserved by the topography and the relationship to environmental and cultural landscape features, exhibited by the findspots. Recognising these patterns has for the most part been a qualitative process, which relied on a visual assessment of the distributions; a difficult task considering the seemingly random distribution of most metalwork. In this context, identifying and evaluating any depositional patterns is best handled through the use of GIS and spatial analysis, which surprisingly has not been applied to the Bronze Age metalwork data in Britain. This paper explores the long term potential of wide scale application of multivariate logistic regression and Monte Carlo simulations to the distribution of Middle Bronze Age (c. 1500 - 1150 cal BC) metalwork, through a regional case study focused on the Isle of Wight. The aim is to establish whether any significant relationships between the findspots and their landscape settings can be identified, and if these varied between hoards and single finds. Focusing on a relatively small, naturally bounded region with a high density of Bronze Age finds, allows us to understand the suitability of spatial analysis to the data and questions at hand, and relate the structure of the data-set to cultural processes leading to deposition with a degree of confidence and subjectivity not afforded by qualitative research. Attention is paid in particular to exploring the divergence of the depositional characteristics of metalwork from those exhibited by randomly distributed data to establish whether similar patterning could be arrived at purely by chance, and, by contrasting different types of metalwork, whether this had an influence on the location of the depositions. Ultimately, a systematic approach to metalwork depositions is required to verify some of our assumptions on the role of landscapes in the deposition process, and to create a baseline against which further discussion and analysis can take place.

TH1-07 Abstract 24

The selective deposition of Bronze Age metalwork in the River Trent, English East Midlands

Author: - Professor Pearce, Mark, University of Nottingham, Nottingham, United Kingdom (Presenting author)
Co-author(s): - Davis, Richard, University of Nottingham, Nottingham, United Kingdom
Keywords: Bronze Age Metalwork, River Trent, River Witham
Presentation Preference - Oral

In this paper we examine a specific example of selective deposition, Bronze Age Gewässerfunde from the River Trent, in the English East Midlands, as compared to the regional assemblage for Central England. The Trent has a major assemblage of more than 170 metal artefacts known from watery contexts. Most of the material dates to the Middle and Late Bronze Age, with fewer Early Bronze Age artefacts; it is weighted to high-status weapons, particularly from the Middle Bronze Age. Distinct clusters of finds can be noted, particularly in the section of the river close to Nottingham, where some 40% of items were found. The river assemblage is dominated by weapons, in contrast to the regional assemblage for Central England as a whole, which has different characteristics and is dominated by tools. The River Trent material also shows marked differences in character to the contemporary assemblage from the nearby River Wilm, wellknown in the literature for the deposition of prehistoric metalwork. This is so striking, as the River Witham flows as close as 4 km to the River Trent, it has become a commonplace of the archaeological literature to argue that Gewässerfunde are the result of ritual behaviour. We argue that the special character of the River Trent metalwork, high prestige and male, and its contrasting nature compared to the regional assemblage, marks it out as special and that the most parsimonious explanation for its deposition is that it was indeed ritual in character, perhaps in the context of funerals, and that this behaviour was concentrated at a number of special places along the river.
Selective deposition due to ritual intentions has in the last years been identified as a key-concept governing the formation of Bronze Age metalwork assemblages. Especially in regions like the Carpathian Basin, where the transmission of metalwork depends heavily on deliberate decisions on the inclusion of certain object classes in hoards and the exclusion of others, severe repercussions for the interpretability of the archaeological record can be expected. 

Although widely accepted on a theoretical level, until now the full consequences of selective deposition have not been explored for the southeastern European Bronze Age archaeological record. The present contribution aims to highlight the far-reaching implications of formation processes for dating the earliest appearance of object groups and technological innovations, using the earliest appearance of socketed axes in southeastern Europe as a case study. Socketed axes seem to appear at all once in a hoarding horizon parallelized with the central European phase B 0 C. It is argued that selective non-deposition of socketed axes during their pre-Late Bronze Age History, which however can be reconstructed by taking into account other sources than hoard finds. The transmission of settlement finds is governed by a different set of rules and can serve as a corrective for a more balanced view on the development of Bronze Age metalwork. Isolated instances of early settlement contexts for finished objects, but even more so evidence for casting equipment discarded after use make a much earlier start of production of socketed axes in southeastern Europe probable.

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### TH1-07 Abstract 29

**The middle Bronze Age necropolis in Gllareva-the Mycenaean influence in Kosova**

**Author:** Prof. Luçi, Kemajl, Museum of Kosova, Pristina, Kosova (Presenting author)

**Keywords:** Necropolis, The middle Bronze Age, the Mycenaean influence in Kosova

Kosova’s favorable geographic position in the central Balkans has enabled its connection with neighboring and farter territories, thus making the influence of various cultures possible from the earliest periods. The development of early prehistoric cultures in Kosova has been sufficiently explored through systematic work. Nonetheless, there is insufficient knowledge on the development of the Bronze Age in Kosova. With the finding and excavation of the necropolises in Gllareve, important new steps have been made to complete this gap. Excavations in Gllareve have provided the most precise data for solving important problems of the Bronze Age in Kosova, as well as for the development of period as a whole. Two necropolises have been identified marked as Gllareve I and II. Both can be dated to the XV and XIV centuries BCE. So far, 48 grave constructions have been found, consisting of two types of burial practices: inhumation and cremation. Regarding the analogies and chronological determinations of the bi-ritual burial practices it is possible to conclude that inhumation, with or without stone constructions, is the older type of burial. The task of dating the graves with cremation was conducted through reference to urn fragments, specifically their handles, which can be placed in a broader chronological order. Dating the graves with cremation can be done through reference to the other numerous finds, some of which have analogies in the larger geographical region, such as jewels, weapons, and ceramics. The material cultural also, which is quite exclusive and in particular the weaponry, attests to the high degree of knowledge of metal manufacture, production techniques, as well as decoration. The Gllareve necropolis shows that the Middle Bronze Age in Kosova had a developed culture with significant influences from, and ties to, Mycenaean, as an important social, economic, and political center. Swords, axes, and various types of knives point to the connections with production centers in Epirus and Albania from where the Mycenaean influence expanded through the Drin valley and Vardar depression. Excavations in Gllareve have also given evidence to the beginnings of a stratified society in the area, the formation of a ruling class, and the formation of the Illyrian Dardan “tribe” in the Central Balkans. Thusly, the Bronze Age in Kosova becomes and important stage in the formation and development of Pale-Balkan peoples, their culture and way of life.

Their further development can be observed in the course of the following periods, specifically the Early and Late Iron Age in the first millennium BCE.

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### TH1-07 Abstract 30

**“Multiesential” concept in Early Iron Age offering contexts of Central Asia**

**Author:** Prof. Sasinov, Dmitri, Saint-Petersburg State University, St.-Petersburg, Russian Federation (Presenting author)

**Keywords:** Central Asia, Early Iron Age, offerings

**Presentation Preference:** Poster

**“Multiesential” concept is a model of ancient population worldview. It was built basing on Iron Age archaeological sources from Central Asia, especially on so-called “offering” contexts.**
UNDER THE RAISED ROOF: CREATING THE SPACE FOR FAMILY AND COMMUNITY

This session continues the discussion we started at EAA 2015: Raising the Roof. We began by asking whether the interpretative visuals that populate archaeological reports actually represent past architecture. This year we want to talk about how ancient buildings performed and how their inhabitants behaved within these spaces.

Can we assume that seasonal and daily changes bent house design to match daylight availability, temperature cycles and shifting climatic circumstances? Did these factors set the rules by which occupants of all ages lived within their buildings and behaved towards each other? By what evidence can we test our assumptions? Have we really understood past architecture? Do archaeologists actually recover evidence of behaviours within the roofed space? What evidence is still to be recognised and what will forever evade us?

Past life consisted of so much more than environmental adaptation and basic use of space; how can we reconstruct ideological markers in the architecture? Do common features under the roof (e.g. hearths and door frames) reveal a past sense of homelessness? How did people truly regard the space under the roof and in what way did their views on sensuality, privacy, teaching, life and death affect the occupants choices as architects and interior designers?

In this session we seek papers that explore the knowledge about past peoples as they spent and shaped part of their lives in the protected space under the home roof. We seek a discussion on the archaeological evidence and the reconstructions of those spaces and how to maintain a sense of academic objectivity throughout the research process. Perhaps an even more ambitious question: through credible architectural reconstructions and our understanding of past home spaces, can we re-inspire the design of family architecture in a sustainable future?

Keywords:
- Buildings archaeology, Methodology, Netherlands

Presentation Preference - Oral

Regulating building practices in the Netherlands

Archaeological settlement research in the Netherlands can traditionally be characterised by its coverage of large excavation areas, often yielding substantial numbers of house-plans. This picture is particularly applicable to the (Pleistocene) sandy soils, where poor preservation conditions enable quick and fairly straightforward documentation of postholes and other, mostly negative soil features. Over the years, numerous typologies have been built up which outline regional groundplan varieties and their development through time. But this conventional typological approach has recently been criticised for not having moved beyond basic data classification. Theoretical interpretations, on the other hand, may be said to push our understanding of past societies beyond what currently can safely be established on the basis of building remains.

Viewing these typological and theoretical approaches as opposites in archaeological settlement research, it becomes clear that they are divided by something of a methodological gap. The current situation in Dutch settlement archaeology seemingly hampers the development of a single, comprehensive and well-founded approach for researching past architecture. It is argued that we should not move away from classic groundplan typologies, as some archaeologists suggest, but neither should we lower our expectations when it comes to interpreting these plans in economic, socio-political or ideological terms. Rather, it will be necessary to elaborate on well-established research strategies in such a way that they can support each other; as Treschke (2009, 515) puts it: “Contextual analyses should always proceed from better-documented interpretations.” In order to really understand ancient building traditions, information on the use and technicalities of built structures will have to be analyzed in the context of the existing methodological ‘building blocks,’ as a means of closing the gap between classification and interpretation.

It will be demonstrated that the concept of a ‘functional typology’ can provide a framework for systematically building up a well-founded, yet holistic view of excavated ground-plans. The key objective in setting up a functional typology is to analyse and explain how ancient buildings functioned in their various respects. Starting as objectively as possible, the level of interpretation gradually increases to a total of five steps: 1) typological analysis, 2) functional use analysis, 3) technical analysis, 4) reconstruction and 5) contextualisation.

The basis for this methodology was recently outlined and tested during the research of early medieval buildings in the north of the Netherlands. Building remains previously unearthed in the (Holocene) clay and past areas have shown that a lot more information can be gathered from ground-plans than excavation in the sandy soils has so far suggested. Using early medieval turf-built buildings with chink-like trusses as an example, it is argued that a structural approach (cf. steps 3 and 4) is essential for in-depth research of ancient buildings.

Interpreting the Archaeological Record

TH1-08 Abstract 04
Creating a home. Ritual practice related to houses in a terp settlement in the northern Netherlands

Author - Dr. Nieuwhof, Annet, University of Groningen, De Punt, Netherlands (Presenting author)
Keywords: human remains, northern Netherlands, ritual practice

Presentation Preference - Oral

Between 1923 and 1934, excavations were carried out in the terp settlement of Ezinge by one of the founding fathers of Dutch archaeology, A.E. van Giffen. Ezinge is located in the coastal area of the northern Netherlands, a former salt marsh area. It is one of many terps that are found in this region: artificial dwelling mounds, which once protected their residents against floods. A terp started with one or several houses built on separate platforms, which clustered as they were heightened, developing into single larger mounds. The terp of Ezinge ultimately reached a height of 5.5 m and covered 16 ha, about 10% of which was archaeologically excavated in 22 levels.

Ezinge became famous because of the well-preserved remains of 85 longhouses, dating from the 5th century BC until the early middle ages. The lower parts of wooden buildings often were still preserved in situ, revealing the structure of three aisled, two-particle houses with burnt byres. Excellent preservation, also of pottery and bone, enabled not only a thorough investigation of the cultural material, but also of ritual practice in this settlement. This investigation was carried out only recently, between 2011 and 2015.

This paper will present some of the results of the study of ritual practice. It will discuss the ways in which rituals were related to various stages of the lifecycle of a house: raising the house platform, building the house, living in it and finally abandoning the house. A conspicuous element of ritual practice was the burial of human remains in and near houses. It will be argued that burying the remains of deceased family members created ancestral grounds and also made people feel at home. Single inhumations and single bones (probably the remains of the dead which were collected after a process of excavation) were both used that way.

Ritual practice associated with houses changed over time. It was influenced by internal developments, especially population growth, which caused changes in the layout of the settlement and competition for the available space on the terp.

TH1-08 Abstract 05
Construction, function and interior design of sunken floor huts in Middle Eastern Sweden

Author - Eklund, Susanna, SAU, Uppsala, Sweden (Presenting author)
Co-author(s) - Celin, Ulf, SAU, Uppsala, Sweden

Keywords: Building construction, sunken floor hut, Viking age

Presentation Preference - Oral

During the last few years some Vendel and Viking age settlements with a large number of pit-houses (sunken floor huts, ground level huts etc) have been excavated in Middle Eastern Sweden.

Due to their construction the sunken floor huts are very well preserved and contains a lot of information of construction, building materials and interior details such as, steps, benches, ovens etc. Often the floor layer is intact and finds made from this layer can give useful information about what action actually took place within the walls.

Questions to dwell upon is how the inhabitants found themselves within these really small damp, constructions, some researchers have argued that these buildings must have been almost unbearable to endure and others think they were inhabited by slaves. The question is, have they been lived in at all or have they been a place for daytime occupations and handicap mainly..? How can these types of buildings be understood? We think that most important it is to find out what actually took place within the four walls.

The paper will present a study upon the placement of entrances, building material and construction details. The houses within the study shows a great variation concerning construction and interior design details such as ovens, benches, looms, etc. Another study deals with what activities that has taken place in the pit-houses. Archeobotanical analysis combined with osteology and taid analysis have helped us reach further in our interpretations.

Finally we will look further into how architectural reconstructions actually can be useful when interpreting the archaelogical record.

TH1-08 Abstract 06
The Dark Ages? Light and its absence in medieval domestic spaces

Author - PhD student Quiletrom, Linda, Stockholm University, Stockholm, Sweden (Presenting author)
Keywords: Buildings, Darkness, Light

Presentation Preference - Oral

Windows and light are essential parts of domestic buildings in most places today. The importance of light is often taken for granted, something that is frequently reflected in interpretations and in the questions we ask, or don't ask. It is not rare to find reconstructions of medieval, and even prehistoric, Scandinavian buildings with windows of a kind that could be highly questioned.

Artificial light in medieval houses is often presented, directly or indirectly, as something insufficient, and the available light sources as dim substitutes for the sort of illumination that we are used to today. Although this accurately reflects our modern perceptions of medieval dwellings, it does not necessarily tell us much about the everyday experience of the people who actually lived in them.

In this paper I apply a 'dwelling perspective' to the use of light in domestic buildings. Rather than assuming a lack of sufficient light to be the norm, a more fruitful approach might be to consider darkness instead, asking to what degree and in what circumstances it was ever considered a problem. How and to what extent was light used, and expected, in domestic buildings?

This paper presents a range of data and interpretations from my ongoing work, primarily using material from excavated domestic structures, hearths and light sources in Uppland province, Sweden.

TH1-08 Abstract 07
Long-houses in east central Sweden during Late Bronze Age

Author - Magnusson, Reidar, Stiftelse Kulturmiljövård, Uplands Västby, Sweden (Presenting author)
Keywords: Interpretation, Late Bronze Age, long-houses

Presentation Preference - Oral

This paper addresses the issue of interpreting the remains of post-built long-houses. During Late Bronze Age there is a diversification of the building styles, partly due to influences from north central Europe but there are also some domestic development. Almost all dwelling houses are three-aisled long-houses, it is easy to determine from the heavy roof-supporting post holes, but other parts of the construction, as remains of the wall structure, are much more scarce. That leaves us with the just the layout of the roof-supporting structure which is often interpreted in infinity. What could we actually say about the layout of the house from that information?

As the size of the long-houses decrease significantly in the shift between the Early and the Late Bronze Age it is often considered that there is a change in the basic family structure, another long debated issue is the one about whether parts of the house where designed for livestock or not.

This is due to a new roof-supporting posts structure that allow the posts to be used as supports for livestock boxes as well. That is introduced at the same time as the size of the long-houses decrease. But is there any evidence for the livestock’s presence in the house?

Even if the subject of this paper covers a relatively small area and a limited material, it is possible to see some patterns. Based on the basic roof-supporting structure it is possible to see local building traditions that does not change during the Late Bronze Age. But as these traditions are not consistent, skipping a generation now and then, could this observation be flawed?

TH1-08 Abstract 08
The use of architecture as cultural and socially discriminators in Iron Age Denmark

Author - PhD Hawe, Niels, Historical Museum of Northern Jutland, Aalborg, Denmark (Presenting author)
Keywords: Building, Community organization, Settlement

Presentation Preference - Oral

Most of the Iron Age Houses in Southern Scandinavia shows an invariable construction that only allows minor differences in the architecture of the individual houses. The houses are three-aisled, west east orientated and divided into a stable in the east and living area in the west. However, in rare occasions the alignment and the interior design of the house is fundamentally different. This paper will address whether these differences should be explained by functionally or economically patterns, or rather as a deliberate discriminator in a social-cultural and ideological context? The paper will present how architecture was used to express and manipulate identity and social groupings in the settlement, and discuss what the consequences of the “distorted” space within the house could have.
TH1-08 Abstract 09
At the hearth. Daily life, and domestic architecture in Early Iron Age farmsteads of Western Denmark
Author - Dr. Nygård, Niam, Algreen, Museums of South West Jutland, Ribe, Denmark (Presenting author)
Keywords: Domestic activities, Iron Age, Settlement Archaeology
Presentation Preference - Oral
This paper will discuss the evidence of domestic activities in the Early Iron Age (500 BC - 150 AD) farmsteads of Western Denmark.
The Danish evidence of daily life and domestic activities can roughly be divided into two: Evidence from well-preserved settlements with preserved cultural layers excavated in the 1920s to 1950s and evidence retrieved from settlements levelled out below modern day plough soil. The former has the advantage of in situ evidence of daily activities on the preserved floors while the later mainly beneficial from the large amount of completely excavated farmsteads and macrofaunal - as well as geochemical evidence collected on settlement excavations in the last 20 years.

By combining the two types of evidence, it is possible to establish a generalized picture of the development of domestic activities. The longhouse is throughout the Iron Age at the heart of domestic life with evidence of food processing, storage as well as stalling livestock. However, during the Early Iron Age some activities, both specialized crafts and to some extent food preparation are moved into nearby outbuildings and the fenced of interior of the farmyard as the farmsteads grow in size.

During the period under consideration the Reapen of individual houses is prolonged, the number of burials in connection to individual farms increases, as do the number of volve deposits found within the longhouses. Within the farmsteads of the later part of the Early Iron Age we find architectural traits such as stone paved entranceways, decorated hearths and fenced of farmyards. Individual households may through a more elaborate use of these architectural traits and volve deposits have created a sense of homelessness and interconnectedness between the house and the household members. Though these developments at the same time set individual households apart from other households in the growing village communities by stipulating social differences.

Thus the study of daily life in the Danish Iron Age houses and farmsteads is a study of practicalities, ideology and the basic segments of Iron Age society.

TH1-08 Abstract 10
Charting the microstratigraphic life-cycle of an early Roman urban property, Roman Silchester, UK
Author - Dr. Banerjea, Rowena, University of Reading, Reading, United Kingdom (Presenting author)
Co-author(s) - Fulford, M. G., University of Reading, Reading, United Kingdom
Co-author(s) - Clarke, A. S., University of Reading Reading, United Kingdom
Co-author(s) - Barnett, C., University of Reading, Reading, United Kingdom
Co-author(s) - Parkhurst, N., University of Reading, Reading, United Kingdom
Keywords: Architecture, Soil Micromorphology, Urbanism
Presentation Preference - Oral
In Roman Britain, domestic urban properties are dynamic spaces with constantly evolving architectural forms. The evidence for super-structure components can often be ephemeral as these properties have timber or earthen walls, which are frequently destroyed by the processes of super-structure preparation are moved into nearby outhouses and the fenced of interior of the farmyard as the farmsteads grow in size.

Previous research at Silchester has integrated thin-section micromorphology and experimental archaeology to characterise sediments and occupation deposits to identify doorways rolled, semirolled, and open spaces within the properties in order to understand their architectural form.

Building on this previous research, this paper will chart, using a micromorphographic approach, the evolution of a dynamic property, early Roman timber building 8, which stood from the period immediately after the Roman conquest (A.D. 43) until c. A.D. 125/50. By the end of the life of this property, it had taken on an interesting architectural form comprising a 'zig-zagged' entrance way to the building, abutting the north-south road, and had become poorly maintained with in situ evidence for metalworking activities. Micromorphology has demonstrated that in its earlier phases, the entrance way to the building had moved several times. There is also evidence for hearth floors, and the division of spaces. Earlier uses of this property may include the manufacture of glass, and spaces where animals were stabled.

The application of a spatial and diachronic microstratigraphic approach presents the opportunity to examine, at high resolution, the finer details of the daily lives of its inhabitants. In particular, this paper will examine how did the inhabitants structure their space? Were there divisions of craft and domestic activities? Early Roman structures at Silchester and elsewhere in Roman Britain are frequently single-roomed structures with central hearths. This is arguably a continuation of single-roomed Iron Age architecture. How does the architectural form of early Roman timber building 8 adapt and deviate from this model? Are changes due to a process of accretion or

TH1-08 Abstract 11
Understanding household activities: an examination of two Medieval dwellings in Atlantic Scotland
Author - Prof. Sharples, Niall, Cardiff University, Cardiff, United Kingdom (Presenting author)
Keywords: House, Material culture, Special organisation
Presentation Preference - Oral
In this paper we want to explore the organisation of space in two houses excavated in the Western Isles of Scotland. One dates to the late 11th century the other to the late 13th century AD. They provide the opportunity to explore change across a major political division; the transfer of political power from Norway to Scotland.

An understanding of the use of these houses can be explored by an examination of the architectural changes but more importantly by the substantial assemblage of material present in the house floors. The contrast between the communal organisation and material richness of the Norse house and the poverty and partitioned spaces of the Scottish house are dramatic and worthy of consideration both by the architectural form and provide considerable insight into the social significance of domestic space in the North Atlantic region.

TH1-08 Abstract 12
‘Private’ spaces??? - Reconstructing the ‘living-rooms’ of medieval castles
Author - Dr. Dempsey, Karen, Dublin, Ireland (Presenting author)
Keywords: Medieval Castles, Reconstruction, Social Space
Presentation Preference - Oral
During the thirteenth century, the hall and chamber were typically separate structures within castles complexes in Ireland and Britain. Careful examination of the architecture of medieval chambers - understood as ‘private’ spaces - has revealed that their first-floor spaces appear to have been divided into ‘rooms’ most likely using partitions comprised of timber and/or textiles. Some castles have very tangible indications of divisions such as masonry corbels that once supported wooden partitions. Many other internal divisions, though now lost, have left significant indicators of their former presence, such as the arrangement of windows; grouped together or obviously spaced apart which indicated a deliberate spatial organisation that allowed for the placement of internal divisions or even furniture. Further clues for partitions are evident in the arrangement of certain internal features, such as the grouping of latrines and fireplaces together at one end of the chamber away from the main entrance. We can also see that the latrine was typically situated in the furthest corner angle from the main entrance (diagonally opposed) or directly opposed suggesting that either the doorway or the latrine (or both) may have been screened from view.

Interestingly, the latrine was always placed on the cold north side whereas main entrance faced south indicating that heat and light (or its absence) played a major role in their choices of interior design.

The arrangement of spaces inform us of the social practices of the medieval world? Or are we transposing modern interpretations of ‘public’ and ‘private’ on the past? This paper demonstrates how we can read the ‘space syntax’ of these buildings to inform us of how these ‘rooms’ may have acted in the past and how their inhabitants behaved within these spaces.

Furthermore it raises questions about how the modern concepts of ‘public’ and ‘private’ may obscure our objectivity in understanding these buildings. In reconstructing the interior spaces of these buildings we must be mindful that only certain elements survive, like the tantalising gaps which we must ‘reconstruct’ whilst remaining open to the idea that these spaces were ultimately occupied by people - the household - who made choices about how to use and live in them (within the constraints of their traditions).

TH1-08 Abstract 13
Family space vs. community space from the perspective of settlements from the Lower Danube Region
Author - Dr. Magureanu, Andrei Mircea, Institute of Archaeology Vasile Parvan, Bucharest, Romania (Presenting author)
Co-author(s) - Dr. Ciuperca, Bogdan, History and Archaeology Prahova County Museum, Ploiești, Romania
Keywords: early middle age, family space, community space, house, settlement
Presentation Preference - Oral
The archaeological discoveries from 5th-10th centuries from the Lower Danube Region are numerous enough to sustain a discussion about what is family space and what can be considered the community space. This discussion is based on two concepts: house and settlement/village.

The problem is what can we interpret as a house and what we can consider a settlement. Generally, the archaeological reports described only similar constructed structure, settlements from this time frame seeing to be monotonous and against a discussion like that we intend to provoke.

But, in fact, discussions like: how can we identify a house? (what are the arguments for); what is the habitation space? (it is only the pit in the cases of sunken building); what are the meanings of the objects discovered into the archaeological structure and
Interpreting the Archaeological Record

TH1-08 Abstract 14
Beyond the cone: possibilities for exuberant buildings
Author - McCullogh, Roderick, Historic Environment Scotland, Edinburgh, United Kingdom (Presenting author)
Keywords: architecture, evidence, reconstruction
Presentation Preference - Oral

Taking inspiration from the recent discovery of “painted” walls on Neolithic buildings at two sites in Orkney, this paper argues that buildings could be “traditional” and functional but on occasion, exuberant. A casual view of the reconstructed architecture of Thorpness would suggest an homogenous dominion of the conical roof. This may represent the best fit of technology to need and circumstance but in many other aspects of life, seen through preserved archaeological fragments, we can see an exuberance of design and masterful display of skill.

From the ornate gable-hairstyle of the bog-body from Clonycavan to metate-work masterpieces such as the Mony Musk casket, and to ornate scripture, such as Forthiest arch, we have evidence that in some circumstances, builders, designers and crafts people stepped far beyond what mere practicality demanded to create visually stunning artefacts. By presenting examples of buildings that seem to depart from the norm and that express a spirit of experimentalism, such as the early Christian church at Whitcomb, this paper will seek to stimulate a discussion on how archaeological practice needs to be more sensitive to the possibility for evidence of fantastic design and colour in the architectures of the past.

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TH1-08 Abstract 15
Reconstruction of Neolithic dwellings.
On the materials of North-West Russia (Smolensk region)
Author - Khristaleva, Irina, The State Hermitage museum, Saint-Petersburg, Russian Federation (Presenting author)
Keywords: Dwellings, Graphic reconstruction, Neolithic
Presentation Preference - Poster

Long-term settlements of ancient people are one of the most interesting categories of archaeological sites. The various aspects of the material and spiritual life of the ancient groups are recorded in settlements - their relationship with the environment, productive activities, social status, spiritual culture.

The main function of settlements and dwellings is to create the necessary enclosed space, protecting people from the harmful effects of natural and social environment. This is related to topography of settlements, presence of fortifications, orientation of dwellings, and their connection with the water and the prevailing winds, the presence of drainage ditches, etc. The same aspects dictated appropriate technical solutions in the construction of dwellings. Questions of the protection of people from the cold, damp, heat, and questions of the positions of fire and cooking places were decided taking into account the environmental conditions. Various building materials were used depending on natural conditions and resource availability.

The appearance of settlements and dwellings largely determined by the type of economy. This involves determining number of inhabitants of the settlement and each dwelling, the location of settlements in places that were convenient for fishing, the necessary raw material production (stone, brick, clay, etc.), hunting, grazing, etc. This also explains the functional differentiation of settlements, settlements of fishermen, hunting camp, etc. and buildings (household, living and industrial). In addition, domestic production activities (ceramic production, bond and stone processing) proceeded in a living area.

Finally, the nature, the layout, the size of settlements and dwellings, details of interior depended on the social and demographic factors, the level of development, the structure and number of communities.

Identification and justification of the constructions remains on the archaeological site is a difficult goal to achieve it’s necessary to define the features that can distinguish the remains of objects. The first feature includes structures which can be defined as area of the cultural layer different from the surrounding space. The differences may be in color of the cultural layer, in the presence of bone, stone, wood remains or decay laying in an order; remains of hearths and fireplaces. Specific set of tools can be an indicator of unpowered construction in some cases. But it’s necessary to remember that a dark spot of the cultural layer can be explained by natural (chemical) processes.

The complexity of the objects identification settlement situated in sandy sediments is in the absence of organic materials. The pits are determined because of their darker filling, different from the color of the surrounding cultural layer. Fireplaces and hearth are detected due to their structures (for example, plates of stone), and calthed, charred or red grey ash interlayer.

Multi-layer settlements of the Smolensk region of North-West Russia contain the remains of dwellings revealed due recessed floors (if any) or due the posts and postholes and their strengthening structures (stones), as well as the remains of hearths. These data, when interpreting archaeological and ethnographic analogies, allow reconstructing in general the ancient dwellings and the structure of the settlements themselves.

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TH1-09 Abstract 01
Investigation of glass objects from Dodona Sanctuary, Epirus, Greece: an interdisciplinary approach
Author - Dr. Dikonomou, Artemios, University of Nottingham, Nottingham, United Kingdom (Presenting author)
Co-author(s) - Henderson, Julian, University of Nottingham, Nottingham, United Kingdom
Co-author(s) - Rolland, Joelle, University of Paris, France (Presenting author)
Co-author(s) - Shenery, Simon, University of Nottingham, Nottingham, United Kingdom
Co-author(s) - Dr. Oikonomou, Artemios, University of Nottingham, Nottingham, United Kingdom
Keywords: Epirus, Greece, Hellenistic glass, scientific techniques
Presentation Preference - Oral

Dodona Sanctuary was the major religious centre of north-west Greece, in the Epirus region, connected with the cult of Zeus Dodonaios and his wife Dione. According to ancient Greek tradition it is considered to be the oldest oracle in ancient Greek world. Archaeological evidence has confirmed continuous habitation from the Bronze Age (2800-1100 BC) to the end of the 4th c. AD. The Dodona Sanctuary flourished during the Hellenistic period and especially during the reign of King Pyrrhus when major reconstruction works took place. The Dodona Sanctuary played an important role as a political, administrative and religious centre during that period and its relationship with regions outside Greece, like Alexandria in Egypt, is well attested both archaeologically and historically. Our presentation will focus on glass found in the excavations of Prytaneion and Vouleutirion which were the major political buildings at the Dodona Sanctuary.

Our primary research objectives are: (1) to suggest the raw materials used to make the glasses; (2) identify any compositional contrasts between middle and late Hellenistic glass; (3) to suggest a provenance for the glass by comparing our results with other published datasets.

Our primary research objective is: to suggest the raw materials used to make the glasses; identify any compositional contrasts between middle and late Hellenistic glass; suggest a provenance for the glass by comparing our results with other published datasets.

Here we present results form 40 samples that we have analysed using SEM/EDX and LA-ICPMS analysis. The assemblages from which samples were taken consists of fragments of various vessel types (cone formed vessels, ribbed bowls, cast bowls, conical engraved bowls) of a variety of colours (deep blue, green, amber, colours).

According to the chemical analyses, the glass from Dodona is a typical soda-lime-silica type with added mineral salts (natron) as a flux. Its chemical compositions are homogeneous. Small differences in various major, minor and trace elements between individual samples suggest the use of different types of raw materials and also different production zones. A comparison of these glass chemical compositions with contemporary glass artifacts gives new insights into the production and distribution of glass used in Greek region during the Hellenistic period.

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TH1-08 Abstract 14
BEHIND THE GLASS: NEW REFLECTIONS ON GLASS IN IRON AGE SOCIETIES
Friday, 2 September 2016, 09:00-13:00
Faculty of Philology, Room SFS
Author - Polish, Joanna, University of Paris, France (Presenting author)
Co-author(s) - Vancluysen, Natalie, Academy of Sciences of the Czech Republic
Institute of Archaeology, Prague, Czech Republic
Keywords: Glass, Methods
Presentation Preference - Regular session

The aim of this session is to explore the main issues of the current research on Iron Age glass, its production and consumption processes. The deliberate production of glass began in the middle of the second millennium BC mainly to produce ornaments. From the south and east Mediterranean civilizations to European societies, a trade with glass beads and, later on, also with glass vessels and raw glass was set up. Glass-working developed in the Hellenistic world and also in the Iron Age Europe. A new object appeared in the 3rd cent. BC: the glass bracelet, a cultural and temporal landmark of the Iron Age (La Tène) civilization.

The multiplication of impressive discoveries of glass objects at Iron Age settlements and the development of new approaches to glass research allows new interpretation and a re-reading of this material. Glass is not only a chronological marker, but also an evidence of social relations, and technological and economic mutations in the Iron Age societies. What can we learn about Iron Age societies using a variety of approaches to glass finds? This meeting should allow us to focus on socio-economic aspects of glass-making and consumption of glass products, on mobility, trade networks and local identities.

Communications should reflect the wide scale of recent surveys and approaches to Iron Age glass research using the methods of archaeology, ethnography and archaeometry as well as technological or spatial studies.

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The results of an archaeological investigation of Early Iron Age glass beads from Lika, Croatia are presented. A distinct type of opaque blue bead, decorated with yellow concentric circles, or “eyes”, was widespread on the territory of the Iapodes, an Iron Age group inhabiting the area from Central Croatia to the Una river valley in Bosnia and Herzegovina. So far, Iapodean material culture has been studied in the cultural-historical manner, with the focus predominantly on chronology and typology. Production, technological networks and glass use have received little discussion apart from conjectures that these beads must have been of local production due to their perceived basic production requirements, their abundant occurrence in various areas, and to analogous production in the neighbouring regions. This study builds on typological analysis (and a few AAS measurements by Braun in 1983), tests the hypothesis of local production, and evaluates prior conclusions about the manufacturing conditions of 43 sampled beads by looking into their chemical composition with SEM-EDS and EPMA instruments.

The study shows how archaeometry can assist in providing a clearer picture of prehistoric production, use and trade of prestige materials. The paper deals with finds from the La Tene oppida and other contexts, based on finds from the Czech Republic. Chemical composition of the glass concerned is discussed.

Bibliography:


**TH1-09 Abstract 03**

**Prehistoric Glass from Iron Age Segestica (Present-Day Croatia)**

**Author** - curator Đurđić, Iven, Archaeological museum in Zagreb, Zagreb, Croatia (Presenting author)

**Co-author(s)** - Francij, Ana, UCL, London, United Kingdom

**Keywords:** archaeometry, glass objects, Iron Age

**Presentation Preference:** Oral

Owing to its prominent position at the crossroads of Pannonia, eastern Adriatic coast, northern Italy, south-eastern Alps and the Danube, the Segestica settlement, located at the mouth of the Kupa and Sava rivers in Central Croatia, became an important trade nexus in the Early Iron Age. This is archaeologically attested by the abundance of imported objects appearing at the site at this time, such as bronze vessels, weapons, horse gear, dress ornaments, and glass items. If compared to chronologically contemporary groups – the lpodes in Lika, Croatia, and the Lower Carniola group in Slovenia (which is also a possible glass production centre) - whose cemeteries have a high concentration of glass finds, frequency of glass items retrieved from Segestica seems scarce: twenty five beads and four bracelets. This is largely due to the fact that no Iron Age graves in Segestica have yet been found. Most of the glass items were retrieved during the 2015 excavation of the Pogorelac site, situated at the right bank of the river. The glass artefacts will be presented according to their typological and chronological parameters, and manufacturing techniques. In order to gain further insight into the use and trade of prehistoric glass in Segestica, and, more generally, into the technological traditions of glass-making in the Iron Age period, the items were also analysed using SEM-EDS. The results of the chemical analysis of various types of beads (strawfied eye beads, globular translucent light green beads, dark opaque beads with linear decoration, barrel-shaped and conical cone-shaped beads with protruding decoration, blue globular beads with wavy linear decoration) and bracelets (all blue in colour, but of various shapes; with smooth D cross-section, with three ribs, with five ribs – the mobid being the most prominent) will also be presented and interpreted.

The quantitative analysis focused on the possible difference in raw materials, technological recipes, and craft traditions of the (chronologically and culturally) distinct artefacts, in order to look at the variability in glass production and relationship between the various bead groups dated to Early (Halstatt) as opposed to the Late (La Tène) Iron Age, as well as the differences in the chemical compositions of glass beads and bracelets. Bracelets appear in this area around the third century BCE and are connected with the arrival of Celtic groups, which could potentially signify a different technological knowledge and tradition.

The results of the analysis shed light on the processes of the transfer of knowledge and perpetuation of glass making traditions, adding to the more comprehensive knowledge of the prehistoric glass use and trade in continental Europe.
I would like to present the results of an analytical program of La Tène glass characterization conducted on more than seven hundred glass objects from 32 different settlements of France, using Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) in collaboration with Bernard Gratuze. We had the possibility to study the important collections of Latarra (Hérault), Bobigny (Seine-Saint-Denis), Toulouse (Haute Garonne) and a part of the large glass deposit of Mathay-Manquere (Doubs). The study has also been conducted on 40 raw glass fragments from 5 shipwrecks sailed between the third century and the end of the second century B.C. One of these raw glass fragments was retrieved on a wood fire oven with through collaboration and the authorization of French ministry of culture and direction of underwater and submarine research, (D.R.A.S.M.). Glass bracelets were produced. It gives an experimental framework to this analytical study to observe the potential changes of glass compositions during its recast.

This experimental and analytical work allows us to observe evolutions of glass recipes during the second Iron Age. It gives new clues on the organization of raw glass productions. The objective of this communication is to share this result in order to propose it to future European projects on La Tène glass characterization.

TH1-09 Abstract 09
Romano-British glass bracelets: where La Tène Continental technology meets Iron-Age British design

Author - Dr. Hilewa, Taliana, Newcastle University, Newcastle upon Tyne, United Kingdom (Presenting author)
Keywords: glass bracelets, iron-age technique, roman Britain
Presentation Preference - Oral

The aim of this paper is to bring the Roman-British glass bracelets into the discussion of the Iron Age Continental glass bracelets. The paper suggests that the British glass bracelets were Roman Period British development of an existing Continental La Tène skill. Roman-British glass bracelets have primarily been studied from the regional perspective. Earlier research into the differentiation and typology of British glass bracelets suggested that British examples stand out in their Continental production technique compared to bracelets made on the Continent. The start of the production of the seamless glass annulars in Britain corresponds with the decrease in the circulation of these glass adornments on the Continent. In the late first century BC, the Continental glass bracelets gradually stopped being produced, yet the craft reappeared in Britain, which had no history of glass bracelets’ production prior to the Roman invasion of Britain in AD 43. The presentation attempts to answer the question as to where the inspiration and skills for the British glass bracelets came from by discussing their production technique.

The experiments conducted with the modern glassmakers and the close-inspection of the British glass bracelet fragments reveal that the British annulars were most likely produced in the similar manner as some of the La Tène Continental bracelet types, that is in a technique similar to that suggested by Joelle Rolland for some Continental types. However, the design of the British bracelets is rather different from the Continental ones. Most British annulars have either twisted cord decorations or trails with curved terminals. A convincing hypothesis was put forward by the earlier scholars that the design of some British types is likely to be closely related to, or may well have been developed from, the British insular Iron-Age beads.

The paper presents, therefore, a case-study for the interaction between craftsmen of various communities regarding the production and development of the British glass bracelets. It suggests that La Tène glass bracelet craft and technology continued well into the Roman times, contesting the common opinion that the iron Age production of the seamless glass bracelets was interrupted at the turn of the first century AD.

TH1-09 Abstract 10
Anchoring a material ‘culture clash’: ‘sealing wax’ red glass in Late Iron Age Britain

Author - Dr. Davis, Mary, National Museum Wales, Cardiff, United Kingdom (Presenting author)
Keywords: Britain, glass, late Iron Age
Presentation Preference - Oral

This paper will present work carried out on the analysis of Insular Late La Tène and Early Romano-British ‘sealing wax’ red glass. This was used principally as an inlay on high status decorative bronze work, which developed from the earlier La Tène traditions in both Europe and Britain of using opaque red ‘sealing wax’ glass to decorate metal artefacts. In late Iron Age Britain (1st century AD), the use of inlaid red glass diminished on objects exhibiting ‘Celtic’ styles and from regions in Britain resistant to Roman occupation. The quantity of this type of material produced was also significantly greater than in previous periods.

During the first century AD in much of the Romanised world, the composition of red glass changed significantly from the high lead high copper ‘sealing wax’ type used in the Middle Iron Age and Continental La Tène pieces to the use of low lead, low copper red glass produced for Roman mosaics and probably exported as tesserae or rods. However, within Britain the use of ‘sealing wax’ red glass was retained, but of a slightly altered composition to the majority used within the ‘Celtic’ world: one principle difference was a significant increase in antimony. Although not used for previous La Tène glass, there are a few examples of similar high antimony ‘sealing wax’ red glasses noted within the southern Mediterranean; as re-used glass vessel fragments in early mosaics in ‘nymphaea’ in southern Italy, in Hellenistic red glass and in red glass from Jerusalem.

Antimony was used in small quantities as a decolourant in clear glass; its addition in larger quantities in ‘sealing wax’ red glass was advantageous in several ways: it replaced iron as an internal reducing agent, produced a brighter red colour, and acted as a finishing agent. However, antimony ores are relatively rare in Britain, and there is no evidence these were imported.

Conversely, antimony was available in the form of lead antimonite, for which there were ancient and extensive trade networks. This was used as a yellow pigment and a colourant in glass. Yellow beads from the Middle and Late Iron Age in Britain were usually coloured using lead antimonite, and tesserae continued to be coloured with this wax into the Romano-British period.

One hypothesis for the prevalence of this distinctive composition of red glass in Britain is that yellow glass was converted to red by the addition of copper (and lead): metals readily available in Britain. If yellow glass is heated, lead and antimony can dissociate; the subsequent addition of copper (and lead), plus careful cooling in reducing conditions, could result in the production of red glass. This would account for the levels of antimony in Late Iron Age British red glass, for the change in technology, and for the increase in the use of red inlays. Theoretical amounts of copper and lead can be added to the composition of analysed yellow glass to achieve results similar to those of analysed red sealing wax glass from Britain.
Sandwich gold-glass: elitist glass production in Hellenistic Mediterranean

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Keywords: Hellenistic glass, Mediterranean, Sandwich gold-glass

Presentation Preference - Poster

Sandwich gold-glass is a particular technique, employed between the 3rd and the 2nd century BCE to produce some of the most precious and rare glass bowls ever realized. This production is testified by about 20 specimens, which were found among Southern Italy, Rhodes, Anatolia, Syria-Palestine, Egypt, Mesopotamia, Black Sea, Caucasus...

The technique consists in assembling two colourless glass vessels (obtained by slumping, grinding and polishing), which fit perfectly one into the other. Between them, a gold-leaf decoration is sandwiched.

These artifacts belong to the so called "Canosa Group", which was attributed to Alexandria of Egypt and includes several glass techniques.

My interest in the Sandwich gold-glass production started with the purpose to define "Alexandrian glass", strongly celebrated by the written sources. Through a preliminary investigation it was possible to understand that "Alexandrian glass" was an archaeological common place, still in the latest decades. The only group unanimously recognized as Alexandrian, though not basing on solid archaeological evidence, appeared to be the Sandwich gold-glass. This became the topic of my Master thesis in Classical Archaeology at the University of Padua (2012).

The study revealed also a great variety of gold-glass techniques, before and after this particular and limited production, from the second half of the 4th century BCE, and spread around the Mediterranean basin in the following ages.

The main aim of the project was to conduct a comprehensive analysis, combining different approaches, starting from the written sources. They constituted in fact the principal clue for an Alexandrian attribution (in particular Athenaeus of Naucratis).

An important step consisted in the creation of a catalogue, obtaining a clear and reliable morphological classification.

The comparative analysis on morphology and decoration revealed a correlation among shapes (mostly hemispherical, ovoid or shallow bowls), technical details and subdivision of the decorated surface.

The decorative motives, mostly geometric and vegetal, were classified. Since they are widespread in the Mediterranean and beyond, they cannot provide significant help in localizing the workshops. Only the two specimens with figurative scene (a sacred landscape and a hunting scene) permit to lean toward Egypt.

The recognition of the workshops location on archaeological basis, also through the comparison with other contemporary productions (such as silverware, faience, pottery), remains difficult. Nevertheless, the presence of few highly specialized workshops in the Eastern Mediterranean basin (Alexandria, Aegaean, Syria-Palestine) seems the most reliable hypothesis.

The particular lavishness and rarity of these vessels and their meaning as status-symbol allowed also an analysis of the socio-economic dynamics, related to the diffusion and consumption of these luxury items, expression of an extremely restricted élite.
TH1-10 Abstract 02

Between the forest and the river: hunting and fishing in the Danube Gorges in the Mesolithic

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Keywords: Mesolithic, Danube Gorges

Presentation Preference - Oral

Ever since the discovery of the site of Lepenski Vir, it was recognized that fishing had an important role in the settlement of the Danube Gorges during the Mesolithic. The importance of wild game hunting has also been confirmed by the analyses of animal bones and emphasized ever since the first published archaeozoological reports. The issue of the role of terrestrial vs aquatic resources in the diet has been addressed from the perspective of stable isotope analysis, with somewhat contrasting results. The analyses of stable carbon (δ13C) and nitrogen (δ15N) isotope ratios have suggested that the Mesolithic inhabitants of the Danube Gorges consumed considerable amounts of fish, with gradual broadening of the dietary spectrum to include terrestrial resources at the onset of the Neolithic (Bonsall et al. 1997; 2000; 2004; Grube et al. 2003; Bork et al. 2004), whereas the analysis of sulphur (Δ34S) has suggested that there were significant inter- and intra-site variations in dietary practices (Nehlich et al. 2015). However, this issue had not so far been addressed in greater detail from an archaeozoological perspective, mainly due to great difficulties and biases in cross-referencing quantified mammal and fish remains, but also due to the fragmentary nature of faunal assemblages from some of the sites. Although assessment of the precise proportion of wild game meat vs fish in the diet is elusive, particularly owing to the differences in mammalian and fish skeletons, and biases affecting their survival and recovery, we have attempted to address this issue by estimating their dietary contribution and nutritional potential on the basis of the sum of average weight of the minimum number of individuals for both mammals and fish. In addition, we estimated the proportion (size and number) of the economically most important fish (perch, pike, catfish and acipenserids) in the assemblages from the sites of Lepenski Vir, Vlasac and Padina. Even with methodological biases concerning recovery techniques employed during the old and new excavations, and different areas of the sites they encompassed, we found that fish species composition on the three sites varied to some extent. Given the site locations, their short distance from one another and similar landscape and environmental conditions (vicinity of cataracts and large whirlpools), this propensity towards fishing particular kinds of fish could suggest that the sites functioned as specialized fishing centres, and held different species of fish in special regard.

TH1-10 Abstract 03

Mesolithic boar tusk processing in the Iron Gates: a typological and experimental approach

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Keywords: Mesolithic, Sus scrofa, tusk

Presentation Preference - Oral

The Mesolithic settlements in the Iron Gates have yielded rich assemblages of modified Sus scrofa canines, exemplified here by the site of Icoana (Romania). This raw material seems to represent, for Eastern European, a hallmark of Mesolithic. Indeed, during the Mesolithic, the number of pieces made of Sus scrofa canines decreased constantly, becoming sporadic during the Chalcolithic. The typological categories identified are scrapers, bevelled tools, combination tools and adornments. Debitage remains are also present, indicating in-situ task processing. Boar tusk was readily available from the animals that were killed, and analysis of the faunal remains identified a large number of boar bones within the mammalian assemblage. Our study aimed to identify the transformation pattern both of the tooth and the functional marks, which could offer clues to the way in which the pieces were used. An experimental study was conducted, aimed both at the identification of transformational patterns of the tooth, and the presence of wear marks as possible functional indicators. The results of our experimental programme suggest wood processing as the main activity performed with boar tusk tools.

TH1-10 Abstract 04

Icoana revisited: an archaeozoological perspective

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Keywords: Mesolithic, archaeozoological remains, food refuse

Presentation Preference - Oral

The first study of the archaeozoological remains from Icoana was made 40 years ago by Alexandra Bolomey. The importance of this settlement led us to re-examine all the faunal material using methods such as slaughtering curves, ageing and sexing, biometry, cut marks, butchery patterns and palaeogenetics. This has resulted in a new interpretation of the local fauna and of Mesolithic hunting activities. All the remains are interpreted as food refuse, with high fragmentation ratios. The list of taxa identified includes mole (1 species), foxes (3 species), hares (5 species), red deer (2 species) and roe (3 species). The assemblage is dominated (93.5%) by wild mammals, with over 4300 identifiable specimens. Sus scrofa (wild boar) dominates, followed by Cervus elaphus (red deer) and Capreolus capreolus (roe deer). By weight, deer remains are the most important, followed by wild boar. Other taxa represented are Rupicapra rupicapra (chamois), Bos/Bison (aurochs/bison), Ursus arctos (brown bear), Canis lupus (wolf), Vulpes vulpes (red fox), Meles meles (European badger), Lutra lutra (European otter), Martes sp. (marten), Felis silvestris (wildcat), Lynx lynx (lynx), Castor fiber (European beaver), Lepus europaeus (European hare). The dog (Canis familiaris) is the only domestic mammal present in the site. Cut marks identified on the bones show that dog contributed to the food supply, which was also observed in the prehistoric levels at Lepenski Vir, Vlasac and Padina.
Lacustrine settlements of hunter-fishers in the Mesolithic–Early Neolithic of the forest zone of European Russia are part of the particular cultural and stable economic world of “the last hunter-gatherers”. The economy was based on hunting elk, beaver, aquatic and wading birds, as well as intensive activity. The site of Zamostje 2 was located in the centre of a wide lake plain in a former glacial basin. Cyclic fluctuations of the palaeolake level and a gradual change in the landscape did not influence subsistence strategies of ancient inhabitants greatly, in spite of the appearance of pottery making techniques. Bone hunting always occupied an important place in the subsistence activity of the Zamostje 2 inhabitants. The bone industry includes hundreds of implements made from beaver jaws and incisors, used as woodworking tools, as well as ornaments and pendants. In spite of pronounced changes in cultural traditions over more than 2000 years, the main principles of production, shaping and final use of the tools made from beaver jaws remained the same. This, as well as some other specific types of bone tools, typical of the Upper Volga region, raise the question of how an ecological niche influenced some aspects of human activities and the rational use of natural resources.

TH1-10 Abstract 07

**Exploitation of animal raw materials in the Early Neolithic in the Balkans**

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**Keywords:** bone technology, Early Neolithic, osseous raw materials

**Presentation Preference:** Oral

Raw material selection of animal hard tissue is directed by technological, but also cultural factors. The availability of specific skeletal elements, their physical and mechanical properties, as well as cultural attitudes toward a certain animal and its body parts are the main factors in the process of selection. In the Early Neolithic of the Balkan region, osseous raw materials had an important role for crafting everyday tools, but also personal ornaments. In this paper we present some aspects of the exploitation of osseous materials, in particular raw material acquisition and management. Bones from both domestic and wild animals were used, but antlers, teeth and occasionally, moose shells. Preferences in the selection of a specific skeletal element of a specific animal for a specific tool type may be observed - for example, the preference for cattle metapodial bones in spoon and projectile point manufacturing, the predominance of skeletal elements from wild species for ornaments, etc. Furthermore, a certain diversity among different Early Neolithic communities may be observed, especially in the ratio of antlers; in some cases antlers of a certain species are represented, while in others they are almost completely absent. To some extent, this is related to the immediate environment, but also is connected with differences in economic activities and local cultural preferences.

TH1-10 Abstract 08

**Changes in pig populations feeding in the context of animal domestication in the northeast Iberian Peninsula**

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**Keywords:** animal domestication, early Neolithic, pig management

**Presentation Preference:** Oral

The contribution of animal domestication to the socio-economic changes in the Iberian Peninsula during the spread of the Neolithic in the first half of the Holocene is indisputable. Animal domestication was a transcendental turning point in the management of animal resources. Among the domesticated species, pigs were an important food source. However, it is difficult to discriminate between domestic (Sus domesticus) and wild (Sus scrofa) species in the faunal assemblages of this period. Several methodological approaches have been applied to address this issue, the most common being based on morphological and biometric criteria. Stable isotope analysis of bone remains can also provide valuable insights into human-faunal interactions, to discriminate between domestic (Sus domesticus) and wild (Sus scrofa) species in the faunal assemblages of this period. The contribution of animal domestication to the socio-economic changes in the Iberian Peninsula during the spread of the Neolithic is a particular concern for archaeologists because of evidence of very early metallurgy, incipient social stratification, and (at many sites) a recreation of the exploitation of wild animals in the subsistence economy (although domesticated animals continue to be important). Since 2002, excavations at the Tell near Pietrele, Romania (on the floodplain of the Danube River) have produced abundant evidence of the exploitation of fish and other aquatic animals both in the form of faunal remains and some of the technologies used to procure them. Although examples of very large catfish and cyprinids are common in the assemblage, wet sieving of soil samples has also revealed the presence of numerous bones from very small fishes - indicating a very intensive exploitation of aquatic resources by the site’s occupants. Understanding the fishery is essential to understanding how the settlement was provisioned and to questioning why wild resources once again became so important at some locations during the Copper Age.

TH1-10 Abstract 09

**Aurochs’ distribution and evidence of hunting in the pre-Neolithic and Neolithic Central Balkans**

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**Keywords:** Aurochs, Central Balkans, pre-Neolithic and Neolithic

**Presentation Preference:** Oral

**Abstract**

Cattle played a dominant role from the very beginning of neolithization in the Central Balkans, unlike in southernmost Europe, where sheep and goat, mostly for environmental reasons, preceded and subsequently kept their key position in animal husbandry. As genetic evidence suggests, cattle was introduced to Europe from its initial centres of domestication in the Near East. However, incidences of local domestication cannot be completely ruled out, and, even more so, hybridization of domestic stock with wild progenitors. In order to understand whether these processes ever happened, data on the distribution of the wild ancestor of cattle in the region are important, as well as its features observed from skeletal remains and archaeological contexts of discovery. Although scarce, aurochs were present in the Central Balkans during the Late Pleistocene, as can be judged from the faunal remains from Paleolithic sites and alluvial deposits. The steppe bison, another large bovid of comparable size and ethology, was more frequent. Its prevalence is documented both by the number of sites where its presence has been confirmed, and by the ratio of bison and aurochs remains at sites where both species were found.

Steppe bison became globally extinct towards the end of the Pleistocene, although the more precise dating of its disappearance in the region is not known. It can be hypothesized that aurochs consequently became more numerous and substituted bison in an empty niche, but there is also a lack of data on the presence of aurochs at the end of the Late Glacial and the beginning of Holocene. The remains of aurochs from Pleistocene alluvial deposits mainly consist of cranial parts, whereas those from Paleolithic sites include scattered bone fragments and teeth, which makes it largely impossible to determine whether they accumulated as prey of human hunters or large animal predators. The earliest occurrence of contextualized aurochs remains is a partial skeleton discovered in a Mesolithic layer at Velenska in the Danube Gorges. The processing of this animal carcass is evident from the butchering marks on the articulated neck vertebra. During the Mesolithic, aurochs remains are scarce at other sites in the Danube Gorges and other parts of the Central Balkans. In the Neolithic, the remains of aurochs became a regular feature of assemblages. Not only is the aurochs bone refuse, but mostly in modest proportions, show that the intensity of hunting was not high. Nevertheless, owing to its cognation to domestic cattle, potential local domestication trials and hybridization, or solely to its impressive appearance, the significant symbolic role of this large bovid, one that is going to endure throughout prehistory, was probably established already at the onset of the Neolithic. In this respect, the sudden and synchronous appearance of aurochs' remains made from aurochs metatarsal bones in the Central Balkans, as well as within the large area stretching from Anatolia to Pannonian plane and Carpathian Mountains is intriguing.

TH1-10 Abstract 10

**The Copper Age fishery at Pietrele, Romania (5th millennium BC) and the return to wild resources**

**Author:** Ritchie, Kenneth, ZBSA, Ikast, Denmark (Presenting author)

**Keywords:** Copper Age, fishing, Romania

**Presentation Preference:** Oral

The Chalcolithic period (5th millennium cal BC) in the area of the Lower Danube River is of particular interest for archaeologists because of evidence of very early metallurgy, incipient social stratification, and (at many sites) a recreation in the exploitation of wildanimals in the subsistence economy (although domesticated animals continue to be important). Since 2002, excavations at the Tell near Pietrele, Romania (on the floodplain of the Danube River) have produced abundant evidence of the exploitation of fish and other aquatic animals both in the form of faunal remains and some of the technologies used to procure them. Although examples of very large catfish and cyprinids are common in the assemblage, wet sieving of soil samples has also revealed the presence of numerous bones from very small fishes - indicating a very intensive exploitation of aquatic resources by the site's occupants. Understanding the fishery is essential to understanding how the settlement was provisioned and to questioning why wild resources once again became so important at some locations during the Copper Age.
BETWEEN LANDING SITE AND VICUS - BETWEEN EMPORIUM AND TOWN. FRAMING THE EARLY MEDIEVAL URBAN DEVELOPMENT

THI-11 Abstract 02
Before and after the emporium. The early and late phases of Walichrum (Domburg-Oostkapelle, NL)

Author - Dr. Deckers, Pietarijen, Vrije Universiteit Brussel, Etterbeek, Belgium (Presenting author)
Presentation Preference - Oral

Walichrum, situated near the present-day town of Domburg (Netherlands), is often referred to as one of the late Merovingian and Carolingian emporia, an interpretation mainly based on the substantial number of coins collected on the eroding beach by 19th-century antiquarians. However, a review of the full range of evidence makes clear that this emporium did not emerge out of nothing, situated near a Roman temple, the site probably continued to function as a cult site throughout the Early Middle Ages and derived some of its early significance as a trading site from this. Similarly, the site developed as a staging post under the Carolingian rule, from the second half of the 9th century onwards, has been neglected. Previously, it was thought that the site was abandoned in the latter 9th century, a few decades after a recorded Viking raid in AD 837. However, the re-evaluation of the evidence brought to light late 9th- to 11th-century material attesting to continued activity. This, in turn, necessitates a renewed assessment of the relationship with the nearby ringfort of Domburg. Previously the fort was thought of as a successor to Walichrum, the refuge of the latter’s inhabitants in the politically unstable post-Carolingian period.

Thanks to new research the fort area now emerges as an integral part of Walichrum from the 7th or 8th century onwards, long before the construction of the fort in the third quarter of the 9th century.

This paper will trace the life trajectory of Walichrum, with special attention to these hitherto overlooked early and late phases. The developments on the site will be framed in wider discussions of landing places and urban settlements in northwestern Europe. This will be done in reference to the dynamic coastal landscape in which this site was located, which during the period under consideration developed from a remote barrier island in the Scheldt estuary, backed by an inhospitable tidal marsh, to the dune belt of a large island rich in sheep-grazing grounds. It will be argued that the site’s occupation history, in particular its final phase and ultimate disappearance, was determined to a large part by regional socio-political developments, in turn linked to much broader cultural and political changes in the North Sea area.

THI-11 Abstract 03
Bypassing monolithic entities: diachronic and spatially informed approaches to early medieval towns

Author - Wouters, Barbara, Vrije Universiteit Brussel & University of Aberdeen, Brussels, Belgium (Presenting author)

Keywords: early medieval, geoaarchaeology, urbanisation

Presentation Preference - Oral

The settlement areas of early medieval towns have in the past been subject to generalising interpretations of their character, layout and function. Changes in the towns’ dynamics over generations of town dwellers have often not been addressed, while these changes are the key to a multi-faceted understanding of the daily lives of the inhabitants and how these may have changed over time. The complex nature of urban deposits has in some cases prompted excavation using a random division in spits, while an opposite reflex is necessary to produce a clearer phasing of each separate case. Before comparisons are made, the individual life trajectory of each town should be understood to its fullest.

This paper examines how geoaarchaeological approaches (micromorphology, micro-XRF, and other techniques) contribute to a more nuanced understanding of these towns, with a focus on the earliest and latest phases of the towns under study. Illustrating this approach with case studies from the Low Countries, including Tongeren and Antwerp, and Scandinavia, such as Hooley and Kaupang, this paper makes a case for a particularistic examination of early medieval towns before wider comparisons are made.

With current geoaarchaeological methods, it is possible to record and interpret separate phases of each town in more detail, to collect finds accordingly and source dating materials more securely. It is also possible to add information about well-dated but unclear phases of the towns, such as in the case of homogeneous deposits, so-called dark earths. The latter often occur precisely at the beginning and perceived end of early medieval towns, making their interpretation a challenging endeavour. Not every single layer of deposit or nuance is captured by geoaarchaeological means, but more details can be added to the state of the art of each individual town, perhaps even narrowing down the scope to particular changes at the scale of generations. Not just a diachronic approach, but one that takes into account diversity on a horizontal level as well, is necessary to further grasp the complexity of these urban entities.

A combination of a diachronic approach and spatially informed one on a micro-scale yields archaeological results with the strongest interpretive value, and, if integrated into the research project design from the very beginning, provides a way to contextualise the enormous amounts of material these sites produce.

In Viking studies one of the most attended field of research is – apart from the process of Christianisation and Scandinavia’s emergence into the occidental Europe – the emergence of urbanism in a remote area where the concept of towns was never introduced before. Interestingly enough scholars agree on the fact that in Scandinavia itself only four sites can be regarded as urban at all. Despite their limited number these few sites tend to be conceived as chronologically rather monolithic entities taking the best preserved evidence as a characteristic for the whole settlements, which in fact have – mostly as a discontinuous layer, event or nuance is captured by geoaarchaeological means, but more details can be added to the state of the art of each individual town, perhaps even narrowing down the scope to particular changes at the scale of generations. Not just a diachronic approach, but one that takes into account diversity on a horizontal level as well, is necessary to further grasp the complexity of these urban entities. A combination of a diachronic approach and spatially informed one on a micro-scale yields archaeological results with the strongest interpretive value, and, if integrated into the research project design from the very beginning, provides a way to contextualise the enormous amounts of material these sites produce.

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TH1-11 Abstract 04
Changing Places: a comparative discussion of London and Tours in the Early Medieval Period
Author - Donnelly, Harriet, The University of Sydney, St Leonards, Australia (Presenting author)
Keywords: early medieval, settlement patterns, urbanism
Presentation Preference - Oral

The settlements of Western Europe experienced a period of significant transition following the decline of Roman control in the 5th century AD. The movement of people and ideas resulted in change and reorganisation for many communities living in what had previously been Roman settlements. Such developments occurred both within the boundaries of the old structures, and by expanding or moving beyond those existing limits. Many of those sites which saw significant change developed slowly over a longer period of time, often not taking the recognisable Medieval shape until at least the 12th century. This paper examines the developmental stages that occurred at two settlements which saw significant changes from the 5th to 10th centuries AD: London and Tours. Both developed according to a pattern of twin towns with the two halves divided by a small area with limited occupation. London and Tours were both hugely important settlements and a comparative discussion of respective changes at each site during this period highlights the various methods by which such settlements developed as well as providing insight into both a trade driven and monastic model of the twin town phenomenon. Examination of these sites and how they changed during the Early Medieval period, will enable a deeper understanding of the complexity of urban development and transitional processes.

TH1-11 Abstract 05
A Subversive Urbanism: Venice in the 9th century
Author - Calatroni, Diego, Stanford University, Stanford, United States of America (Presenting author)
Keywords: Adriatic, Emporia, Venice
Presentation Preference - Oral

How did Venice’s urban form look like in the 9th century? Venice suffers from its own legends. The materiality of the rising Venice has been generally perceived as sites without time and space, where a fully established myth describes the origin of the city. The Venetian lagoon, in fact, was the place where the noble Romans sought refuge from the barbarian hordes: they had been forced to move to uninviting areas among the marshes to be free and safe. In the islands the newcomers were able to build a place that - according to recent narratives - was ideologically and materially comparable to the old Roman sites. The uncovered wood structures of the early medieval houses, for example, have been described as a poor reaction to a situation of ignorance, without an important archaeological assessment, on the contrary, has shown how these buildings were comfortable and perfectly designed for the lagoon environment. Clay foundations and wood structures were technically appropriate for a cold and humid setting. The choice of the lagoon itself was not forced. The settlement patterns were not exogenous, but followed precise socio-economic and economic designs. The settlement followed the movements of the lagoon and the river mouths: the first Venetians tried to occupy the more distant islets in order to control both the maritime and the riverine sailing routes. Artisanal productions (glass goblets, parchments, metal crafts) were not subsistence economies; the emporia layout of the sites allowed the circulation of raw materials, techniques and skilled people. Venice was a proto-capitalistic site. A large part of the production (shipyard, timber industry, glass and metal productions, etc.) was made by labour forces with a status very similar to slaves.

TH1-11 Abstract 06
How and when Venice became Venice. Framing the urban development of a trading town in Italy
Author - Dr. Piazzenta, Annamaria, Ca Foscari University, Venice, Italy (Presenting author)
Keywords: Early Medieval Venice, Trading Town, Urban Identity
Presentation Preference - Oral

Venice was one of the most important cities in Europe in the late Middle Ages and the Modern era, when it formed an independent state which controlled trade across the Mediterranean and towards the Levant. A myth of Venetian uniqueness has been cultivated by local historians and international specialists which has always attributed to the town on the lagoon an innate and unique vocation for political autonomy and trade.

This in fact is only partially based on historical facts. Although some exceptional elements are observable – such as the local government of the Venetian public assembly (deposito) and the amphitheatrical nature of the settlement (insulae) and the beach much overestimated at least as far as the Early Middle Ages is concerned. In the 9th and 10th centuries the apparently novel appearance of Venice on the Italian political scene and the associated emergence of the Venetian public assembly predated by over a century the constitution of the contemporary ‘Carolingian empire’ which increased demand for luxury goods with Venice’s special location on the sea near a great river delta (the Po). Although it is likely that the convergence between these two factors had played a more major role in the sudden development of the city, it is often forgotten that Venice shared the same ecological position and the same economic system with many other trading towns at least in this earlier period. These facts pose other challenges to the traditional triumphalist explanations. Why did Venice enjoy a more durable success in a longterm perspective with respect to other towns? What exactly made the difference in the Venetian case? Was it mere coincidence that Venice was the seat of a political authority, the doge, whereas the other emporia were not? Was the fact that this authority was secular (a duke) rather than religious (a bishop) as elsewhere the key point? The paper will seek to answer these questions by analysing the case of Venice in a comparative context and in the light of both archaeological data and written sources, by suggesting for the city, before 1050, typically rather than exceptionally in terms of population size, accumulation of wealth and socio-economic development.

TH1-11 Abstract 07
The origins of urbanization in the forest-steppe zone of Western Siberia
Author - Tsymbalyuk, Svetlana, Institute of problems of devlopment of the North, Tyumen, Russian Federation (Presenting author)
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Keywords: fortresses, urbanization, Western Siberia
Presentation Preference - Oral

A huge archaeological material testifies that the origins of urbanization in Western Siberia should be associated with the formation of ancient fortified settlements - fortresses that appeared on this territory in the Bronze Age and protohistoric period of the Iron Age. The first simple fortifications in the form of stockades or fortified dwellings in the forest-steppe zone of Trans-Urals are fixed on the materials of the Bronze Age monuments (the II millennium BC). During this period their number was insignificant, the bulk continued to be unfortified villages. The increase in the number of fortified settlements was greater in the transition period from bronze to iron (the 2nd quarter of the 1st millennium BC). They were round-oval in shape with areas up to 4 hectares. There were major suburbs around them. The climates of the time were poorly fortified villages. The appearance of first fortifications is connected with the destabilization of the political situation in the region as a result of the influx of migrants from the North of Western Siberia. Then the strengthening of the village with a palisade or a fence was not defensive but probably ideological in nature. The aim was to preserve the traditional cultural traditions within the community. In the early Iron Age (the middle of the 1st millennium BC – the middle of the 1st millennium AD) the number of settlements increases. In the forest-steppe zone of Trans-Urals their number more than 100. One-third of excavated settlements are multicultural, from 15 to 20 fortified settlements belonged to carriers of certain traditions. Within this period the dynamics of fortification is well traced. Forthrighten of early stage continue the tradition of the transition from bronze to iron time. Archaeologically they are fixed in the form of small grooves on the perimeter, holes for posts, charcoal and traces of burnt wooden structures in the embankment of the earthen rampart. They are reconstructed as a hedge of stockade fence around the residential area. Most of them could not perform a defensive function. Already at that time there is specialization of fortified settlements as centers of metalworking, import, exchange, cooperation of multicultural population. By the 5-3 centuries BC increasing complexity of fortifications is recorded. The number, height and power of the earthen ramparts with wooden fortifications in the form of the palisades, fences, walls, crakes, towers and surrounding ditches are increased. There is not only a general tendency to strengthen the fortifications, but also to the complexity of their structure: double-, triple area settlements are emerging. The search for new forms, combinations of known elements and structures to enhance the overall defensive capability is noted. The material of some fortresses is mixed and consists of Chinese and Central Asian origin indicating them as centers of trade and exchange. The fortresses become the centers of origin and transmission of cultural innovation, and the process of urbanization and the resulting changes in the ancient and medieval societies to the greatest extent determined the development of the region.
TH1-11 Abstract 08

The early urban development in the steppes

Author - Dr. Habil. Ochir-Goryeva, Institute of archaeology Tarastan academy of sciences, Kazan, Russian Federation (Presenting author)
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Keywords: Chasarian Kaganat, steppe, urban development

The earliest urban sites in the East European steppe date to the Early Medieval Epoch and, in particular, to the time of the Chasarian Kaganat (from the 7th to the 9th cc). So far their number has been limited to several, now famous, urban developments located along the Don river such as Sartel-Belaya Vezha, Pravoberezhnoye Timlyanskoye gorodische (urban development), and Semigrakorosheye gorodische. Numerous urban developments in the adjacent areas of the foreststeppe Podorje (the Don basin valley) and Pronemorovye (the Dnepr basin valley) dating to the Chasarian epoch are representative of the material culture of the Don Alan, Bulgar, Oguz, Pecheneg, and Slavs. Those of the Crimea and the Northern Caucasus associate with the culture of local sedentary populations who were agrarians. Only those sites that are located between the Don and the Volga belonged to the Chasarian Kaganat proper, hence it is these urban developments that can be related to ethnic Chasarians. The last decades saw simultaneous discoveries of several sites of the Chasarian Kaganat in the Volga-Don steppes. In the late 1990s at a kilometer distance from the Pravoberezhnoye Timlyanskoye gorodische an urban development was opened, which contained the ruins of fortress walls of white lime stone. One of the stone blocks displayed a tamga of a typically Chasarian shape. The new fortress got the designation of Sarkel-3 as a part of the whole agglomeration complex that includes also Sartel and Pravoberezhnoye Timlyanskoye urban developments. At the same time a Chasarian epoch tower was opened under the layers of the Golden Horde urban center on the site of the village of Samosdela in the Volga estuary. According to the archaeologists that led the excavations, the geographical position and the character of the constructions of the Samosdela tower layer suggest that these may be the remnants of the town of Itil. In 2008 followed the opening of the Bashanta gorodische which contained the ruins of constructions made of white clay stone and tile fragments parallel to those found in late Chersonesos on the Crimean peninsula (Jacobson, 1958, 1964). One of the stone blocks also had a tamga cut in it. According to two radiocarbon dates (625-655 at 68.3% and 600-662 at 95.4%) and (672 - 782 at 90.6%), resulting from the analysis carried out by Leibnitz Laboratory of the Kiel University (Germany), Bashanta turns out to be the earliest of the urban developments in the East European steppe dating to the time of the Chasarian Kaganat. The excavations of 2000-2005 of a number of late medieval urban centers and developments in the Lower Volga, undertaken by the Khablov Institute of Archaeology of the Tatarstan Academy of Sciences, resulted in discovering cultural layers typical of the urban epoch. As a number of the recovered finds show, this period of time is well known from the time of the Chasarian Kaganat. Thus, further effort along the lines will contribute to an understanding of early medieval urbanism in the archeology of Europe.

TH1-11 Abstract 09

Viking age settlement networks and the rise of the early urban centers on the Upper Volga

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Keywords: large unfortified settlements-early urbanization, Upper Volga

Early urbanization of Northern Rus', including Upper Volga region, is usually presented as the formation of the trading centers which emerged in IX-X c. on the river routes from the Baltic to the East in connection with the Olcif silver circulation and later developed in the centers of control over the trade networks. This vision of the early urban centers of Rus' was strongly inspired by the studies of emporia in North-Western Europe. One of the central issues of this concept is the idea of drastic contrasts between the rural sites and the early towns, both in their economical background and cultural shape. Field investigations in the Suzdal Opolie region in the Upper Volga, which constituted the core area of North-Eastern Rus', conducted in the two recent decades, produced extensive new data on the Viking age and Medieval settlement, cultural landscapes, rural sites and early towns with the perspective of better understanding of settlement hierarchy and social contexts.

Most important of elements of this network were - the large unfortified settlements - extensive unfortified sites or site clusters, with the area from 4 to 10 hectares. Large unfortified settlements produce evidence of trade, craft production and agrarian activities, as well as of prosperity and high social status of a number of the settlers. Suzdal town, known from the written sources as the main urban center in the region, was notable only in the 12th century. There is no evidence of its social and political importance in the X-XI c. The rise of Suzdal town didn't lead to the collapse or decay of the large settlements. Most of them produce evidence of development and prosperity in the X-XI c.

TH1-11 Abstract 10

Viking winter camps: towns on the move?

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Co-author(s) - Prof. Richards, Julian, University of York, York, United Kingdom
Keywords: urbanism, Viking winter camp

This paper will contribute to the debate about urban origins through exploration of the new archaeological evidence from the camps at which Viking armies were based during the period of raiding in the ninth century. Since they were evidently occupied for only a number of months, they do not accord with the definitions of urbanism that we have accustomed to adopting. Yet in most other respects it is now difficult to deny their urban attributes. In particular, discussion will focus on the evidence from Torkey (Lincolnshire), where the Viking ‘Great Army’ is recorded as having spent the winter of 872-3. Recent archaeological investigation has illuminated the nature of this site, which is considerably larger and more complex than hitherto suspected. It has yielded evidence for trade (in the forms of bullion, weights and coinage), manufacturing (including the processing of precious metals, smithing and textile working), minting of coin (in the forms of imitations of local currency), and religious practice and burial. The site has undoubted urban attributes, but can we really conceive of a ‘town’ as a mobile enterprise? And, if so, how do we envisage that the community supported itself? The archaeological evidence from the winter camps at both Torkey and elsewhere, not only challenges definitions, but it also prompts us to look at a new range of sites in our analysis of the development of urban settlements, since the winter camps did not develop in any direct way into the towns of the later Anglo- Saxon and medieval periods. They are physically unrelated, albeit connected in terms of the range of activities undertaken on them. The scale of the winter camps as we now understand them suggests that they housed unusually large concentrations of people, and may have given many of the members of the Viking armies their first experiences of urban living; they may also have provided a similar introduction to urban life for many of the communities in the regions where they were established. The newly emerging archaeology of Viking winter camps makes a novel, and as yet largely untapped, contribution to debates about urban development.

TH1-11 Abstract 11

The emergence of Odense, the third largest city of Denmark.

Methods, definitions and dynamics

Author - Dr. Runge, Mads, Odense By Museum/Odense City Museums, Odense, Denmark (Presenting author)
Keywords: Ringfort, Urbanism, Viking Age

The Viking Age and Medieval center of Odense were before the introduction of the systematical archaeology heavily destroyed by development work without prior archaeological excavation. This means that the earliest history of the town rests on fragmentized ground. An ongoing research project responds to this and has started the chase on the earliest history of Odense. The project is based on the interpretation of the urbanism combined with new analysis on old material, among others new AMS dates. At the same time new large-scale excavations in the city center brings new possibilities to get the most out of the remaining parts of the city’s past.

Also a new excavation at the ringfort (treleborg) Nonnebakken is relevant in this aspect. The paper will focus on the following questions. Why is Odense and not one of the other late iron age central places that becomes the centrality? What is the significance of Nonnebakken - the only treleborg nearby a contemporary city - in relation to the making of Odense? Or is it the ringfort that is placed by the city? May a smaller trade- and crafts area be seen as an urban phenomenon? Or must there be more to it?

These questions are essential in the context of Odense, but will be used also to address central points in a principal discussion on methodological challenges, definitions and dynamics regarding early urbanism.
TH1-11 Abstract 14

Hot beds? Manure pits in medieval Ackerbürgerstädte

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Keywords: agrarian towns, hot beds, late medieval
Presentation Preference - Oral

Dutch urban archaeology has uncovered hundreds of pits dating from the thirteenth to fifteenth century containing animal manure mixed with bedding straw. On occasion an array of manure of pits has been uncovered. The traditional explanation is that they were used to store manure for agricultural use. This explanation is questionable given that manure requires aerobic conditions and frequent turning for it to be transformed into useful fertilizer. A dung heap rather than a manure pit would be expected. But archaeologists do almost systematically encounter dark earth dating from the 10th-13th century AD, period where the agriculturists situate the early town development. An interdisciplinary approach has been developed to study these dark earths, involving not only historical research and archaeology, but also geoarchaeological (including soil micromorphology and physico-chemical analyses) and archaeobotanical studies. These studies highlight that several human activities can be hidden behind complex formation processes, some related to the development of an agro-pastoral system (Devis et al., 2009; 2011; 2013; Vrydaghs et al., 2016). The present contribution will discuss the results of the study of these dark earth units, and demonstrate how they contributed to the understanding of the early town development and the importance of agricultural activities, the location of crop and pasture lands, and the cultivated crops.

References:


TH1-11 Abstract 15

The rural component in the early urban development of Brussels, Belgium

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Keywords: Brussels, Geoarchaeology, Urban agriculture
Presentation Preference - Oral

The study of the early development of Brussels, Belgium, has shown to be a challenge. Over the last century historians have heavily debated on the scarce existing - often very questionable - historical sources, trying to explain the emergence of this city situated along a steep slope bordering the Senne river. In the last decades, a new generation of historians underlined the importance of agricultural development and expansion as an important factor for the early development of Brussels (Charruadas, 2011).

Of course the question should be raised whether there are any archaeological data supporting this hypothesis. Despite the many interventions taking place over the last decades, no remains have been recovered. But archaeologists do almost systematically encounter dark earth dating from the 10th-13th century AD, period where the historians situate the early town development. An interdisciplinary approach has been developed to study these dark earths, involving not only historical research and archaeology, but also geoarchaeological (including soil micromorphology and physico-chemical analyses) and archaeobotanical studies. These studies highlight that several human activities can be hidden behind complex formation processes, some related to the development of an agro-pastoral system (Devis et al., 2009; 2011; 2013; Vrydaghs et al., 2016). The present contribution will discuss the results of the study of these dark earth units, and demonstrate how they contributed to the understanding of the early town development and the importance of agricultural activities, the location of crop and pasture lands, and the cultivated crops.

References:


References:


This paper will discuss how to understand the early development of Odense seen through the archaeological record. Is it possible to see if, how and when the town transformed from agrarian to urban during the 11th to 16th Century? Until now, the evidence is fragmentary and the history of Odense has mainly been based on the sparse remains of a Viking Age ring fortress and written sources testifying to Odense as a place of significance from around 1000 CE. Recent large-scale excavations have offered the opportunity to study this early phase of the town from an archaeological point of view emphasizing the physical remains and change in use of space.

Up to several meters of well-preserved stratigraphy were excavated applying a strictly managed contextual method, reflective interpretation of the formation of the cultural deposits and sampling for macro botanical, zooarchaeological and mineralogical analysis. With an extensive finds assemblage and well-preserved structures such as boathouses, houses and stables, latrines, paths, roads, fences, manure heaps and much more the site data forms the basis for addressing the question if certain features can be distinguished as agrarian or urban and how these features change over time.

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TH1-11 Abstract 17

Craftspeople in emporia - the original cast.

Non-ferrous metalworkers in 8th century Ribe

Author: Prof. Smitdøe, Aarhus University, Højbjerg, Denmark (Presenting author)

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Keywords: Crafts, Urbanism

Presentation Preference - Oral

This paper argues that the organization of crafts had an imperative significance for the emergence of urban environments in early medieval emporia in Northern Europe. This is demonstrated in a re-assessment of a non-ferrous metal workshop from the eighth century excavated in Ribe, Denmark. 3D laser scans are used to classify previously unidentified mould fragments, and new identifications are offered as a result. The research in the workshop produced a range of items identifiable for both the town and the surrounding hinterland. In each case the finished product demanded a range of specialized materials, and thus presumably the skills and expertise of a group of craftsmen. This need for collaboration between specialized artisans was a vital reason why permanent communities of a urban character emerged in ports with privileged access to a broad range of raw materials. This offers the basis of a revised model for the emergence of urbanism in the North Sea region.

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TH1-11 Abstract 18

Multimetal smelting - An urban craft in rural settings?

Author: Svensson, Andreas, Lund University, Lund, Sweden (Presenting author)

Keywords: Complex metalworking, Multimetality, Urban package

Presentation Preference - Oral

Multimetal smelting should be defined as the use of more than one metal and/or different metalworking techniques within the same crafts-milieu. This complex metalworking has long been linked to centrality, central places and urbanity in Scandinavia. It has been extensively argued that fine casting and smelting, as well as manufacture using precious metals was exclusively undertaken within early urban settings or the "central places" pre-dating these. Furthermore, the presence of complex metal craftsmanship has been used as a driving indicator of the political, social and economic superiority of certain sites, thereby enabling the identity as "centralized". Recent research has come to challenge the unification of this link between urbanity, centrality and complex metalworking as sites in rural settings with evidence of multimetal smelting being identified. This shows that the relationship between the craft and centrality/urbanity must be nuanced and that perhaps multimetal craftsmanship should be reconsidered as an urban indicator.

The thesis project "From Crucible and onto Anvil" started in 2015 and focuses on sites housing remains of multimetal craftsmanship dating primarily from 500-1000 AD. Within the project a comprehensive survey of sites will be used to evaluate the presence of multimetal craftsmanship in the landscape. Sites in selected target areas will also be subject to intra-site analysis focusing on workshop organisation, production output, metalworking techniques and chronological variances. A key element in the project is to elucidate the conceptual aspects of complex metalworking. The term multimetalty is used to analytically frame all the societal and economic aspects of multimetal craftsmanship. Through this inclusive perspective both the craftsmanship and the metalworkers behind it are positioned within the overall socio-economic framework. The metalworkers, their skills and competences as well as the products of their labour are viewed as dynamic actors in the landscape and the on-going studies will reassess the currently held ideas on craft and economy.

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TH1-11 Abstract 19

The Trajectory of the Productive Limfjord Region

AD 600-1100 – Exploring Changing Economic Patterns

Author: Christiansen, Torben Trier, Aarhus University, Arden, Denmark (Presenting author)

Keywords: Metal-detector finds, Regional spatial analysis, Socioeconomic change

Presentation Preference - Oral

Until the western exit sanded up in the early 12th century, the Limfjord (Northern Jutland) had played a central marine infrastructural role. Prior to the closing of the western exit, the fjord offered a comfortable shortcut for anyone sailing between the Kattegat and the North Sea, and the significance of the region during the Viking Age is clearly reflected in written sources as well as in the archaeological record. During the late 10th century Aarhusborg, the largest of the Danish ring fortresses, was erected at the centre of the Limfjord region; and at approximately the same time the first activity is traceable at what was to become the capitol of the region, the town of Aalborg, close to the eastern exit of the fjord. In addition to this, large metal-rich settlements are situated on every hill by the fjord – a dense system of villages that were presumably led by local magnates. However, despite clear signs of high economic activity and increased specialization of some crafts, there is little evidence of a regional settlement hierarchy and centralisation prior to the existence of Aarhusborg and the urban development at Aalborg; and parallel to the growth of the latter, activity seems to increase in most of the neighbouring coastal villages. The general impression left by the archaeological record is one of a remarkable regional productivity during most of the first millennium AD and during the following centuries too.

The current paper discusses the socio-economic development of the region and seeks to illuminate the dynamics and the broad regional productivity during the centuries prior to and parallel to the first urban development. Fresh results from spatial and chronological analysis of a large corpus of metal-detector finds challenge previous notions of settlement continuity and emphasise the presence of distinct regional patterns of socio-economic change.

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TH1-11 Abstract 20

No town is an island

Author: PhD Jensen, Mads Dernag, National Museum of Denmark, Kbh. K, Denmark (Presenting author)

Keywords: Architecture, Aristocracy, Production site

Presentation Preference - Oral

The current paper aims to highlight the differing strata of localities on which the establishment of the network of Viking Age towns rested. This is to be understood as the possible development dependency the bigger and perhaps more centrally positioned early towns might have had on the smaller and more resident types of localities. Special attention will be paid to the different kinds of production sites which has been registered in South Scandinavia. Quite often these sites are characterized by a special type of archaeological structures and by being topographically interwoven with the more elaborate agenda of the (local) aristocracy. The current paper discusses the socio-economic development of the region and seeks to illuminate the dynamics and the broad regional productivity during the centuries prior to and parallel to the first urban development. Fresh results from spatial and chronological analysis of a large corpus of metal-detector finds challenge previous notions of settlement continuity and emphasise the presence of distinct regional patterns of socio-economic change.
TH1-11 Abstract 21
Production and Distribution networks in the Diocese of Tuam, West of Ireland, AD 500-1000

Author: Tighe, John, Trinity College Dublin, The University of Dublin, Castletown, Co. Mayo, Ireland (Presenting author)
Keywords: Church/Saccular, Economic development, Trade
Presentation Preference: Oral

The discussion of early medieval urban development in Ireland is dominated by the coastal emporia of the Vikings at Dublin, Waterford etc. As vigorous the Vikings were in facilitating broad social and economic change, they were still an ethnic minority in Ireland, so it is imperative to look at sites with little or no Viking connection. There are pre-Viking "ports of trade" which while similar to English wics, although seem to develop slightly earlier and not to have an organised plan.

These include sites such as Doonoughour, a coastal site where exchange happened in the eighth century. The primary mode of the production of crops is thought to have been by buying in the grain, as there is a lack of evidence for on-site production with the grain samples excavated being entirely free of chaff. The site, and possibly others like it were not permanently used, but seems to have been occupied between late spring and early autumn, the very same as the main sailing season for much of Europe.

This form of exchange may have been brought into fruition as increased specialisation of production coupled with increased opportunities to exchange. This may have had a direct impact on the decline of the importance of the cow can be seen as a move away from the type of economy, widespread in pre-Roman Europe, where an items value was bestowed upon it not because of its intrinsic value, like that of the silver economy which the Vikings helped to develop, but in its cultural value. The silver bracelets found at places like Cushalogurt, Co. Mayo and Portumna, Co. Galway could indicate a much richer trade network through peripheral Ireland, or at least a heavier Viking presence in the area than previously thought.

While the terminology of ecclesiastical sites, particularly the use of "cities" to describe sites such as Kilclare, has smudged the idea of what constituted urban in this context, it is clear that these establishments acted as centres of production and distribution, in a way that ringforts could not be in the unstable political milieu of the day. This research is focused on the Diocese of Tuam, centred on Tuam, which was a centre of exchange in this period, with a high cross being erected to delineate the boundary of the secular and the ecclesiastical. The role of the church in providing centres of production and manufacture cannot be doubted, especially in the unstable and fragmented political milieu of early medieval Ireland.

While market exchange was seen as primarily an urban phenomenon, sites such as Doonoughour and Tuam have shown that despite the west of Ireland being largely ignored when talking about the Early Medieval Irish economy, its peripheral nature then and now, mitigates the problem of modern urban development that is common, particularly among the environments of former Viking emporia. I hope, through this work, to provide a framework for further investigation of the early medieval economy, not only within Ireland, but also for other comparable regions of Europe.

TH1-11 Abstract 22
Early medieval urban life in the Low Countries before the 10th-11th c.: approaches and problems

Author: Professor Dries, Tys, Vrije Universiteit Brussel, Brussels, Belgium (Presenting author)
Keywords: diversity, Low Countries, Research
Presentation Preference: Oral

The Low Countries were together with Northern Italy the most heavily urbanized regions of the medieval world. The origin and understanding of this phenomenon has been debated in a long and impressive historiographical debate, involving famous scholars like Pirenne, Weiber, Verhulst and others.

Today we agree that the take-off of the successful towns can be related to the organisation and stimulus of trade in the context of the power in the 10th and 11th centuries. The debate remains however on how to understand the evolution and character of the urban phenomenon before the 10th-11th century. This debate will always tend to suffer from both teleological thinking towards the road of success and the stress on the question of continuity between Roman centres and later towns. The main problem regarding our archaeological understanding of urban life, fabric and functions seems to be that they can have totally different material translations that might not always be recognisable from the modern perspective. The question is therefore what different forms urban life and functions could have and which methods we need to identify these.

TH1-11 Abstract 23
A town in the making - exploring early urbaniy of Copenhagen through the study of social practices

Author: MA Dahlinstrøm, Hanna, Aarhus University, Højbjerg, Denmark (Presenting author)
Keywords: Iron processing, social practices, urbanity
Presentation Preference: Oral

Classical ways of defining urbarity are ill-matched with the early phases of a developing town, and indeed often with the archaeological source material at hand. New ways to describe urbaniy in a way that is easier to recognize through archaeology are called for. In my PhD-project I explore some new aspects to this problem by studying urbarity through social practices in the first phases of the developing town of Copenhagen, Denmark. One of these areas concerns crafting, specifically iron processing. Through four areas of study, I analyse the material remains of social practices undertaken on the site of Town Hall Square c. AD 1050-1000. This paper will discuss the two questions: What can the study of social practices connected to the iron processing activities, in combination with technical analyses, reveal of urban development, of people and networks involved in the iron handling? And what can the role of iron processing have been for the early development of Copenhagen?
COSTUME COMPLEX (CLOTHES AND ITS ATTIRE): DEVELOPMENT, RELATIONSHIPS, FORMS AND TECHNOLOGIES IN TIME AND EXPANSE

TH1-12 Abstract 01
The Eneolithic admorons as components of the costume.
The case of Sultana-Malu Rosu cemetery

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Co-author(s) - Margaret, Monica, Valahia University of Targoviste, Targoviste, Romania
Keywords: Beads, Cemetery, Eneolithic
Presentation Preference - Oral

The Eneolithic admorons from the Sultana-Malu Rosu cemetery represent a particular case of archaeological artefacts, mainly because of their reduced dimensions, but also from the typological perspective, in this cemetery being present almost all types of beads known for this period in the Bakana. Two communities that were belonging to the Boian and the Gumeinita cultures (ca. 5000-3800 cal BC) used this cemetery. In these circumstances, the beads encountered some changes in form, dimension and raw material preference for their crafting, but other aspects remained the same in their evolution. Furthermore, the anatomical deposition of the beads on the skeletal remains is a significant source of information in the identification process of the beads as components of the costume or if they were only jewellery pieces.

The aim of this paper is to explore the beads discovered in the Sultana-Malu Rosu cemetery, from the contextual, technological, functional, and symbolic point of view, but also to interpret the ways in which they were worn, combined and deposited in the graves. Our approach will cover use-wear analysis to identify the meaning of this beads, and to determine the social, economic, gender, and religious connotations of this kind of artefacts.

This work was performed through the Partnerships in Priority Areas Program - PN II, developed with the support of MEN - UEFISCID, project no. PN-II-P-T-PCCEA-2013-4-2302.

TH1-12 Abstract 02
Purses-amulets from territory of Tuva in I mill. BC as a phenomenon of cultural symbolization

Author - Busova, Varsara, Institute for the History of Material Culture, Saint-Petersburg, Russian Federation (Presenting author)
Keywords: archaeological leather, early iron age, scythian
Presentation Preference - Oral

In Tuva (Russia) there are leather purses different degree of preservation and a completely different content, what belong to the Scythian period (IV-III centuries BC). In some cases, it is the musk deer carcases, whetstones, needle, in other case - wood composite comb in leather purse (from the tomb Holdei k.83 (Mongut-Taiga). The report is devoted to the investigation of the Eneolithic period in Tuva. The work was performed through the Partnerships in Priority Areas Program - PN II, developed with the support of MEN - UEFISCID, project no. PN-II-P-T-PCCEA-2013-4-2302.
One costume – complex meanings.

Women’s funerary dress in 12th-century North Estonia.

Author: PhD Ramm, Rina, University of Tartu, Tartu, Estonia (Presenting author)
Co-authors: Rutgers, J., Freelancer, Tallinn, Estonia

Presentation Preference: Oral

Late Iron Age inhumation cemeteries dated to the end of the 12th and the beginning of the 13th century in Estonia reveal traces of richly decorated funeral dresses of mature women. Although textiles have preserved in the graves very rarely, sets of copper alloy jewelry and tiny metal elements used to decorate clothing items give plenty of information about the attire of the dead.

Collected information allows constructing the appearance of the whole costume that seems to be common to the North and North-Eastern Estonia of that time. Various details of the costume can be related with stressing and protecting the fertility of a woman’s body, for example, the colours of textiles or the habit to adorn certain parts of the body with jewellery (breasts, waist and neck).

On the basis of ethnographic sources describing how clothing expresses the social status of a woman, and the tradition to bury females in their wedding dress, we suggest that the above mentioned archaeological finds could also reveal the main characteristics of female costumes that were used to wear in the weddings or during the fertile age.

Annular brooch in the context of the late mediaeval costume and worldview

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Keywords: annular brooch, clothing function, symbolic function

Presentation Preference: Oral

This paper focuses on a 13th-century silver annular brooch discovered in the archaeological excavations in a grave buried adjacent to the foundation wall of the Templar church in Gora, Central Croatia. The brooch bears a partly deciphered inscription meant to protect the woman who wore it.

Apart from their function as a type of jewellery, annular brooches served another specific function in the context of the costume – they served to fasten the two ends of a shift collar together below the neck, or to fasten a cloak. As regards the function of any given specimen, our guess depends primarily on its size, which has been further corroborated by an experiment recently carried out in Croatia.

In that sense, the annular brooch from Gora will be placed in the context of the costume complex. We shall also contextualize it within the process of changes in the fashion that brought about this type of outfit in the first place, which spread from Byzantium to the late mediaeval costume complex in Central Europe.

By virtue of its features and position in the context of the costume of the time, annular brooch soon became one of the dominant carriers of symbolic meanings. This comes most to the fore in the case of the specimens bearing an inscription, like the one from Gora.

Based on historical and illustrative sources as well as archaeological sites, the paper will show the correlation between the types of material used for making the brooches, types of decoration, production techniques and inscriptions on them on the one hand, and the quality of costume items they fastened, that is, in the last consequence, the social position of their wearer.

The variety of female textile funerary equipment from nineteenth century (Biała Rawksa - Poland)

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Keywords: female garments, funerary equipment, textile in 19th century

Presentation Preference: Oral

Female textile funerary equipment can take very different forms and functions. They include both woven and knitted fabrics, dresses with intricate cuts as well as simple shirts, coiffes, underdress or clothing items like shoes, brooches, etc.

Two burials of women discovered during archaeological excavations in the crypt of the church in Biała Rawksa were compared and characterized (coffin No. 9 and No. 12). Discussed women were buried in wooden coffins. The state of preservation of textiles led to the analysis functions and technological features.

Funerary garment of the first woman (coffin No. 9) was the silk, long apron dressed on linen shirt, which cuffs was decorated with ribbons. Apron was made of 26 pieces (simple textile with plain weave 1/1) having different sizes and shapes (rectangles, triangles). At the lower edge of the apron was silk frill 90 mm wide. Apron was seen impressed with silk threads.

Repeated use of that garment confirm the tight seams connecting the individual elements. Costume was completed with long, silk, knitted gloves and shoes with textile uppers. Upper shoes were made of patterned fabrics and decorated with ribbons. Secondary part of woman’s garment consisted of a silk dress with a complicated cut and numerous handmade frills. The dress consisted of a bodice with long sleeves and seen into it, heavily a gathered at waist long skirt. The dress was seen a dense, carefully stitch.

Bodice consisted of 12 elements, two at the front (front left and right), the two at the arms (constituting mirror images of each) the eight at the left and right rear portion (also constituting her mirror image).The skirt consists of 7 elements: two located on the left front, two on the right front, and a single central rear portion considerably elongated. Left side is a mirror image of the right side. Fabric used to sew a dress has an area approximately 5 square meters. The head of the dead woman was laid on a pillow with a silk pillowcase. Pillowcase was made from a single piece of fabric (front and rear portion are of the same shape), but in the course of many years, the bottom portion has been destroyed, so archaeologists recorded two separate components. Pillow shape is similar to a quadrilateral with rounded corners. The maximum height is 470 mm, the maximum width is 510 mm. Around the edges either the front or rear portion is silk ribbon. The band is now a dark brown color. In addition, between the edges with the ribbons was seen decorative filigree.

The aim of the presentation is the identification of similarities and differences in the 19th century funeral textile equipment of two women, forms of clothing, typefaces, type of additives and manufacturing technology used fabrics.

Attire of the 19th century: the main historical stages: natural, heavy-metal, jewelry, the accessory

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Keywords: adornments, attire, stages

Presentation Preference: Oral

Allocated steps of attire are clearly divided according to essential characteristics, but chronological boundaries are not sharp. The constant function of attire is presentation: to pick out or magnify a man and indicate his status. Constructive, aesthetic and sacred functions play different roles on different stages.

Natural attire originated during primitive era, its elements were preserved in ethnoarchaeological suit. Adornments were made of available natural (plant and animal) materials, but artificial materials (ceramics, glass, textiles) were beginning to be used.

Adornments mainly decorate the body, their forms correspond to its parts: head, waist, belt, necklace. The joining between adornments made by wrapping, tying, stringing, piercing.

Variegated colors were used, images of the natural world were reflected. Sacred and aesthetic functions were in unity.

Heavy-metal attire has existed since the era of metal (Eneolithic, Bronze Age) and during early Middle Ages. Heavy and numerous adornments of non-precious metal produced by forging and casting, fastened and kept clothed clothes on the body uniting it into a single structure. The attire of Finno-Ugric peoples fully represented the style.

Some things played the role of hard case (spiral and holder) or of supporting framework (head hoops), others cover cloth with metal layer (weave and hanging plates, interwoven spirals).

Attire played on pre-styloscopic level, adornments from different regions are similar. With the increasing of complexity of techniques first styles appeared (polychrome and carved styles, styles of champlevé enamel and of cloisonné incastratation).

Constructive function and sacred protection were important. Metal details the best way perform the function of protective noise with jingling.

III. Jewelry attire is typical for class society, for developed Middle Ages. Jewelry is made of precious materials in difficult jewelry techniques (cloisoné enamel, niello, filigree). Byzantine and Russian medieval attires are the examples.

Jewelry items are linked together structurally and stylistically, their connection with clothing is typological. Silver ball-shaped pendants and back head net complemented Russian roundhead headgear ("kikha"). Gold diadem in cloisoné enamel complemented head headdress.

Constractive connection of jewelry and clothes became not very important, though sometimes was preserved. On the basis of fine and peculiar jewelry techniques original art style and ornamental elements formed. Art images were able to reflect the symbols of concrete religions. Sacred and aesthetic functions are equally important.

The accessory attire is characteristic to the New time and modernity. Adornments are made from the variety of materials and in every possible techniques, exist and even become not required.

Items are linked stylistically and with color harmony. They complement the suit, can be replaced and changed, they are rather independent from the structure, style and typology of the suit.

Jewelry correspond to the fashion and artistic trends of time, in most cases they do not have any semantics, except parting in sign suit related to specific events and subcultures.

The main function is aesthetic. The attire is becoming more individual and formed by concrete person. The report is accompanied by examples of the hat and costume jewelry.
TH1-12 Abstract 08
Jewelry: decoration or a detail of construction? Theory and practice
Author - PhD Stapanoceanien, Daiva, PI Vita Antiqua, Vilnius, Lithuania (Presenting author)
Keywords: construction, costume, jewelry
Archaeologists, having found ancient jewelry in the burial monuments, most often regard it as a decoration element, classifying and typologising it according to the shapes and ornamentation. Mostly only the metallic decoration details remain from all the artefacts set or, generally speaking, costume. It is not an easy task to recreate the costume itself with no preserved organic material – textile and leather, though the task is made easier by knowing the jewelry’s position relative to the skeleton.

In this way, the position of the brooches makes it possible to guess what kind of clothing was pinned with it – lapels of the blouse, sides of the coat, corners of the cloak; pins with pendants and chains tell us the style of the women dresses; the shape of the brooches lets us understand the cut and the length of the sleeves; some types of neck rings let us assume about their function of fastening the cloak. The decoration details found in the area of the head give an image about the shaping of hair or one or another variant of the headgear; even the rings, their decorations, the contents of the bead necklace may indicate the ownership of a certain person. It is noted that among thousands of archaeological findings, despite their stylistic uniformity, specific to one or another chronological period, there are no two identical items: all differ in both size and ornamentation, thus, being a possession of a certain person, they may have been recognized by others and used to prove an absent person’s delivered messages’ validity.

Sometimes the dead are buried wrapped in the sheet, which was also fastened with brooches or pins; also sometimes additional jewelry (several neck rings, headbands, rings) was placed into the grave and not always in the anatomical order, but beside the head, on the legs. This aggravates the research of the costume’s construction.

Textile researchers determined that the fabric for the clothes until the Medieval times were woven with plain colors, not striped, not checkered; the patterns were made using the yams of one color for the warp and another color for the weft, the edges of the clothes were reinforced with woven multicolored bands. In this plain-colored costume the brass and silver jewelry would especially splendidly expose. Themselves being the works of art, they had another, much more important function – the formation of the costume, the connection and fastening of its details.

The report is intended to emphasize the functionality of the jewelry, having practically checked the theoretical assumptions by reconstructing the wear of the different periods and tribes.

TH1-12 Abstract 09
Costume of deads or costume of livings?
Author - Dr. Ciuperci, Bogdan Iosif, History and Archaeology Prahova County Museum, Ploiești, Romania
Co-author(s) - Dr. Magureanu, A., Institute of Archaeology Vasile Parvan, Bucharest, Romania (Presenting author)
Keywords: early middle age, from object to costume, social meanings
Presentation Preference - Oral

There is a long debate of interpreting the archaeological discoveries from cemeteries, especially, as a suggesting (sometimes as a certainty) of the costume of certain community/group/ethnic. Discoveries from settlement where never taking into consideration as a relative source for such debate. But there are exceptions when we do not have cemeteries and there are exceptions when we do not have settlements, archaeologists preferring to excavate the cemeteries. Such a situation is in Lower Danube region in the 6th-10th centuries. So this is a good situation to a wider kind of questions relating the costume. Costume of a person? Of a group? Or all of? Of the other, non-elite? Of the dead? Of the living? Of the image of the dead person? Of the costume, the connection and fastening of its details.

The report is intended to emphasize the functionality of the jewelry, having practically checked the theoretical assumptions by reconstructing the wear of the different periods and tribes.

TH1-12 Abstract 10
Jewelry on mosaics from Roman Africa. Functions, aims and reliability of representations
Author - MA Mech, Anna, University of Warsaw, Warsaw, Warsaw, Poland (Presenting author)
Keywords: jewellery, Roman Africa, Roman mosaic
Presentation Preference - Oral

At the beginning of 2nd century AD a special form of art appeared in Roman Africa - figural mosaics. They depicted both mythological scenes and everyday life and were displayed in public places and public estates of influential landlords. Among these works of arts, those with representations of landlords, their wives and workers draw particular attention. The hierarchy of African provincial population between the end of 2nd and the beginning of 6th century AD is clearly visible on these mosaics. Moreover, they are very important documents of everyday life of different social groups in Roman Africa. The aim of this paper is to analyze the representation of jewellery on mosaics from Roman Africa. Through comparing them to artefacts found in the area of Roman Empire, it is possible to observe traditions in Roman jewellery and changes happening over the years, as well as discover local trends and their relation to Empire-wide patterns. The richness of landlords and their wives is emphasized by clothes and jewellery which they wear, adapting to Imperial and even divine prototypes, so it is possible to notice a clear relationship between forms of dress and the position within social order. Sometimes those trajectories reached far back in time than the existence of the Roman Empire, for example the representations of chaps for jewellery (pyxides) which are known status symbols already on Classical Greek grave-stakes.

TH1-12 Abstract 11
Transformation of Zupan from military to elite element of the men’s costume among gentry
Author - PhD Barvenava, Hanna, National Academy of Sciences of Belarus, Minsk, Belarus (Presenting author)
Keywords: complex, costume, Zupan
Presentation Preference - Oral

Zupan - one of the oldest components of the costume wearing by the elite of the Belarusian society. From the X lod and the beginning of the sixteenth century Zupan was a component of the military costume, was functional, warm, made of woolen fabrics and quilted. Over three hundred years from the end of the XV and to XVII century Zupan became an essential element of the Belarusian gentry culture. During the Renaissance Zupan has evolved from military clothing to the main component of ceremonial Belarusian dress. Zupan began to sew from precious silk, velvet tissues, using a trim and gilded buttons. Such a rich clothes acquired status significance. During this period suit with the Zupan has become a unique distinctive artistic phenomenon, the hallmark of noblemen, manifestation of their political/cultural authority.

This report will propose six major reasons for the emergence elite men’s suit with the Zupan in the sixteenth century. Among them it will be noted that rich, celebratory men’s suit was born with changes in the worldview of the gentry class in Polish-Lithuanian Commonwealth, the desire to emphasize its own peculiarities among European Community. There will also be observed evolution of the complex costume, which included Zupan. The differences between celebratory and everyday Zupan, changes of details (collar, sleeves, etc.) from the end of XVI and XVII centuries will be presented. It will be noted that the basic principles of cutting and style of wearing Zupan remained almost unchanged for three centuries. Red, white and grey colors of Zupan were most widespread during the lifetime of the gentry’s suit.

Wearing a costume with the Zupan in Belarus during the partitions of Polish-Lithuanian Commonwealth was a symbol of nobility, patriotism, symbol of freedom. Zupan has evolved into a costume component wearable by participants of revolt for independence. After the destruction of the nobility as social class, Zupan has transformed into a retinue - Belarusian component of the traditional male costume. Today Zupan becomes a component of the Belarusian intelligentsia costume during family (weddings), and corporate events.

TH1-12 Abstract 12
Small adults – forms of children clothes until 2nd half of 18th c.
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Keywords: child clothes, copy, reconstruction
Presentation Preference - Oral

In the space of the centuries, obligatory trends in fashion influenced greatly the outlook of representatives of different social groups. Changes in adults’ outfit were also reflected in types of clothes worn by children, especially in case of noble families and social elites. Thanks to numerous archaeological material referring to children burials, we are able to trace the changes in children fashion as well. In many instances, special grave robbers were replaced by casual clothes.

Detailed analyses of clothes fragments enable to identify various children clothes’ forms by descendants of the elite up to 2nd half of 18th c. Many family portraits present repeatable fashion of depicting fathers and sons dressed in identical man attire or mothers and daughters, which dresses were smaller variations of models worn by mothers. Similar references can be observed in child burials, whereas the offspring was put to grave in everyday clothes, even according to fashion of their parents’ clothes. Children needs were neglected, their garments had to reflect their parents’ wishes only. That tendency had frequently negative effects on proper development of the youngest members of the society. That trend is observed till the end of 18 c., when changes in pedagogy rules were slowly introduced, thanks to which child clothes were adjusted to proper child age, body building and development, providing healthy body movement and necessary proper development of young organisms. First clothes of that type appeared in England and France and the trend spread next to other European countries, putting an end to many centuries tradition of dressing children in copies of their parents’ clothes.
Interpreting the Archaeological Record

Except for some specific times and regions or very specific context of organic material preservation archaeologists do not have much chances to study costumes of past societies. Most of our knowledge come from proxy data like jewellery types and its distribution in inhumation graves, rare representations of human figure or fortunately survived pieces of clothing. But still we can assume that there were dealing with every-day or ceremonial, human or divine being.

However costume is not just a means of protection against environmental conditions. Most of all, it is a powerful tool of communication, regulating or forming social practice. And therefore our limited knowledge about the costumes used in specific times limits also our knowledge about social sphere. Funeral tradition of the late Bronze and early Iron Age Central European groups make the situation even more complicated. Not only cremation left very little evidence for studies on costumes, but barely complete absence of human figure representation in the Bronze Age makes almost impossible to speculate about the clothes that were worn at that times at any occasion. The situation changes a bit during early Iron Age with the emergence of face urn tradition and human figure representation when at least in funeral sphere we can observe the emergence of welldefined set for men and women.

The main aim of this paper is to analyse the late Bronze Age and early Iron Age data from nowadays Poland for potential proxy data for identification of the elements of costumes and further studies within the scope of male/female suits as well as everyday and ceremonial costumes.

Women's headwear from the burial of the III-IV centuries in Suzdal Opolie

In 2007-2010 the Institute of archaeology of the Russian Academy of Sciences has conducted the archaeological investigation of the Migration period necropolis Bolshoe Davydovskoe 2 in Suzdal Opolie. In the small cemetery 18 burial pits with 23 burials were excavated. They performed the rite of inhumation. Funeral rites, grave goods and the parts of the clothing allow us to attribute the monument to be a part of Riazan-Oka culture. The burials can be dated to the end of II-IV cc.

According to the anthropological remains and the presence of decorations is determined that 9 adult individuals are women. Remnants of headwear found in 5 of them and in one burial of boy 8-10 years. 2 women were buried wearing head corollas of different type: in one burial, it was a ribbon, fastened with an iron buckle. It was decorated with glass beads, small bronze rings and fragments of jungling pendants. In another burial the corolla consisted of a ribbon with attached plates with rings, decorated with pearl ornaments. According to the observations of I.Belotserkovskaya, similar clips with rings appeared already at the end of the II-III cc. In IV-VI cc. they have proliferated and are becoming an indispensable part of the corollas and occasionally necklaces from the population of Riazan-Oka culture. T. Kravchenko believed that the head corolla put on the top of the textile shawls, which were a part of woman's headdress. 3 persons had the head decoration of a different type: these were clusters of oval bronze clamps that were closely strung on cords with small wire rings and semicircular pendants. Probably cords with clips and small ornaments were sewn onto organic bases (leather, textile?). In all these burials near the skulls found a pair of large cylindrical bronze clamps that were closely strung on cords with small wire rings and semicircular plaques. Probably cords with clips and small ornaments were sewn onto organic bases (leather, textile?). In all these burials near the skulls found a pair of large cylindrical temporal rings with blade were attached to hats. At the back were often fastened with a brooch with jungling pendants.

The hats from Bolshoe Davydovskoe 2 are something different in design. The complexes have no livkse, which could be used for attachment of the temporal rings, no round plates to a rigid foundation. Belotserkovskaya indicates a rare variety of soft caps without metal plates but with small plaques sewn on. Probably found all the hats belong to this type. We have no evidence of the textile shawls.

New data confirms the thesis by I.Belotserkovskaya about the syncretic nature of the early Riazan-Oka women's headdress, which combines features of various groups.

Possible reconstruction of female dress in Grobin-Baltic influence and Scandinavian fashion

Author - Mg. hist. Santa, Jansone, University of Latvia, Riga, Latvia (Presenting author)
Keywords: archaeology, dress, Scandinavia
Presentation Preference - Oral

From 8th to 14th century silk textiles produced in Asian and European workshops were very often decorated with the motive of confronted animals standing on the floral ornament. The scene is usually put into medalion-type decoration. It is believed that this convention had its roots in Sasanian weaving tradition, but the oldest depiction of it is known from “jin” fabrics discovered in Tufan oasis (Xinjiang) and Dulan (Grihshag). Because of its technical features (warp-faced compound tabby) is obvious that the products were made in Chinese workshops. Some components of the motive depicted on these textiles are pure Sasanian (animals decorated with flying ribbons, pearls medals), but after analysis of the Chinese weaving, I assume that other aspects had been rooted in Chinese tradition (for example antithetic position). These two schools of weaving were under influences of each other especially because of Sogdian trade activity on the Silk Road. This Sasanian-Chinese convention was introduced into Central Asia in 8th century (especially to Sogdiana), and then was adapted in Muslim and European art.
The dress has an important place in any research about people from particular time period and location, as it holds a lot of information about its wearer. In historic and ethnographic literature, dresses have long been recognized as an indicator of group affiliation. Using the data from the burials, it is possible to determine how far one has influenced the other. It must be noted that this is only hypothetic version lacking definitive proof in form of actual archaeological finds, although backed by strong supporting evidence.

**TH1-12 Abstract 18**

**Formation of Jewelry types in Balto-Slavic border zone in the 12-13 centuries (Based on settlement Maskovichi)**

**Author:** PhD Varatnikova, Aksana, National Academy of Sciences of Belarus, Minsk, Belarus (Presenting author)

**Keywords:** costume, decorations, medieval

**Presentation Preference:** Oral

Exposure collections of famous archaeologists Ludmila Duchta and George Shytovoa in the Department of museum ancient Belarusian culture emphasizes the aesthetics of medieval clothing. Group objects (more than 100 units) with mounds of Polotsk land frontier emphasizes ethnic aspects of development early Middle ages (suspensions types, beads). On a material settlement Maskovichi during the XII-XIII centuries is clearly the organization of agricultural and solar symbols in stable circuit (zoomorphic images of the horse, crescent). They have evolved and entrenched in artisan products XII-XIV century. Borderlines allows materials to demonstrate a certain stage of coexistence of eastern European tribes, exposure to stress by means of a multifaceted features of the northern land of Polotsk culture. Rings and brooches with Maskovichy, as the embodiment of motion, equally characteristic aesthetics Baltic or Slavic dress. They show a wide existence of Slavic ideas in this habitat. Museums show and attribution complementary archaeological items and actualizing artefactolor Belarusians.

**TH1-12 Abstract 19**

**Jewellery workshop in the medieval Smolensk**

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**Keywords:** Archaeological excavations, Jewellery workshop, Medieval city

**Presentation Preference:** Oral

The report focuses on the work of the Smolensk archaeological expedition undertaken in the summer of 2015. The purpose was to determine the time development of the area in ancient period. A pit filled with waste jewelry production middle – 2nd half XI century was found. In the pit of the pit contained many fragments of smelting crucibles, and also some almost entire instances. In addition, were found metal objects associated with jewellery production. The report provides a description and analysis of the objects. All these findings, the mass and concentration in the small hole indicate the presence nearby of areas with ancient jewellery manufacturing. These findings allow us to make important conclusions and to supplement information about the city’s history.

**TH1-12 Abstract 20**

**Andronovo Costume: Headgear and Ritual**

**Author:** Senior Fellow Usmanova, Emma, Sarayka Archaeological Institute, Reserve Park “Ulytau”, Karaganda, Kazakhstan (Presenting author)

**Keywords:** Ancestral relic, Andronovo culture, Headdress

**Presentation Preference:** Poster

Female's costume attributes of Andronovo culture consist of jewelry, woven fabrics fragments and leather, mainly belong to the head decorations. Andronovo community is assembling of steppe cultures of Inner Eurasia belonging to the Bronze Age dated to 2500 – 1300 BCE. Thus far, approximately 30 burial sites have been investigated that contained preserved remains of female's headdresses (Ural-Kazakhstan region). Two types of head adornments have been identified; headgear with and without hanging ornaments. A headdress constituted the main part of the costume, which is represented by the marked top of a head as a place for the concentration of a vital force. The headdress usually points toward the age, social status of the deceased. A headgear with the missing elements belonged to girls under 10 years old, while richly decorated headdress belonged to individuals of the childhood period of over 15 years old. Headdresses have been found in the following positions: detached head, re-deposited backbones, complete backbone. Some of the burials have been penetrated post-burial in order to remove the headdresses: backbones have been found without the skull or with a partially destroyed skull. It is possible that the headdress was an ancestral relic which passed on from generation to generation; in some cases it was left in the graves, in others removed.

**TH1-12 Abstract 21**

**Peruvian textiles in Warsaw National Museum**

**Author:** MA Kosowska, Dominika, University of Warsaw, Otwock, Poland (Presenting author)

**Keywords:** Peruvian, textiles, Wari

**Presentation Preference:** Poster

Four fragments of pre-columbian textiles are part of Warsaw National Museum’s collection. Two of them are colorful embroideries depicted flying creature characteristic to Paracas culture (late Nazipólis; 500 B.C – 200 C.E.) and other two are tapis fragments woven in Wari state (500 – 1000 C.E). Embroideries (plain stitch looped behind) are similar in size and it is very probable that they were pieces of the one material. Analogical fragments are part of collections of Metropolitan Museum of Art in New York. These types of embroideries were depicted on the big blankets - mantles, which were part of the tldrós – funeral bundles. Two tapis fragments were originally sewn into the small purse (tragopanum in shape), which were also typical burial object. Its ornamentation is very schematic – geometrical, colorful designs. Pre-Columbian textiles fragments from Warsaw National Museum are very well preserved and they are one of the most beautiful Peruvian fabric in polish collections.

**TH1-12 Abstract 22**

**Collar of the 17th century. The find of the settlement of the Novodevichy Convent (Moscow)**

**Author:** Elina, Irina, Institute of Arheology of RAS, Moscow, Russian Federation (Presenting author)

**Keywords:** 17th century, collar, Novodevichy Convent, Costume complex (clothes and its attire)

**Presentation Preference:** Poster

During the archaeological work in 2014 under the leadership of L.A. Belyaev in the settlement of Novodevichy Convent (Moscow) necropolis of the 17th – 18th centuries was studied. Among the burials the burial of a man of 55-60 was of great interest. In the burial, numerous textile fragments, forming the shape of a trapeliz, were found around the head and shoulders. Metal buttons – dumb-bells and baptismal cross were fixed on the chest. In the area of the belt there was a rectangular steel buckle. A comprehensive study of textile remnants shows that they are the remains of collar clothes, made in the technique of golden embroidery on the red velvet. The main patterns of the embroidery ornament are vegetable branches forming sharp oval stamps, as well as elements such as tulp, bugle braids, pomegranate flower, typical for the Turkish fabrics of the 17th century. Phelonion (a sleeveless vestment) had high solid collar of a trapezoidal shape. Trapezoidal shape for the collar is characteristic for priests’ garments (cloba). Preserved in the burial pieces of gold embroidery and the presence of spherical buttons, buckles, their location in the burial give the possibility to partially reconstruct the shape of a phelonion. The main fabric of phelonion has not been preserved, but the position of the buttons in the burial lets assuming that the cloba was long, and its front edge was fastened with buttons. This is typical of the ancient type of phelonion.

Based on these studies a color graphic reconstruction of ornamental patterns and design of the collar was performed. Phelonion collar was performed by high-end skilled workers, and certainly is a striking example of the Russian decorative art. Ornamental pattern of the collar and the nature of gold embroidery execution relate to the 17th century.

**TH1-12 Abstract 23**

**Jewelry from Germanic graves in Krakovany - Stráž (Slovakia)**

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**Keywords:** decorating techniques, golding, Krakovany

**Presentation Preference:** Poster

The Belmistrovich National Museum in Pôdľany (Slovakia) acquired golding from grave of noble person in Krakovany – Stráž (Slovakia). The ring was found by brickwork employees in 1990s but it have disappeared for almost 80 years. Analysis of decoration techniques confirms that the ring comes from Germanic workshop inspired by Romans. Baltic decorations made of silver, golden and silver clasp from the grave II are decorated with identical motifs.
TH1-12 Abstract 24
Burying parishioners at Köyliö, Finland – Aspects on attire and burial habits

Author - Doc. Lipinen, Sanna, University of Oulu, Oulu, Finland (Presenting author)
Co-author(s) - Jakobsson, D., University of Turku, Turku, Finland

In the period from the late 5th to the early 8th century, which was marked by political, cultural, social and economic changes, funerary communities between northern Gaul and Pannonia buried their dead in large cemeteries (‘Reihengräberfelder’). The complex tombs and extensive features of the dead in the grave – this includes jewellery for women, weapons and equipment for men – provide a detailed picture of the burial process into which social and religious aspects blend. The burial ground of Rommerskirchen-Eckum, one of the few fully excavated row cemeteries in northern Rhineland, belongs in this context. On the basis of numerous soil blocks and their careful excavation and the documentation in the LandesMuseum Bonn, detailed observations on exact situation of finds and find complexes, and their microstratigraphy are possible. The exchange with conservator and textile analyst provides an important contribution to the overall archaeological evaluation of costume complexes in this doctoral thesis.

Based on selected tombs of the burial ground, this poster presentation will illustrate funeral costumes for women and men in early medieval Rhineland. Due to the specific preservation conditions organic material survived only in connection with metal; for this reason only burials with a functional connection between clothing and buckles (such as brooches and buckles) or jewellery (particularly bracelets and earrings) can be taken into consideration. Apart from some additional separate depositions the corpse was dressed in gender-specific clothing.

This is also reflected in the late grave 25 (670-80). The young woman wore a fine soap-ground pattern that was open or slit vertically in the upper body area and closed with two silver press plate fibulae with mask-like heads. The burial also included a gold filigree fibula and a necklace of amethyst, glass and amber beads, silver plate cylinders and disc-shaped gold pendants. Representative for male graves should be grave 388 with extensive weaponry (sword, scrimshaw, shield and spear) and multipart belt fittings. Under the belt the deceased wore a tunic-like garment made of diamond twill, while further textile was found together with feathers (perhaps a lining or feathers scattered loose).

In both cases the selection by the funerary community of jewellery/weapons, precious materials and fabrics refers to the special social role and display of the corpse and the bereaved. Apart from the relationship of the different costume complexes to each other, this study investigates the standardization or individual composition of the grave goods.

TH1-12 Abstract 25
Archaeology and conservation intertwined: A leather jackets’ journey through conservation

Author - Conservator Gainsford, Sara, Studio Västsvensk Konservering, 41502 Göteborg, Sweden (Presenting author)
Co-author(s) - Lotzi, Benjamin, Studio Västsvensk Konservering, 41502 Göteborg, Sweden

During extensive fieldwork of 2013-2014 more than 750 graves were excavated and thoroughly documented in Gamlestaden, Göteborg. The unearthed remains are the former inhabitants of the early historical city of Nya Lottöla (1473-1824). Concurrent burial tradition and custom in Sweden required very few, if any personal items to be deposited with the deceased. The excavated human remains have revealed a rare number of artefacts or clothing.

During excavation of a buried individual an excavating archaeologist ceased digging when traces of leather were discovered on and around its lower extremities. The projects on-site conservator was able to identify the leather, and could therefore instantly develop a strategy for the retrieval of the objects. Both conservator and archaeologist worked together to isolate the presence of the leather; that seemed to be primarily concentrated around the upper body. The leather was much degraded and a decision was made to lift the entire upper body in a block and continue the excavation in the conservation studio.

Excavation of the leather and the individual was conducted using water, soft brushes and tools. When the first layers of clay and sand were removed it became apparent that this was in fact an individual buried in a leather jacket. In order to fully understand the jackets construction it was decided to remove it from the individual. Wear analysis revealed that the jacket belonged to a 20 year old man.

Once separated textile conservators continued the excavation and conservation of the jacket by cleaning and flattening the different pieces and fragments. As previously predicted the leather was in a much degraded state. However, some typical features were exposed and a pattern was traced and then constructed. References pertaining to the jacket place it in the fashion of the second half of the 18th century.
TRADITION AND INNOVATION IN TEXTILE TECHNOLOGY IN BRONZE AGE EUROPE AND THE MEDITERRANEAN

Saturday, 3 September 2016, 09:00-16:00
Faculty of Philosophy, Room 207

Author: Dr. Sabatini, Sara, Gothenburg University, Göteborg, Sweden (Presenting author)
Co-author(s): Bergbernt, Sophie, Gothenburg University, Göteborg, Sweden

Keywords: wool-husbandry, society and economy, wool production

Presentation Preference: Oral

This paper aims at discussing the significance of wool production in the European Bronze Age. The focus is on discussing which practices were employed, the environment in which they took place, the social and economic implications, and changes in the textile craft in relation to socio-cultural transformations of the past societies.

THI-13 Abstract 01
Bronze Age wool economy: production, trade, environment, husbandry and society

Author: Dr. Sabatini, Sara, Gothenburg University, Göteborg, Sweden (Presenting author)
Co-author(s): Bergbernt, Sophie, Gothenburg University, Göteborg, Sweden

Keywords: sheep-husbandry, society and economy, wool production

Presentation Preference: Oral

This paper addresses the discussion of the significance of wool production in the European Bronze Age. The focus is on discussing various practices employed, the environment in which they took place, the social and economic implications, and changes in the textile craft in relation to socio-cultural transformations of the past societies.

THI-13 Abstract 02
Manufacturing Traditions in Textile Archaeology

Author: Dr. Bande-Burgos, Johanna, Landsamt für Denkmalpflege, Esslingen, Germany (Presenting author)

Keywords: Manufacturing Traditions, pile-dwellings, Textile Archaeology

Presentation Preference: Oral

Research results of the past 20 years have made it possible to recognize traditional manufacturing techniques of textile production from the Neolithic to the Iron Age, representative of the significance of textile products in prehistoric Central Europe. This significance displays a degree of appreciation which goes beyond the ideas we would associate with textiles from a modern standpoint. Within the scope of a large exhibition of 4000 years of pile-dwellings, on display in Baden-Württemberg from 16.04 to 9.10.2016 (www.pfahlbaulen2016.de), a key textile find from Pfäffikon-Irgenhausen (CH) has been analysed and reconstructed. The patterned textile fragment has been radiocarbon-dated to the Early Bronze Age. It occupies a key position in the textile production between the Neolithic and the Early Iron Age. While correctly identified as brocade in research of the 1930s, more recent publications arrived at erroneous identifications of the technique employed in the manufacture of this piece of fabric. New analyses and a reconstruction of the piece of fabric attest to a combination of weaving techniques which demonstrate the immense significance of textile manufacturing traditions in prehistoric textiles; manufacturing traditions, which did not reduce the textile to a mere carrier of decoration, but which instead recognized appearance and manufacturing technique as a unity.
that spinning with spindle whorls and weaving on the warp-weighted loom were commonly practiced. Plant fibres, particularly linen, seem to have been the main material for the production of cloth and textiles during this period. At some point, most probably during the Early Bronze Age, animal fibres (sheep wool) began to be used in the Aegean on a wider scale. Since hardly any Neolithic and Early Bronze textiles are preserved in the Aegean, we can study textile tools made of stone, bone and clay in order to comprehend technological traditions and innovations in textile production.

Over the last decades the use of spindle whorls and loom weights their weights, dimensions and shapes may shed some light on alternations in not only fibre use, but also in various spinning and weaving techniques. In this paper I would like to focus on chosen aspects of textile implements from Early Bronze Age PelaKonnosse.

TH1-13 Abstract 06

Comparing the incommensurate?
MBA textile tools from Aegina-Kolonna/GR and (Çėme Bağlararasi/TR

Author - Vettis, Melisa, Klassische und Frühgläubische Archäologie, Salzburg, Austria (Presenting author)

Keywords: Aegina-Kolonna, Çėme Bağlararasi, Middle Bronze Age textile tools

Investigating textile technologies in the Middle Bronze Age (MBA) Aegean has often focussed more on the impact of Minoan-type implements and techniques than on local craft traditions. Especially discoid, Minoan-type loom weights attaching to the use of warp weighted looms have been characterised as an important component of material culture reflecting processes of Minoisation on several sites spanning the Greek mainland on the west and the coast of Asia minor on the east. On the other hand, terracotta spools with longitudinal perforations are implements that are widely distributed on the Middle Heladic Greek mainland but are scarcely found at sites, where Minoan-type loom weights are present, and probably represent a western, Middle Helladic, textile tradition using horizontal instead of warp-weighted looms. This paper compares Middle Bronze Age textile tools from two settlement sites located on opposite coasts of the Aegean Sea: Aegina-Kolonna and Çėme Bağlararas. The fortified settlement of Aegina Kolonna in the Argo-Saronic Gulf is known as a major hub of commerce and pottery production in the first half of the second millennium BCE (Gauss and Kleeblender-Gauss 2015). Late Middle Bronze Age occupation layers in (Çėme Bağlararasi) feature an affluent harbour town with very early evidence for wine production (Şaholgu 2015).

Evidence of textile tools and production from both sites comprises mainly terracotta spindle whorls, numerous centrally pierced sponds and a number of discoid, Minoan-type loom weights as well as horizontally pierced spools and several bone artifacts. The paper discusses what types of tools were involved in textile production at both sites during the Middle Bronze Age, what kind of textiles could be produced with the available tools and if specific chains operatives of textile production can be reconstructed via contextual analyses. How was textile production organised spatially and socially and do the textile tools allow us to make inferences about transfer of textile technologies and about communities of practice?

References:


TH1-13 Abstract 07

Beyond textiles: alternative uses of twisted fibers.
Evidence from Akrotiri, Thera

Author - Dr. Varkizi, Sophia, University Of Crete, Athens, Greece (Presenting author)

Co-author(s): Dr. Gaoma, Fragopus, Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Corfu, Corfu, Greece

Co-author(s): Dr Kamaev, Ariana, Berlin-Brandenburg Academy of Sciences, Inscriptions Graecae, Berlin, Germany

Keywords: Aegean Bronze Age, Fiber crafts

Presentation Preference - Oral

Fiber crafts are among the oldest technological practices of mankind. Although commonly associated with textile manufacture, twisted fibers in the form of threads have always had a wider range of use in everyday life. Strings and ropes constitute a humble but essential category of fiber products deriving from the same technology and organic matter as threads. Due to their organic nature, however, they rarely survive in the archaeological record, unless special environmental conditions occur. This paper discusses the alternative uses of twisted fibers in the Bronze Age Aegean, with particular reference to the settlement of Akrotiri in Thera. The primary focus of the paper lies on impressions of threads, strings and ropes preserved on objects made of clay and on wall paintings. We will attempt an examination of the technical properties of these products on the basis of their impressions and we will consider their use for a variety of purposes. Our observations compare to another set of data, namely the actual strings and ropes that have been exceptionally preserved and published from the same site.

TH1-13 Abstract 08

Does anybody still wear that?
Notes on (representations of) Minoan female dress in Mycenaean Greece

Author - Thaller, Ulrich, German Archaeological Institute, Athens, Greece (Presenting author)

Keywords: Minoan, Mycenaean, wall-paintings, as most recently documented in B. R. Jones’ monograph study ‘Ariadne’s threads’, form the most central category of evidence in reconstituting Aegean Bronze Age textiles and costumes. They are not, however, without their own interpretative challenges, amongst which, particularly for Mycenaean mural art, a pronounced conservativism is particularly noteworthy, as is, arguably as a collateral phenomenon, the occasional less-than-artful rendering of motifs when a painter diverged from the templates of actual or conceptual pattern books. Judging the conservativism or innovative nature of forms of dress from their representations in an inherently conservative medium may not, at first, seem the most promising of approaches. It may, however, produce highly interesting results when evidence can be adduced that the conservatism of the representation may have surpassed that of what was represented.

Precisely this may well be the case for Mycenaean representations of the traditional Minoan women’s dress of flounced skirt and open-fronted bodice. While there is general agreement that it was borrowed as a complete package without any noticeable selectivity on the part of the mainlanders and that it can be associated with ritual or festive occasions and possibly only with weavers of a certain social status, there has been a long-lasting debate whether or not this female dress was actually still worn on the mainland in the 13th century B.C. Its survival only in wall-painting iconography has been suggested as an alternative explanation of the extant evidence, which has recently been complemented by important new wall-painting finds from the site of Tiryns in the Argolid. These include, in at least one and possibly repeated instances, a very unusual rendering of the bodice, which – unless it were explicable as a purely local form – provides a new vantage point to address an old and as yet unsolved problem.

Preliminary approaches. It may, however, produce highly interesting results when evidence can be adduced that the conservatism of the representation may have surpassed that of what was represented.

To dye or not to dye. Bioarchaeological studies of Hala Sultan Tekke site, Cyprus

Author - Kofal, Dominika, Polish Academy of Sciences, Katowice, Poland (Presenting author)

Keywords: dyeing, Hala Sultan Tekke, plant macrofossil analysis

Presentation Preference - Oral

Hala Sultan Tekke site is located in the southern – east part of Cyprus, ca 7 km from Larnaca. The investigation has been being undertaken as part of the Late Cypriote city of Domoracia Vlatina. Due to a large territory that the settlement could have occupied the archaeological research has been divided into smaller areas. The exploration started in the so called Area B, in the 70's of the 20th century. At that time, the director of the excavation was a Swedish professor Paul Åström. At the end of the 80's and early 90's of the 20th century, works at the site have been suspended for some years. The excavations started again in 2010 within a project “New Swedish Cyprian Expedition” led by prof. Peter Fischer and it included Area 6 in the northern part of the site.

The conducted, hitherto, excavations allowed establishing the localization of settlement part, workshops for metalurgy and textile production, and a possible commentary. All of the areas are dated to the Late Bronze Age (Late Cypriote II: 1450-1200 BC and Late Cypriote III: 1200-1050 BC). 

Additionally, two stages of site occupation have been discovered. Stratum 1 and Stratum 2 that can be differentiated by a change in the soil colour and a shift in the stone constructions technique. The research in the 20th century as well as the one conducted for last six seasons brought to light interesting matters regarding textile production at the sites. There are both artefacts, including spindle whorls and dozens of loom weights and archaeobotanical material that could include fabric dyeing in the city. Out of five most valuable plant dye species, namely madder, and other rubicicous plants, insects, the flavonoid dyes, the galloantinins and the dyewoods, two were detected on the site.

The presented paper, throughout an examination of finds, analysis of plant macrofossil and motifs will highlight the importance of Late Cypriote II of Domoracia Vlatina in the Middle-Bronze-Mediterranean basin.

TH1-13 Abstract 09

To dye or not to dye. Bioarchaeological studies of Hala Sultan Tekke site, Cyprus

Author - Kofal, Dominika, Polish Academy of Sciences, Katowice, Poland (Presenting author)

Keywords: dyeing, Hala Sultan Tekke, plant macrofossil analysis

Presentation Preference - Oral

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The presented paper, throughout an examination of finds, analysis of plant macrofossil and motifs will highlight the importance of Late Cypriote II of Domoracia Vlatina in the Middle-Bronze-Mediterranean basin.
TH1-13 Abstract 10

Technical Innovation in Flax Yarn in the Northwest of the Iberian Peninsula. The Spinning Bowl

Author - Doctorandu Ruiz de Haro, Maria Irene, Escuela Internacional de Posgrado- Universidad de Granada, Almuñecar, Spain (Presenting author)

Keywords: innovation, Linum usitatissimum, spinning bowl

Presentation Preference - Oral

This paper will discuss two basic concepts in addressing the archaeological documentation of a new technological element, in this case the spinning bowl documented in the Castreñita culture located in the northwest of the Iberian Peninsula from the Late Bronze Age to the entrance of the Romanization. These two basic concepts are innovation and technological loan. Through these conceptual tools that enable us to face a research methodology on spinning bowls, which help us answer arises why this innovation and its spread to other areas, although this study will focus on documenting spinning bowl in Castreñita culture. To explain his presence in this geography and chronology, we will investigate on issues related to the use of Linum usitatissimum, textile raw materials relates to this innovation and secondly to open the investigation to their role within the technical chain embodiment of linen thread in the phase of the splicing techniques.

TH1-13 Abstract 11

Woolen textiles from the times of Roman influences, the site in Grudna, Poland

Author - PhD Grupa, Małgorzata, Nicolaus Copernicus University in Torun (NCU), Torun, Poland (Presenting author)

Keywords: import, textile, wool

Presentation Preference - Oral

Textile samples (with sizes not exceeding 2 x 3 cm), sent to The Laboratory of Archaeological Monuments Conservation of the Institute of Archaeology of NCU in Torun were exceptionally interesting when it turned out that they were made of woolen fibres in spinning bowl technique, while the other part imitated, known in later ages, so called gauze, made in weave 1/1. Technological analyses of the fibres proved their high quality. However, having very few examples of this type of textiles in Poland, we are not able to answer the basic question: is it an import or local production? Information collected from Europe suggest the imported material, but here another question arises – from which direction?

TH1-13 Abstract 12

Biconical ceramic spindle whorls from Maleva mogila near Veselinovo Village, Bulgaria

Author - Vatchev, Todor, Regional historical museum - Yambol, Yambol, Bulgaria (Presenting author)

Keywords: ceramic spindle whorls, Early Bronze Age

Presentation Preference - Poster

The prehistoric Maleva mogila is situated on the left bank of the Tundzha River. It is situated approximately 2 km south-east from the village of Veselinovo in the Yambol district, Bulgaria. The site was inhabited during the Late Neolithic, Early Bronze Age and Medieval periods. During the archaeological excavations and field surveys, 9 whole kept biconical ceramic spindle whorls were found. Most of them showed similar size and measuring. All of them belong to the third phase of the Early Bronze Age according to Bulgarian chronology (2800 – 2000 BC).

The presented ceramic spindle whorls are connected with the processing of wool. They are heavier than flat spindle whorls which are used for the processing of hemp. The appearance of biconical spindle whorls depict a change in the prehistoric economy during the Early Bronze Age, through a larger breeding of sheep and goats, showing developments in human society during this period.

TH1-13 Abstract 13

The fabric of Bronze Age society: a pilot study on Bronze Age textile production in Hungary

Author - Dr. Kiss, Viktória, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary (Presenting author)

Keywords: Bronze Age, Central Europe, textile imprints

Presentation Preference - Poster

Despite the vast number of textile imprints on ceramics as well as of textile tools (e.g. spindle whorls, weights, spools and needles) from the Bronze Age, textile production – although a key social and technological element of society in this period – has been a profoundly neglected topic in Hungary.

As part of a recent multidisciplinary research project (“From bones, bronzes and sites to society: Multidisciplinary analysis of human mobility and social changes in Bronze Age Hungary (2500–1500 BC);”, http://ri.btk.mta.hu/en/english-autumn-08) launched this year by the Hungarian Academy of Sciences Momentum research programme, our study focuses on local textile production and consumption during the Early and Middle Bronze Age in the Carpathian Basin. The primary goal of our poster is to present the pilot study of this research concerning the technologies used for producing woven and non-woven textiles imprinted on the surface of ceramic storage vessels.

Furthermore, based on the above evidence, the duality of tradition and innovation in textile technology, the organization of production, apprenticeship and the possible emergence of specialisation in the Bronze Age would be examined, as well as how they shaped the socioeconomic life of Bronze Age communities in Hungary.

TH1-13 Abstract 14

Bronze Age (1800–500 BC) textile craft in Estonia on the basis of archaeological sources

Author - PhD Rammo, Riina, University of Tartu, Tartu, Estonia (Presenting author)

Presentation Preference - Poster

Although textile craft is complex, and socially and economically significant, there is little known about textile techniques during the Bronze Age on the eastern shore of the Baltic Sea. In Estonia no textile or cloth remains dated to this period have been found so far. As a result, only indirect evidence such as probable tools (e.g. spindle whorls, bone needles) and textile impressions on pottery can be used to study how the cloth was made. This is also the reason why this topic has deserved only little attention by the researchers.

Technic impressions on ceramic demonstrate techniques of making cloth already in the Neolithic. The tradition to finish the surface of clay vessels with this method prevailed in south-eastern Estonia until the Migration Period. The aim of this study is to gather and systemise all pieces of information concerning Bronze Age pottery with textile impressions, with the focus on differentiating technological variability and pointing out traditional and innovative elements.

TH1-13 Abstract 15

Hallstatt textiles from Poland. Analysis of textile finds from the bi-ritual cemetery in Świeból

Author - MSI Stamska, Joanna, Polish Academy of Sciences, Łódź, Poland (Presenting author)

Co-author(s) - Antoniuk, Łukasz, IAE PAN, Łódź, Poland

Keywords: bi-ritual cemetery, Hallstatt Period, Textiles

Presentation Preference - Poster

Textile production during the Hallstatt period was an integral part of everyday life of societies living on Polish territory. However, discoveries of fabrics are very rare. Textile remains from this period, survived primarily in the skeletal bi-ritual graves in Silesia voivodeship. Among preserved fragments of organic finds we were able to distinguish the clothes remains and the elements of accessories. The best preserved and well studied textile remains come from the cemetery in Świeból, Gliwice district.

The locality was accidentally discovered in 1930s, but regular excavations started 30 years later. As a result of the archaeological work, 576 crematory urns and skeletal graves were explored, which provided a rich set of materials. Grave goods are local products, as well as imports from the regions of the South and West Europe. 63 graves contained remains of textiles. Most survived fabrics adhere to metal outfits. In addition, research encountered woven tapes remains, braided ribbons, threads and strings.

Material acquired from the cemetery in Świeból is the largest textile collection from Hallstatt period, discovered in Poland. It waited at museum warehouse for year 2015 when Institute of Archaeology and Ethnology Polish Academy of Sciences at Łódź proceed with further studies. Despite the fact that most of fragments were small and mineralized, all undertaken analyses lead to better understanding of textile production in Hallstatt period in Poland, with its innovative and traditional elements.
TH13 Abstract 16

**Comb or a vertical loom? Attempt to interpret of the decoration on the urn from Szemud, Poland**

**Author:** małgorzata Przymorowska-Szczuka, Institute of Archaeology Nicolaus Copernicus University in Toruń, Toruń, Poland (Presenting author)

**Keywords:** Pomeranian culture, vertical loom

**Presentation Preference - Poster**

One of the most characteristic decorative motifs, appearing at the facial urn from Pomeranian culture, are combs. Those most schematically shown in its simplest form, a few vertical lines engraved from the horizontal line. A more realistic had singled handle, circle suspension and sometimes the details of ornamentation. Combs images were placed on the central parts of urn, on its upper or lower part. Among the researchers any ideas of several vertical lines are interpreted as combs. In this poster I wanted to draw attention to another possible interpretation of ornamentations on urn of Pomeranian culture from Szemud, Poland. In literature, this image is described as “alleged” comb. It was noted that both the same image, as well as the location of the engraving is unusual for typical combs motifs. If not a comb, then what? According to the author it is a representation of the vertical loom. This interpretation is supported by exceptionally long and densely arranged engraved lines, but most importantly are located halfway up the three horizontal lines that bring to mind three heddle bars. These elements of the vertical loom for making a more complex patterns.

TH14 Abstract 01

**Bioarchaeology of childhood: Chalcolithic and Early Bronze Ages in Near East, Balkans and Caucasus**

**Author:** Prof. D.Sc. Mednikova, Maria, Institute of archaeology of RAS, Moscow, Russian Federation (Presenting author)

**Keywords:** Archaeology, physical anthropology, Chalcolithic

**Presentation Preference - Oral**

Large number of children in early agricultural palaeopopulations was connected with their high mortality. Modern techniques offer new perspectives in study of infantile remains. The collections were studied from excavations in Mesopotamia (Tell Khasna), Balkans (Tell Yunazite), Caucasus (Velikent), where infant burials seemed to be especially numerous, by methods of nondestructive microscopy, microfocus X-Ray, by the isotopic analysis. The study was supported by the grant RFBR # 15-06-02098.

TH14 Abstract 02

**Stress at the beginning of life: diachronical analysis of localized hypoplasia on primary canines**

**Author:** Mariuska Kėlei, Žydrūnė Miliauskienė, Vilnius University, Vilnius, Lithuania (Presenting author)

**Keywords:** Baltic Sea region, children, enamel hypoplasia

**Presentation Preference - Oral**

Localized enamel hypoplasia on primary canines (LHPC) is defined as circular patches of thinned enamel on the labial surface. It occurs due to direct physical trauma to the developing canine crown as a consequence of exploratory behavior of infants. Because of its asymmetrical appearance (defects tend to occur unilaterally, and more frequently on the lower jaw) this type of hypoplasia can not be considered as an indicator of systemic stress. However, nutritional deficiencies during pregnancy and in early infancy can predispose to the formation of the defect. Thus LHPC can be used as an additional indicator of population health status and behavioral patterns. However, despite of its potential benefit the defect is seldom reported in bioarchaeological studies.

The aim of the study was to analyze the prevalence of localized primary canine hypoplasia of subadult individuals in selected archaeological samples, based on different chronology and subsistence: the Stone Age sample (7500-2600 BC, represented by Zvejnieki site, Latvia), the Iron Age sample (5-6th c.c., represented by Plinkaigalis, Lithuania) and medieval sample (16-18th c.c. represented by selected sites from Vilnius and Trakai, Lithuania). Medieval sample was subsequently divided in three groups, based on different social status of individuals. In total, 134 individuals (336 teeth) were included in the study. All primary canines were visually scored for presence or absence of the defect. The highest prevalence of hypoplasia was found in the Stone Age sample: 38.8% of primary canines (50% of individuals) were affected. Children from the Iron Age sample and medieval sample had statistically lower frequency of LHPC (21.1% and 25.4% of teeth, respectively, p<0.05). Results also revealed differences in the prevalence of LHPC, according to social status. Children of the highest social rank had lower frequency of hypoplasia compared to children from lower social strata (23.0% and 27.7% of teeth with LHPC, respectively). Differences in the prevalence of LHPC most probably reflect changes in the mode of subsistence, and dietary peculiarities of different social strata, although differences in child care practices cannot be excluded.
Th1-14 Abstract 03
Little Bodies at Work: Child growth, development and children’s ability to perform work
Author: Dr. Lovretz, Kini, The Cyprus Institute, Nicosia, Cyprus (Presenting author)
Keywords: childhood, archaeozoology, work
Presentation Preference - Oral

The relation between child growth, development and children’s ability to perform work is explored to facilitate inferences on children’s work in past societies. Current knowledge pertaining to physical effects of work on the immature body is examined. In particular, the understandings reached are brought to bear on the question of Anglo-Saxon children and work. As part of this endeavor, cross-sectional growth data from the immature skeletal remains from Anglo-Saxon mortuary populations of Backgate, Newcastle-upon-Tyne, and Raunda, East Northumberlandshire, are compared. The relationship between delayed growth and pathologies is explored. The growth curves of the two populations are similar, suggesting a similar level of environmental stress, assuming similarity in genetic factors influencing growth. Further, the prevalence of cribra orbitalia and porotic hyperostosis is high in the Blackgate individuals delayed in growth. Behavioural abilities are more closely related to skeletal age than chronological age, which dental age is seen to approximate. Thus, when discussing children’s capabilities, particularly in relation to work, the use of skeletal age is preferable to the use of chronological age. Delayed long bone growth may be used in making inferences about the behavioral developmental stage attained by children in mortuary populations, and further, on the kinds of work children at various growth stages may have been able to perform. The possibility of excessive physical activity should be noted alongside the conventional claims of malnutrition and disease when discussing possible environmental causes for delayed growth. Further, contemporary Western ideas should not be employed when constructing theories of childhood work in archaeological contexts. Better heuristic models for conceptualizing childhood, for example in the Anglo-Saxon period, can be found through ethnoarchaeologies of traditional rural societies. Children as young as three can perform useful tasks in traditional agricultural settings. Many of the tasks adults are known to have engaged in during the Anglo-Saxon period contain elements that were very possibly (also) conducted by children. Further case study material is presented from other temporal and geographical contexts, including the Eastern Mediterranean and the Near East.

Th1-14 Abstract 04
Childhood in Pre-Roman central Tyrrhenian Italy
Author: Doc. Lipkin, Sanna, University of Oulu, Oulu, Finland (Presenting author)
Keywords: burials of children, nurture and education, play and textile work
Presentation Preference - Oral

Researching children’s daily life in Pre-Roman central Tyrrhenian Italy is challenging, as there is minimal archaeological material indicating the presence of children in settlement contexts. The existing evidence on children consist mostly of infant tombs dated between the final Bronze Age and Archaic period. Considering the high child mortality rate, the amount of child burials at necropolises is very low, and the burials of the youngest children (less than four years of age) are mostly missing. However in Latium and Rome, many infants and fetuses have been found buried at settlement sites. Current research implies that different burials may have been used by families to represent stages of development that have been considered to be of importance, for example, the transition to adulthood. In the present study, the funerary practices of the children are examined with a focus on the presence of funerary textiles. It is argued that textile work was a duty of girls by the latest as juveniles, but both archaeological and ethnoarchaeological data suggest that even small children learned manufacturing technologies, perhaps through play. Funerary evidence of the burials of children/infants points to a broad range of activities and roles played by children, including the roles of ritualistic, sexual, and social positioning. The study of children burials is also a valuable tool for improving our understanding of the role of children in past societies. This project aims to set this youngest part of the protohistoric communities on the social and cultural background: by analysing the presence of textile objects in children’s burials, we can suggest that children have not played only a marginal role but rather the youngest members have played an important role in the society.
TH1-14 Abstract 09

At the Early Neolithic Flint mine of Casa Montero (Spain)

Author: Dr. Dipali, Anthi, Hellenic Open University, Athens, Greece (Presenting author)
Keywords: animals, pets, toys, gifts
Presentation Preference - Oral

This presentation aims to examine the relation of children and animals, as illustrated by animal-shaped objects used as toys or grave gifts, as well as animals used as pets by children from infancy onwards, or being present as gifts to boys in adolescence (the fourth and final stage of childhood) by prospective lovers. Its ultimate goal is to explore the varying or changing attitudes towards animals, as set in particular social and chronological terms, and as based on one of the fundamental dualities permeating Greek thought (humans vs animals, Greeks vs barbarians etc). Those attitudes are bequeathed to the "unshaped" members of society, children, as part of their upbringing and their training into their future social and gender roles. The main sources of evidence are depictions on Greek vases, mainly Athenian of the Classical period, in which daily scenes become very popular, supplemented by figurines of animals used as toys, as well as works of sculpture, such as funeraryreliefs, showing children playing or fighting with animals. Animal shaped toys, such as rattle, held by either toddlers or their nurses to tull them to sleep, include pig or wolf teeth, possibly meant to ward off evil. We hear of rocking horses in literature, or come across wheeled animals, mainly horses, for babies to push or pull, once they could walk or crawl. These are either depicted on vases or form figurines found in children's graves. Birds, such as geese, ducks, swans, doves, were the favourite pet of both boys and girls, sometimes buried with them, if they died. Only rarely do we find caged singing birds. Youngsters were associated mainly with dogs and cats, of the Abyssinian breed that was imported to Athens, as well as exotic felines such as cheetahs. These exotic cats, or occasionally also monkeys, were reserved for the rich youth of fifth c. Athens. Children also appear to play with goats or deer on vases, while we know that older boys could keep racehorses or hunting hounds, as part of their hunting or athletic activities. Pets are not only shown at play, but also being petted, walked, trained, or even mistreated. A special category of pets is the cock, often depicted in fights, since they were used to evoke a pugnacious spirit in young boys. Moreover, cocks, as well as hares, tend to copulate a lot, so they are often suitably depicted as erotic gifts in the context of pedastry (boys' love), along with other animals associated with hunting, such as deer, or pet birds, such as doves.

TH1-14 Abstract 10

Children and animals in ancient Greece; animals as children's pets, toys or gifts

Author: Pedro, Institute of History-CSIC, Madrid, Spain
Co-author(s): Contero, Susana, Institute of History-CSIC, Madrid, Spain
Keywords: Casa Montero, learning, Neolithic mining
Presentation Preference - Oral

The Roman life course is a well-studied topic, but there have been few considerations of how artefact evidence can contribute to our understanding of childhood in the Roman period. Yet objects made specifically for children define and conceptualize childhood as a separate category to adulthood, and embody this through social practices involving material culture. This paper takes one object category, finger-rings, and investigates the evidence that relates to the use of rings by children. By examining grave contexts containing finger-rings, we can establish the normal size ranges that existed for rings worn by children and adults. A much larger sample of rings can then be examined, identifying rings in sizes that are likely to have been worn by children, and documenting any decorative motifs on the bezel of the ring that were particularly associated with them. We can show that decorative motifs that were much used for children in the Roman period include the phallic symbol, palm branch, depictions of the Egyptian god Sobek, and other motifs such as theatre masks. Many of these themes chosen for children's rings reflect ideas of benevolence and protection appropriate to the perceived vulnerability of children in antiquity, while others relate to childhood activities and conceptualise childhood as a time of leisure. A difference can even be identified between motifs felt suitable only for babies, and those given to older children. We can also investigate the likely age at which children may have been given seal rings, and so document the life course stage at which they began to articulate their identity as a literate person. The paper suggests a methodology that could be fruitful applied in many periods to reveal more about how childhood was conceptualised in the past.

TH1-14 Abstract 11

The social construction of childhood through Roman artefacts: finger-rings and their motifs

Author: Dr. Swift, Ellen, University of Kent, Canterbury, United Kingdom (Presenting author)
Keywords: artefacts, Roman, social identity
Presentation Preference - Oral

TH1-14 Abstract 12

The children of medieval and post medieval Copenhagen

Author: Dr. Jark Jensen, Jane, Museum of Copenhagen, København V, Denmark (Presenting author)
Keywords: burials, child labour, children
Presentation Preference - Oral

The children of medieval and post medieval Copenhagen are often quite invisible in the archaeological material for many reasons - the (few) toys have disappeared or can no longer be identified; children's bones are more fragile and perish faster than those from adults from burial sites. With the aim to give nuance to the lives of children in past society, this paper will present the evidence of children living in historical Copenhagen through different unique findings of artifacts, a cemetery and an example of child labour. The Metro excavations in the city centre have given a lot of new evidence of the presence of children in Copenhagen. Well preserved finds of toys made of organic materials were excavated from the moats of the fortification surrounding the city. These unique toys reflect play and fun, but also some of them must have been a means of preparing the children for adult lives. Along the children's graves we find evidence of exercise, for instance through a tunnel was discovered under an old churchyard. The proportions and size justify that this tunnel must have been dug by children. Unfortunately only the finds of some spindle whorls mirror the children's work in the archaeological record. In addition to this, we can identify the likely age at which children may have been given seal rings, and we can also investigate the likely age at which children may have been given seal rings, and so document the life course stage at which they began to articulate their identity as a literate person. The paper suggests a methodology that could be fruitful applied in many periods to reveal more about how childhood was conceptualised in the past.

TH1-14 Abstract 13

Work and play at the early modern orphanage in Altenburg

Author: Schäfer, Kathrin, University of Bamberg, Bamberg, Germany (Presenting author)
Keywords: History of Childhood, Orphanage, Post-Medieval Archaeology
Presentation Preference - Oral

In contact with my dissertation project at the University of Bamberg I am editing findings from an early modern orphanage. The institution in Altenburg in Thuringia was founded after the 30 Years War like many other houses for this purpose in Germany. The walls of the former church of a monastery were used to establish the orphanage. It was financed by donations of the citizenry but also had to generate money in the textile production. Most of the time the Orphan Father was a qualified spinning maker and the orphans had to work in the production. A work plan from 1710 has been preserved which shows the expected workload per child. Unfortunately only the finds of some spindle whirls mirror the children's work in the archaeological record. In addition to the manufacture-like work at fixed times of the day the children had to help out with the household chores. The girls assisted the Orphan Mother in the kitchen and other housework, like cleaning and fixing the clothes and the boys would help the Orphan Father with gardening, knife grinding and repairs. When they were around fourteen years old the orphans were forced out of the institution and had to make a life on their own: most of the boys as apprentice of a craftsman and the girls as maids. Nevertheless the everyday life of an orphan not only consisted of work. In the mornings the children attended school and they also found some time for leisure and play: the finds of some toys from the orphanage can prove this.
Children and environmental stress in Wielbarkian societies

In the course of archaeological explorations in former Evangelical church in Bytom Odrzański, a crypt with relics of children - Poster

Presentation Preference - Poster

Keywords: children, environmental stress, Roman Period

In the following poster we would like to consider the impact of environmental stress on children in the Wielbark Culture and research possibilities related to this phenomenon. An interdisciplinary research on this type of data allows obtaining the data about landscape use, use of natural resources and economy, as well as information about biological condition of the buried people, paleopathology connected to work, etc. We still lack information about children and their place in the Wielbarkian society based on archaeological finds. The fusion of archaeological and biological points of view will allow describing children and childhood in Wielbark Culture from a different perspective.

Children in Vilnius potteries

Children in Vilnius potteries

In Medieval times, careless childhood was but a short period of one's life. Children started helping adults out at the tender age of 5-7, often doing hard physical work. Written sources depict children as auxiliary workers and apprentices in various workshops and manufacturing sites. What about archaeological sources? The aim of this presentation is to analyse what tasks children could have performed in ceramic workshops manufacturing bricks, roof tiles, glazed tiles and other household ceramics. The data base of the analysis consists of ceramic artefacts discovered during archaeological research in Vilnius, Lithuania. Artifacts with fingerprints found in production sites and residential urban environment are analysed with the help of dactiloscopic methods to establish whether these were children's fingerprints. The interpretation of background information helps identify the nature and scope of children's work, as well as changes possibly dependant on the child's age.

Slave and servant children in Archaic and Classical Athenian art

Slave and servant children in Archaic and Classical Athenian art

The role of childhood in early modern Scotland can be studied through both documentary sources and visual art, yet recent archaeological discoveries have provided a more immediate form of analysis in the form of toys and the traces of the industry which produced them. Most importantly, these objects allow an analysis of childhood in 'everyday life' rather than the images and ideals depicted in the portraits and writings of the social elites. These surviving objects point to an industry geared to producing large numbers of affordable toys and trinkets. The majority of these are miniatures of real word objects, clear indicators of the roles which children were expected to play, not least with the intent of preparing them for adulthood. The study of these objects can elucidate notions of gender and social behaviours as well of those of aspiration; in brief, how adults perceived their offspring and wished them to behave and develop. Not least, the existence of these toys raises questions of the emergence of consumer behaviour, both in their production and in the types produced. There are clear indicators that some of these objects were imported from London or the Low Countries, while others are clearly made in Scotland. These are demonstrably not the objects produced for the offspring of the wealthy, and many are home made. This paper will examine these objects in detail and will pose questions about the purpose and nature of these toys and the manner in which they can be interpreted both within the wider themes of European influence and social class.

Glass ornaments from a girl's grave in Bytom Odrzanski

Glass ornaments from a girl's grave in Bytom Odrzanski

In the course of archaeological explorations in former Evangelical church in Bytom Odrzanski, a crypt with relics of children belonging to the church founders' family was excavated. One of the coffins contained the body of a girl dressed in clothes imitating dresses of adult women. The team also found rare ornaments made of metal and glass, whose purpose was to emphasize the splendor and social position of the dead girl, but also to show the living that their beloved daughter was to be in future a real lady, but death put an end to her life. Careful manufacturing of the head decorations and sophisticated dress design must have been very expensive, which rarely appears in graves.
CHARTING OTHERWORLDS: CEMETERIES AS CULT SITES

Thursday, 1 September 2016, 09:00-18:30
Faculty of Philology, Room 118

Author: Dr. Sanmark, Alexandra, University of the Highlands and Islands, Kirkwall, United Kingdom (Presenting author)
Keywords: Burial, Cult site, Scandinavia
Presentation Preference: Oral

This paper will discuss the definition of cult sites in Vendel and Viking-age Scandinavia. In recent years a number of cult sites with place-names containing the element 'v' (sacred) have been excavated. These sites have a number of features in common, such as different types of enclosures and platforms. What these sites seem to lack are burials. A survey of a number of other places of name indicating outdoor cult (such as theophoric names and place-names containing the element 'al' sacred site), however, suggests that burials were present in these locations. In this paper, a selection of these cult sites will be examined through detailed study of archaeological features, topographic features, as well as some written sources, above all Old Nordic poetry. The overall aim is to investigate how these sites facilitated rituals and ceremonies in terms of movement, acoustics and location of audience and 'performers'.
Co-author(s): Mäld, Riiko, University of Tartu, Tartu, Estonia
Keywords: conversion period, eastern Europe, egg symbolism
Presentation Preference: Oral

In 1909 two wealthy female inhumations were excavated in the conversion period (12th-13th century) cemetery at Kuluvuse, NE Estonia. Both women were exceptionally richly furnished and belonged to the nobility of this society. In addition to rich grave goods both inhumations contained egg shells, although these were recovered from clearly different contexts. In one burial the egg was laid beside a piece of fabric, on top of her dress and ornaments. It was painted red and clearly displayed with apparent symbolic connotations. The egg from the second inhumation was found at the foot of the woman, next to a ceramic vessel. Both eggs have been identified as chicken eggs with ZooMS and microscopic analysis. The latter analysis is different from the majority of eggs in the two female burials at Kuluvuse raise several questions: What is the meaning of an egg in burial rituals for this conversion period cemetery? Why was the same object curated so differently and how are we to interpret this situation? Can we talk about pagan or Christian connotations, perhaps even simultaneously? What do these eggs tell us about the religious identity of this society?

TH1-15 Abstract 06
Were cenotaphs built at Milia kapis? Analysis of bars discovered in Wysokie site in Lithuania
Author - Mgr Rosowska, Justyna, Wilczyce, Poland (Presenting author)
Keywords: barrow, cenotaph, Viškūnai
Presentation Preference - Oral

In 1913 Stefan Krakowski excavated 22 barrows at Wysokie site (Vikuldninas, dis. Varėnai) in Lithuania. According to the findings, discovered cemetery belonged to the East Lithuanian Barrow Culture and it was used during the Migration Period and the Early Middle Ages. The term Milia kapis means in Lithuanian “the graveyard of giants” and it relates to the part of the site excavated in 1913. During the exploration mentioned researcher found inter alia six barrows without any burial or artifacts inside them. Despite this, these structures reveal certain traces of funeral rites, for example layers of carbon and ash. The same layers were also discovered in other barrows excavated at Wysokie site. The purpose of my paper is analysis of these six barrows in the context of the funeral rites. Also I will try to answer the question whether they were symbolic barrows.

Cenotaphs in the East Lithuanian Barrow Culture were built throughout the whole existence of the East Lithuanian Barrow Culture, but it should be noted that their number increased, especially since the half of the 1st millennium. Among them they were often the barrows containing burial inventory without burned human remains. There have also been other variants, while in the barrow there was no evidence of both the burial and the remains of equipment. This case was noted e. g. in the cemetery near the town Alkūnas (Alknos, dis. Trakai). The barrows with numbers 9, 10, 11 and 15 did not contain any traces of graves and barrow equipment.

The lack of human remains in a grave shows us the stage in the development of the funeral ritual, which in this case evolved into a symbolic burial. It is believed that this was a result of the new social and political reality, which followed in the Early Lithuania at the end of the 1st and the beginning of the 2nd millennium. In this time the increasing number of people could not be buried in their indigenous places. It has happened so probably because of the disappearance of the body. Its absence caused by its death in the distant lands. This was connected with the increasing threat in these times which forced the Lithuanian warriors to heading out to war and also was one of the reasons of the fall of the Roman Empire.

TH1-15 Abstract 07
Discovering Otherworld: Investigation of the Bajorai Cemetery (SE Lithuania)
Author - Prof. Valdievičius, Vytautas, Klaipėda University, Klaipėda, Lithuania (Presenting author)
Keywords: burial site, Pre-Christian religion and mythology, Sacred site
Presentation Preference - Oral

In 2008 Klaipėda University with Kašiadorys museum started investigation of the Bajorai cemetery (Elektrėnai district, SE Lithuania). Due to the climate and water change cemetery was either island or shallow of the Briaunis (former Švenčius) river. In 1913, during the exploration mentioned researcher found inter alia six barrows without any burial or artifacts inside them. Despite this, these structures reveal certain traces of funeral rites, for example layers of carbon and ash. The same layers were also discovered in other barrows excavated at Wysokie site. The purpose of my paper is analysis of these six barrows in the context of the funeral rites. Also I will try to answer the question whether they were symbolic barrows.

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TH1-15 Abstract 08
Sacredness of Space and the Afterlife: The Topography of Medieval Lithuanian Cremation Cemeteries
Author - Petrasukas, Gediminas, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: sacredness, the afterlife, topography of cremation cemeteries
Presentation Preference - Oral

In many cultures burial rites and the relationship with death and the afterlife are fundamental issues of existence. Death is considered as a passage from this world to the afterlife, therefore, burial is perceived as a direct reflection of connection between the living and the dead. Contrary to the established views, burial rites speak not only about the departed to the Paradise, but also about the living, their ideology and the concept of the afterlife. Nowadays researchers perform comprehensive interdisciplinary studies, and burial rites are used for the reconstruction of the social structure and communication, religion and the concept of the afterlife of past societies. Furthermore, they allow analysing burial sites and their environment that is of less importance. This paper examines the burial topography and its relationship with the surrounding environment and the landscape. The relationship among cemeteries, residential and sacred places, defensive structures and water bodies is investigated. The paper aims to reveal what role sacredness of burial places, the concept of the afterlife, and afterlife images played in the topography of burial rites.

The medieval Lithuanian cremation cemeteries are the case in this study. In the middle of the 13th century, the Grand Duchy of Lithuania was formed as a Christian state, however, Christianity was abandoned, and until the final conversion to Christianity in 1387, Lithuania existed as the only Medieval pagan state in all Christian Europe. In the 13th and 14th centuries, due to the state reform of Paganism in Lithuania, burning cremated deceased in burial grounds became a uniform burial practice. Despite the certain define burial places, though the topography of early Medieval Lithuanian cremation cemeteries is still very typical features. The cremated deceased were buried in places above the flat land, that were separated by water from the living spaces. It is argued that separation of spaces of the living and the dead, revealed in the topography of cremation cemeteries, was based on mythical images of the afterlife, and special sacred and mythological values conditioned the location of burial sites.

TH1-15 Abstract 09
Change of the Lithuanian burial rite in the 14th – 16th century: Archaeological and Written data
Author - Vitkūnas, Manvydas, General Jonas Žemaitis Military Academy of Lithuania, Vilnius, Lithuania
Keywords: burial, cemeteries, medieval archeology
Presentation Preference - Oral

Lithuania was the last European country converted to Christianity. In its ethnic lands the old heathen faith thrived till the end of the 14th century (and in Samogitia till the early 15th century). Though Christianity featured some signs of spreading to Lithuania since the occurrence of the Lithuanian state (the 1st half of the 13th century), conversions were far from massive. Christian communities (both Eastern Orthodox and Catholic) and their churches and cemeteries existed in Vilnius during the heathen times. After Lithuania was baptised in 1387 and Samogitia – in 1413, Christianity began to spread causing changes in different spheres of life including burial rites. In the late 14th – early 15th century inhabitants of the present territory of Lithuania practiced burial rites according to the pagan tradition. In the Late Middle Ages this tradition changed due to the economic and social development of the country, which included the formation of states with an increasing number of cities. Consequently, the types of burial rites and related cultural practices began to change. In the Early Modern Period the Lithuanian burial rite had already become similar to that of the European countries of the time, although some old traditional elements were still present. The paper is devoted to the research of the burial rite change in Lithuania in the Late Middle Ages and the Early Modern Period.
The multicultural cemetery in Ułow (site 3, Poland) – the magic of the place or the random choice?

Author - Dr. Nieszpitowska-Wietliewska, Barbara, Institute of Archaeology, Maria Curie-Skłodowska University in Lublin, Lublin, Poland

Co-author(s) - Wiśniewski, Tadeusz, Institute of Archaeology, Maria Curie-Skłodowska University in Lublin, Lublin, Poland (Presenting author)

Keywords: burial rites, multicultural cemetery, Ułow, SE Poland

Presentation Preference - Oral

Ułow is a small village in Lublin Voivodship (SE Poland) situated in the region of Middle Roztocza. The complex of archaeological sites in the woods of the vicinity of Ułow was found by researchers who were looking for military items from the World War II. Among sites recognized during the archaeological excavations, there are two cemeteries dated to the late Roman Period and the Migration Period (sites 3 and 7) and two contemporary settlements (sites 1 and 10), separated from each other by a deep valley of rivulet, now, intermittent. At the same time, it is a border between two zones – sancum and profanum. On site 3, except the cemetery dated to the 4th century A.D. – to the middle of the 5th century A.D. evidences of much older settlement were found. They are associated with the Late Palaeolithic, the Mesolithic, the Neolithic (the Lublin-Volhynia, Funeral Beaker and Corded Ware Cultures), as well as the Bronze Age, the early Iron Age (the Trzciniec and Lasutian Cultures) and the Middle Ages. Three barrows of the Corded Ware Culture were also discovered and explored. They were closely connected with the arrangement of a cemetery from the Late Roman and early Migration Periods. Many aspects of the burial rites practiced at Ułow in all phases of the settlement is not an analogy in Polish lands. Therefore, the main question is why the people of so many cultures chose this place. Whether the settlement was associated with convenient geographic and geomorphologic conditions or with cultural tradition, or whether it was the random choice.

The role of animals in the funeral rites of the population of the Przeworsk culture

Author - Dr. hab. Rodzińska-Nox, Judyta, Institute of Archaeology, Kraków, Poland (Presenting author)

Keywords: animal symbolism, funeral rite, the Przeworsk culture

Presentation Preference - Oral

On cemeteries of the Przeworsk culture many material traces of the diverse ritual behaviors are observed. Based on the results of recent studies, it is believed that a special role in the funeral rites of that culture in the Roman period was played by animals and related symbolism. Animal bone remains are relatively frequent in graves of people of both sexes, who belong to different age classes. Among them are represented the bones of mammals, both domesticated and wild. Also the abundant remains of cattle, goat and sheep. These findings are interpreted as traces of sacrifices in honor of the deceased or supernatural beings, or as gifts of food, but it cannot be excluded that they are relics of ritual feasts taking place during the funeral ceremony.

At necropolises of the Przeworsk culture zoonomorph figural images, made of clay, were recorded. Artefacts of this category are present mostly in graves of women and children. It should be noted that the most numerous images of animals appear in the inventories of the Przeworsk culture in the second half of the second and in the third century AD, so in the same chronological section, when animal bones are relatively frequent in graves of the population of mentioned unit. It should be added that at this time zoonomorph figurines became more numerous also in other cultural milieu of Barbaricum and in the Roman provinces. This may indicate the existence of some interregional trends in the sphere of rituals and beliefs, in which animals and symbolism referring to them played an important role. The validity of this assumption is further supported by the fact that some motifs, for example a hen or a rooster, occur in the areas lying on both sides of Limes in this period.

The area of the ritual activities.

Case studies of the cemetery in Paprotki Kolonia (NE Poland)

Author - Dr. hab. Karczewski, Maciej, Institute of History and Political Sciences, Białystok, Poland (Presenting author)

Co-author(s) - Karczewski, Małgorzata, The Research Centre of Central and Eastern Europe, Białystok, Poland

Keywords: cemetry, rituals, Roman and early Migration Periods

Presentation Preference - Oral

The cemetery of the Bocagezow Culture from the Roman and early Migration Periods in Paprotki Kolonia village, in the Masurian Lakeland, delivered several traces related not only to the cult of the deceased but also to another ritual activities which took place on the area of the cemetery. Multidisciplinary research conducted so far, revealed traces of the use of plants in the burial ritual, the social structure reflected by the stratigraphy of graves, a close relationship between the location of the cemetery and environmental conditions and the use of the area of the cemetery as a place of sacrifices of horses. All these discoveries are changing and expanding existing knowledge of flat cemeteries of Bocagezow Culture, related to the Gānlàd tribe mentioned by Claudius Ptolemy.

Breclov-Pohansko – the cemetery around the rotunda as a place for a cult of the dead

Author - Prof. Przybyłowicz, Renata, Masaryk university, Brno, Czech Republic (Presenting author)

Keywords: Breclov-Pohansko, collapsing time, early medieval

Presentation Preference - Oral

The early medieval stronghold (Breclov-Pohansko) (southern Moravia, Czech republic) was important residential agglomeration of the so-called Great Moravian Empire. In its north-eastern suburb Christian church with graveyard around was discovered. From years 808 to 2010 there were found 152 graves. The various attributes of funerary features were explored there, for example the graves with presence or absence of funeral furnishing, with or without of wooden coffins; of interior stone construction and adjustment of the grave pits, the diversity in the cubage of grave pits or in the orientation of the deceased. The cemetery is dated to the turn of the 10th century AD and 11th century AD. It is a time of the turbulent changes. The so-called Great Moravia was destroyed, the Christian Church organization was weakened and for a time “pagan” idols of ancestors returned to power. In this time of uncertainty people buried their dead in this place. It is important to discover, how was this funeral space organized. The using of the usual archaeological analytical methods but also the application of multi-proxy methodologies (phosphate, isotopic, pollen, palaeontological analysis etc.) help us to determine this knowledge.
TH1-15 Abstract 15
What can the cemeteries from 8th – 10th centuries from Lower Danube region tell us?

Author: Dr. Ciupercă, Bogdan Iosif, History and Archaeology Prahova County Museum, Ploiești, Romania (Presenting author)
Keywords: cemeteries as social understanding, early middle age, faith in funerary context
Presentation Preference - Oral

In the region of Lower Danube, in the last centuries of the 1st Millennium, a great number of cemeteries were discovered. This is an epoch when Christianity and paganism among barbarians are still fighting for supremacy, generally speaking; in particular a discussion of fighting of different kinds of Christianity with different kinds of paganism, if not even a christian vs. christian.

We have a lot of information of this kind of social manifestation of groups, about the cemeteries. Did those information helps us to understand those fighting? To understand the religion of the different groups the lived on the Lower Danube? Did the differences between the way a grave was construct with all its architecture and goods can be viewed as arguments for seeing religious differences between groups or persons? Did the cremation and inhumation are antagonist or not?

Overal, we think we have arguments for a discussion not only about what is christian or what is pagan, but for a dipper one, concerning the main the person and not the group, taking into consideration small, but we think important, differences in the funerary expression of faith of each grave/person.

TH1-15 Abstract 16
In this World and the Next: Deviant Burial Rites from Medieval Cemeteries in Bulgaria

Author: Parvanov, Petar, Central European University, Sofia, Bulgaria (Presenting author)
Keywords: Bulgaria, deviant burials, medieval period
Presentation Preference - Oral

What is deviant burial and why it occurs are questions that have been part of archaeological thinking longer than we may assume. Nonetheless, the interest of such special cases where the deceased received noticeable different treatment is just now forming systematic approach towards them. Recently the theme of deviant burials was reappraised in European archaeology, sometimes creating very heated debate over it. Simultaneously, the increasing finds number of such untypical and strange character attracted significant interest from the media and the wider public on the matter, often turning the topic into academic grey area.

The present work is the first consistent archaeological study of this phenomenon on the territory of Bulgaria based on the archaeological findings and records and adopting long-term and theoretically aware perspective. It is based on pilot study undertaken to assess the potential for wider research on regional scale in Southeastern Europe.

The paper will present the general conclusions at the current stage of the research and will illustrate the applied methodology and interpretations with certain case studies. The function of deviant burials in the increasingly complex legal culture of the medieval Bulgarian states and the impact of Christianity and the Church over it will be discussed. The close entanglement between sacred meaning and social evaluation of certain individuals can also be seen as a strategy to create and recreate social identities and memory within cemeteries and landscapes.

TH1-15 Abstract 17
Aegean burials as liminal performances

Author: Dr. Schälin, Ann-Louise, Swedish Institute at Athens, Göteborg, Sweden (Presenting author)
Keywords: Aegean, burial, Performance
Presentation Preference - Oral

Death is one of the moments of transition in life. For the living it is important to affect this event through ritual activities and both pre-liminal rituals concerned with the separation from the existing world and post-liminal rituals - the incorporation into the new world - are performed.

When the Late Bronze Age Aegeans experienced death, they performed specific and appropriate rites and ceremonies in order to connect with the transcendent world and bridge the gulf between this world and the other beyond. This world and the other world were separated by a liminal zone, which partakes of the qualities of both and this is where the focus of ritual activity takes place. Special requirements of purity may exist here and a heightened awareness is appropriate, since there is risk of pollution where transition between life and death takes place. The liminal zone is a special and mysterious region, which carries the risks of hidden dangers. The ritual actions of propitiation directed towards the supernatural powers consist of food and blood sacrifice, libations, gifts of non-consumable material objects, prayer and the payment of respect. The present paper brings forward the ritual activities performed at selected Aegean Late Bronze Age cemeteries through the reflection of the material remains and the analysis of the structural components of the tombs.

TH1-15 Abstract 18
Phenomenon of multiple burials and its significance in the studies of Early Mycenaean elites

Author: PhD candidate Dudzik, Katarzyna, Institute of Prehistory, Zalasewo, Poland (Presenting author)
Keywords: Identity, Mycenaean elites, multiple burials
Presentation Preference - Oral

The presentation will provide a summary of the mortuary customs studies for MH I – LH II Argolis. Multiple graves were only 14% of total excavated number from the sites of Asine, Argos, Dendra, Lerna, Mycenae, Tyrins and Pylos. The analysis focused on the formal nature of specified graves. Following preferences were provided with the MH III period (beginning of Mycenaean culture).

The high growth of multiple burials was visible, the traditional burial areas were used and there were no special cemeteries for the local elites of society. Some of the objects were highlighted within the cemeteries (perimeter walls, stone steles and tumuli). Using of tumuli (Argos) and perimeter walls (Grave Circles at Mycenae) distinguished them also in the local landscapes. Using of the elaborated tomb structures (cist and shaft graves) and deposition of more sophisticated grave offerings was noticeable. It is also clear that for some multiple burials bigger graves were used, specifically created for this practice.

The main topic of paper will be an interpretation of multiple burials phenomenon in cases of tradition and communal identity. It is visible that Early Mycenaean elites were focused on cultivating tradition, but with special individualization of their own group. It should be emphasized that there was a strong need to practice certain funeral customs – using a common cemetery, the same types of tomb and set of offerings. The posed questions will be about the purpose of adding successive deceased to the same grave to interpret acts of proving or highlighting the relationships between successive deceased and between deceased and living. It is visible that the elites tried to differentiate between each other by using of special tomb markers (walls, stone steles and tumuli) or graves offerings, which included numerous precious objects (imported or made in local workshops). This explanations will be connected especially with the presentation of cases from Argos (tumuli) and Mycenae (grave circles).

The Argolis cemeteries can be interpreted as a theatre of cultural changes. They indicate a desire to accent a strong significance of the blood ties role into a community and the role of the family as the basic social unit. They also indicate a manner to separate and designate for some groups of society and not for others, the creation of themselves. They emphasized the individual identity and tried to define their origins and place as members of a larger group of society.

The special roles in this performance were reserved for ancestors and descendants, who created a special conditions to highlighted relationships between them.

TH1-15 Abstract 19
The Symbolic Meaning of Grave Goods

Author: PhD candidate Valotkienė, Šarūnė, Lietuvių literatūros ir tautosakos institutas, Vilnius, Lithuania (Presenting author)
Keywords: Grave goods, Interdisciplinary method, Symbolic meaning
Presentation Preference - Oral

Generally, grave goods are defined as artefacts buried with a deceased that are or will be required in the afterlife. Archaeologists collect the following information about grave goods: the material from which they are made, their measurements and typology, and often detailed descriptions of the decoration of ornaments. Usually the functions and purposes of these artefacts are described in terms of their practical meanings, rather than their symbolic meaning. For example, needles in the grave are approached like sewing tools, that will be used for the same purpose in the afterlife.

Grave goods are valuable to determine and identify important data: dates and/or periods of graves and cemeteries, cultural migrations within a certain geographical area, the culture itself or even relevant changes of technologies. Often grave goods are broken down into different groups: by purpose e.g., as tools or ornaments, by whether they were belongings of the deceased or grave gifts, or by location of production i.e., whether they were locally produced or imported.In all these calculations and analyses, grave goods are treated like objects without particularly deep meanings. Also it seems to have been forgotten that funerals are a complex of symbolic actions, which archaeologists can perceive through material remains. To understand symbolic meaning of grave goods we can use interdisciplinary method. This gives a chance to see diverse view of artifacts.The main aim of this paper is to reveal the symbolic meaning of grave goods, using archaeology, ethnology, history and Lithuanian linguistics. To illustrate, five different artefacts have been chosen: needles, rings, sleigh bells, axes and swords.
LITHIC RAW MATERIALS IN PREHISTORY: SOURCING, NETWORK DISTRIBUTION AND USE

Thursday, 1 September 2016, 14:00-18:30
Faculty of History, Room 218
Author - Bonsall, Clive, School of Edinburgh University, History, Classics, and Archaeology, Edinburgh, United Kingdom (Presenting author)

Co-author(s) - Guruva, Maria, National Archaeological Institute with Museum, Bulgarian Academy of Sciences, Sofia, Bulgaria

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Keywords: lithics, prehistory, raw materials

Presentation Preference - Regular session

In prehistory raw materials played an important role in subsistence and in the spiritual aspects of everyday life. Different rocks (particularly siliceous ones) and minerals were subjected to random or strategic procurement for chipped stone industries in general, as well as for specialized tools and individual prestigious or symbolic items, among other things. There is convincing evidence of preferential use of some raw materials for specific production, e.g. Grand Presqu’île flint for daggers, Ludogorie flint for spearpoints, Balkan flint for diagnostic Karanovo I/II/III-based blades, and Alpine jadeite for polished axes.

The distinction between deliberate and opportunistic raw material exploitation is readily perceivable within chipped-stone assemblages from different contexts. Apart from strategies for local raw material acquisition and use, sophisticated networks of long-distance distribution are attested on regional and supra-regional scales. Examples of such networks include: Mediterranean versus Carpathian obsidian; Grand Presqu’île, Banat and Balkan flint; jadeite; nephrite etc.

This session calls for contributions that focus on the following research issues: i) raw material sourcing and supply in prehistory (from simple nodule collecting from secondary placer deposits to shaft and mining techniques); ii) distribution systems and organization (evidence of recognizable networks); iii) raw materials for peculiar uses (in relation to knapping and manufacturing properties).

TH1-16 Abstract 01

Obsidian Use on Islands Big and Small: Sicily and others in the Central Mediterranean

Author - Tykot, Robert, University of South Florida, Odessa, United States of America (Presenting author)

Keywords: exchange, obsidian, sourcing

Presentation Preference - Oral

Starting in the Early Neolithic (ca. 6000 BC) obsidian from four island sources was acquired and distributed over great distances in the Central Mediterranean. In recent years, non-destructive analytical instruments, including portable X-ray fluorescence spectrometers (pXRF), have been used to determine the specific geological sources of thousands of obsidian artefacts from many sites throughout this region. Obsidian from the Aeolian island of Lampedusa was widely used in Sicily, Malta, peninsular Italy, and as far north as France and across the Adriatic Sea in Croatia. Obsidian from Pantelleria was regularly used on Malta and other islands south of Sicily, and to some extent in Tunisia, Sicily, and the island of Ustica to the north. Small amounts of obsidian from sources on Sardinia and Palmarola made their way to southern Italy. Prior studies of the obsidian sources show multiple outcrops for each, with differences in visual and physical features (e.g. colour, phenocrysts, translucency, brittleness) as well as in quantity, size, and accessibility. Importantly, pXRF analysis can distinguish between these subsources, including Gagliotto and Caprera (Lampedusa), and Balata dei Turchi and Lago di Venere on Pantelleria. Consideration of these variables is critical in the understanding of obsidian access and selection, distribution, and use, and may be integrated with our knowledge of the availability and transportation of other material culture items (e.g. flint, greenstone, ceramics, animals, secondary products). The large number of artefacts from many Neolithic and Bronze Age archaeological sites now tested provides the opportunity to assess socio-economic changes over time, and variation based on location and lithic production methods, typology, and usage. Obsidian distribution patterns also provide better understanding of open water transport capabilities and directions, with Pantelleria 100 km from southwest Sicily, Lipari 30 km from the northeast coast of Sicily, and many obsidian artefacts transported several hundred km further along the coasts of the Tyrrhenian, Ionian, and Adriatic Seas.
TH1-16 Abstract 05

**Texture and function. The multiple uses of Greywacke among northwest Iberian prehistoric groups**

**Author:** Gaspar, Rita, Porto, Portugal (Presenting author); Co-author - Ferreira, João, Porto, Portugal

**Keywords:** northwest Iberia, tool use, greywacke

**Presentation Preference:** Oral

It is a known fact that the available lithic resources in inland Portugal are quite distinct from the ones in coastal Mesozoic sedimentary basins. This is reflected in lithic assemblages where quartz is clearly dominant while exogenic rocks such as flints and cherts are residual and have specific roles in the raw material economy. Work undertaken recently in the Sabor valley, northeast Portugal, brought to light several prehistoric assemblages (from Palaeolithic to Bronze Age) where a huge range of local and regional rocks were used. Dozens of different raw materials were identified and such diversity led to the creation of a regional raw materials reference collection, now in the Natural History and Science Museum of the University of Porto. Although several varieties of quartz dominate the assemblages, other local high silica content rocks were selected by prehistoric communities such as hydrothermal silicifications, opal, jaspers, lydite, rhyolite, mafic granulite, and greywacke among others. These had a crucial role in the economy of those human groups. Among all lithologies greywacke represents an important part since it was applied in several uses throughout times. It presents not only decent knapping aptitude but also a good thermal conductivity. With easy access it was used in many situations where a distinctive role was played. Such raw material structures (hearth, post holes, floors), portable art (engraved slabs), amulets, but also on knapped stone assemblages as blanks or tools. It was also applied in daily tasks. In this paper will be presented the multiple uses of greywacke from Palaeolithic to Bronze Age, in a specific region and its significance for each human group.

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TH1-16 Abstract 06

**Differences in the raw material preferences in Polgár-Csoochalom, northeast Hungary**

**Author:** Faragó, Norbert, Eötvös Loránd University, Budapest, Hungary (Presenting author); Co-author - Fekete, Tímea, Eötvös Loránd University, Budapest, Hungary (Presenting author); Co-author - Póth, Csilla, Philipps-Universität Marburg, Marburg, Hessen, Germany (Presenting author)

**Keywords:** chipped stones, Late Neolithic, raw material

**Presentation Preference:** Oral

Chipped stones played an important role in the sustenance of human life not just in the Palaeolithic, but in the Neolithic period also. The raw material preferences and choices became more indicative as more complex settlements and societies emerged. Chipped stones in different contexts teach us to take into consideration the many aspects of the prehistoric world. The case of the Late Neolithic site Polgár-Csoochalom reflects well these combined phenomena, where two different habitation units (bell and horizontal settlement), two different geographical regions (Central Europe and the Balkans), two different scenes of life (futal and profana) met and mixed with each other. Although these categories were more plastic and permeable for the prehistoric people, it is worth trying to investigate separately the several situations, where chipped stones played their role. Through these analyses it became clear that, generally, the local raw material is more related to the part of the settlement presumed to be related to daily, while the tell is more oriented toward to distant sources. In other situations the stone itself became a medium and bears a significance beyond the material itself. It is a matter of social roles the rock itself. Suggesting also an index of the intensity of quarrying, the different modes of lithic procurements demonstrate the variations of the role the various lithic extraction sites must have played in the prehistoric societies. Some extraction sites even became nodal points in the landscape, entangled in social and symbolic structures. Thus, when contextualized, quarry studies have the potential to provide insight into developing social relations and social-political strategies.

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TH1-16 Abstract 07

**Lithic procurement as a social phenomenon in the Stone and Bronze Age in southern Norway**

**Author:** Aasland, Cato, Nidaros Museum, Trondheim, Norway (Presenting author); Co-author - Kjelsrud, Charlotte, Nidaros Museum, Trondheim, Norway

**Keywords:** lithic procurement practices, quarry research, social phenomenon

**Presentation Preference:** Oral

Quarrying and other types of direct lithic raw material procurement can be perceived as a total social phenomenon. Based on analyses of 21 extraction sites, we have undertaken a chaine opératoire analysis of the practices involved in direct lithic procurements in the Bronze, Stone and Early Iron Ages in southern Norway. My method is one of contextualisation and comparison of material found at quarries and related workshops and settlement sites, estimates of scale and duration of quarrying, and, to some degree, the rock’s distribution. With this, I demonstrate and interpret spatial and temporal variation in procurement practices. That is, some practices involved in lithic procurement were common cross-regionally, while others defined regions and/or time periods. In some situations, it seems to have mattered more how, from whom or where, you obtained your rock, than the type or the quality of the rock itself. Suggesting also an index of the intensity of quarrying, the different modes of lithic procurements demonstrate the variations of the role the various lithic extraction sites must have played in the prehistoric societies. Some extraction sites even became nodal points in the landscape, entangled in social and symbolic structures. Thus, when contextualised, quarry studies have the potential to provide insight into developing social relations and social-political strategies.

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TH1-16 Abstract 08

**Double cache – single core: a case of long distance (85 km) stone tool refits from southern Norway**

**Author:** Nielsen, Svein, Museum of Cultural History, University of Oslo, Oslo, Norway (Presenting author)

**Keywords:** Long-blades, Middle Neolithic, Norway

**Presentation Preference:** Oral

Along the coastal strip of southernmost Norway, a large number of lithic artifacts associated with the Corded Ware Culture (i.e. the Single Grave Culture and the Swedish-Norwegian Battle Axe Culture) have been collected by amateur archaeologists during the last century. However, the scientific data (e.g. archaeological and palaeobotanical) from the period (2800–2350 cal BC) all indicates a continuation of a foraging lifestyle in the very same region. For some time, this picture has represented a paradox in Norwegian Neolithic research. How are we to interpret the occurrence of these foreign objects? In order to shed light on this question, two assemblages of long-blades, representing all long-blade deposits in Norway, were subject to technological analysis. Though the blade assemblages were initially found 85 km apart (straight line distance), both technological and refitting analyses provided positive evidence that all blades had been reduced from the same core, and thus probably by a single craftsman. These findings are discussed in terms of long distance trade and observed behavioural differences between southern Scandinavian farming communities and the foraging culture of southernmost Norway.

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TH1-16 Abstract 09

**Production, distribution and use of Final Neolithic flint axes in western Poland**

**Author:** Pyżewicz, Katarzyna, Adam Mickiewicz University in Poznań, Poznań, Poland (Presenting author); Co-author - Gruzdź, Włodzimierz, Cardinal Stefan Wyszyński University in Warsaw, Institute of Archaeology, Warsaw, Poland

**Keywords:** flint axes, Poland, Final Neolithic

**Presentation Preference:** Oral

The paper presents selected issues related to the manufacture, distribution and function of the Final Neolithic axes in western Poland. The main subject of our study is flint axes associated with the Funnel Beaker Culture, Globular Amphora Culture, and Corded Ware Culture. For the research presented in this paper, we combined raw material analysis with morphometric, morphologic, microwear and experimental methods. We carried out studies on the types of raw materials from which the flint axes were made. The data obtained were compared to the sources from local outcrops, and two important centres of axe production associated with the lithics from southern Poland and “Scandinavian flint”. Based on these results, we created models of chaine opératoires relating to the production and use of the flint axes made from different types of raw material. Additionally, we investigated the character of the distribution routes, whether craftsmen manufactured the flint axes only near to the prehistoric flint mines and their goods were imported to the other territories, or they journeyed as specialists who distributed and repaired the flint axes.
TH1-16 Abstract 10
Banded flint from Central Poland – new discoveries, new questions
Author - Sadowski, Michał, University of Cardinal Stefan Wyszyński in Warsaw, Warsaw, Poland (Presenting author);
Co-author - Budziszewska, Janusz, University of Cardinal Stefan Wyszyński in Warsaw, Warsaw, Poland;
Co-author - Grudzi, Włodzimierz, University of Cardinal Stefan Wyszyński in Warsaw, Warsaw, Poland;
Co-author - Jakułowicz, Michał, Institute of Archaeology and Ethnology Polish Academy of Sciences, Warsaw, Poland;
Co-author - Radzińska, Katarzyna, University of Cardinal Stefan Wyszyński in Warsaw, Warsaw, Poland
Keywords: banded flint, flint mining, remote sensing
Presentation Preference - Oral

Prehistoric banded flint mines were discovered on the northeast margin of the Świętokrzyskie Mountains nearly a hundred years ago. Since then, they have been attracting the attention of several generations of Polish archaeologists. A special place in these studies was taken by a large and well-preserved mining field “Krzemińsko”. Intensive research on prehistoric flint exploitation in the second quarter of the twentieth century was summarised during the VIIth International Flint Symposium. In recent years, one has returned to the research of flint mining using new technical possibilities. Geological survey showed the location of many kilometres of outcrops of banded flint in the southeast margin of the Świętokrzyskie Mountains. However, there is no evidence of its use in prehistoric times. Survey also located sporadic occurrences of secondary accumulations of banded flint in glacial deposits in southern Poland (near Cracow). Airborne Laser Scanning (ALS) make it possible to analyse in great detail the entire course of banded flint outcrops from the NE margin of the Świętokrzyskie Mountains. This resulted in the discovery of yet another prehistoric point of exploitation. Also allowed to create detailed maps of all known prehistoric mining sites. These plans revealed previously unknown methods of exploitation and also changed our ideas about the size and state of preservation of most sites. Verification surface survey of prehistoric banded flint mines resulted in the discovery of materials that show in new light the problem to access of resources and how they were used in the final Neolithic and Bronze Age.

TH1-16 Abstract 11
Still in Prehistoric Times? The mined flint for production of high quality tools in Dynastic Egypt
Author - Bula-W, Serbia, Institute of Archaeology and Ethnology of Polish Academy of Sciences, Warsaw, Poland (Presenting author).
Keywords: Dynastic Period, Egypt, flint
Presentation Preference - Oral

Flint as a material for the production of implements in Egypt was still common during the Bronze Age. It was caused mostly by the difficult access to copper and tin deposits and especially the costs of the production of metal tools. In contrast, sources of flint were easily accessible for everybody. Additionally, products of this raw material had a long durability and a low cost. Flint appeared almost throughout Egypt, but mined flint of better quality, was present mostly in wads, such as in Wad el-Shahsh, Wad el-Sajar, Wad Um el-Nakhbat and in Western Thebes. These places attracted the attention of researchers since the end of the 19th century. However, some of them has been comprehensively examined. Only recently research has been resumed. In the area of the wads there are still places of extraction of raw material, lasting its quality, knapping workshops and some temporary workers' shelters visible at the surface. On the other hand, there are not many traces of knapping workshops on the settlement area in the Dynastic Period. However, a wide spectrum of everyday objects made of flint is known from the territory of Egypt. This paper is concerned with the study of flint assemblages from a number of Egyptian archaeological sites of the Dynastic Period. The observations are based on published material from mines and settlements, on museum collections and excavations. The attempt to compare the mined flint and flint from secondary placer deposits products will be carried out. The results of the analysis will provide an introduction to the topic of flint knapping specialization and indicate the importance of this raw material in Dynastic Egypt.

TH1-16 Abstract 12
Obsidian blades deblateau at Kašov–Čepegov I (Bükč Culture), Slovakia
Author - Aliard, Pierre, CNRS, Nantes, France (Presenting author)
Co-author - Klarc, Laurent, CNRS, Nantes, France
Co-author - Hromadová, Bibiana, Institute of Archaeology, Slovak Academy of Sciences, Nitra, Slovakia
Keywords: Early Neolithic, lithic technology, obsidian
Presentation Preference - Poster

This paper will present the result of a new study of the site of Kašov–Čepegov I in eastern Slovakia. Excavations at Kašov were led by Dr. Petr Buľča between the mid-1980s. Excavations revealed one pit with hundreds of obsidian waste concentrations and associated decorated potter sherd belonging to the Bükč Culture (Buľča 1991). The exploitation and trade of obsidian is usually linked to the Bükč Culture. Previous analyses of chipped stone industries from various sites have shown that obsidian played a major role especially with the existence of so-called specialized on-site workshops where blocks were preliminarily worked and partially exploited to produce blades. The detailed technological study of the concentrations shows that the core preparation of obsidian knapping at Kalov is quite an original Neolithic obsidian deblateau technique (indirect percussion). The production is not very regular and shows macro blade deblateau as well as small blades. Evidence of knifeknapping apprenticeship has also been detected. Finally, we demonstrate that Kalov can rather be interpreted as a domestic assemblage. The obsidian production does not offer much from other blade productions made in leonopterite or radiolarite described on other Bükč sites. We believe that the blade deblateau of the pit at Kalov belongs to a laminaire tradition that appeared in the Early Phase of the ELC in eastern Slovakia.

TH1-16 Abstract 13
In search of a non-destructive way of identifying lidite in archaeological lithic assemblages
Author - Mamman, Mikael A., University of Oulu, Museum of Cultural History, Helsinki, Finland (Presenting author);
Co-author - Anttiroiko, Niko, Archaeological Field Services, National Board of Antiquities, Helsinki, Finland;
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Co-author - Tarasov, Alexey, Karelian Research Centre, Russian Academy of Sciences, Petrozavodsk, Russian Federation
Keywords: Lake Onega, Mesolithic, Fennoscandia, Russia, lidite, shungite, lithic provenience analysis
Presentation Preference - Poster

Lidite is a low grade metamorphosed siliceous sedimentary rock consisting of quartz and approximately 5% noncrystalline shungite carbon. The rock has a conchoidal fracture but often contains internal flakes while the noncrystalline carbon gives it a pitch black colour. In Northern Europe deposits of this rare rock type can be found only on the north-western shores of Lake Onega in Russia among other shungite-bearing rocks. The Onega lidites from bedrock and glacial-drift-derived pebbles, were used for stone tool raw material since the initial postglacial habitation of southern Karelia in the Mesolithic. Outside present-day Russian Karelia artefacts made of lidite are rare but no systematic study of their distribution outside the core area has been conducted so far. However, several artefacts made of a raw material that we suggest to be lidite were recently detected among the finds from Jokivarsi 1, the earliest Mesolithic site in Finland and some 250 kilometres from the western shore of Lake Onega. In support of our working hypothesis of the source of the Jokivarsi 1 artefacts a variety of dating methods, radiocarbon dates, which indicate contemporaneous Late Preboreal human presence on the northern shores of the Onega Lake. In order to identify the raw material of the Jokivarsi 1 artefacts, a multidisciplinary research project was designed with two aims: 1) to identify the raw material of the Jokivarsi 1 artefacts using a variety of petrological laboratory methods, and 2) to develop a non-destructive method for identifying lidite in archaeological assemblages. The study was conducted and the paper prepared with support from the North Karelia Fund of the Finnish Cultural Foundation and the Russian Scientific Fund (grant 14-17-00796).

TH1-16 Abstract 14
A Danubian raw material exchange network: a case study from Chelmo Land (Poland)
Author - Werra, Dagmara H., Institute of Archaeology and Ethnology Polish Academy of Science, Warsaw, Poland (Presenting author)
Keywords: Danubian communities, distribution of siliceous rock, East-Central Europe
Presentation Preference - Poster

The Polish Lowland is poor in deposits of good quality raw materials for the manufacture of chipped stone artefacts. Linbarandelskvarvar communities, in Chelmo Land, distributed good quality siliceous rock. Some of them were distributed over dozens of kilometres. On the sites "imported" flints were predominant. Among the most important are the "chocolate" flint from the northeast margin of the Świętokrzyskie (Holy Cross) Mountains, and Jurassic-Cracoce flint from the Polish Jura, near Kraków. From 14 inventories from Chelmo Land were analysied more than 1400 flint artefacts. The presence of distributed materials is from 3.5% to 85%. In the oldest phase Jurassic-Cracoce flint predominates, while in the younger stages "chocolate" flint is dominant. The latter is present in several varieties, which indicates that it may have been imported from different outcrops. This suggests that the links with the south were not limited to one area. The presence or absence of these two types of flint has an influence on our knowledge about the meaning of the sources, the use and existence of flint mining and the reconstruction of exchange routes. Unfortunately, mistakes are sometimes made when distinguishing the various flints. In particular "chocolate" flint is mistaken for Jurassic-Cracoce flint. To better distinguish those two types of flint we made several analyses. One method we used was Electron Probe Micro Analysis (EPMA). We analyzed several geological samples as well as artefacts from four prehistoric sites from Chelmo Land. In this paper we present the results of the analyses and their potential implications for our knowledge of Linbarandelskvarvar communities' exchange and distribution of siliceous rock. Acknowledgements: The investigations were funded by the National Science Centre in Poland (PRELUDIUM 2, UMO-2011/03/A/H05/03979).
Local flint pebbles reduction strategies in the settlement of Sārnate

Author - Kereneder-Gubała, Katarzyna, Institute of Archaeology and Ethnology Polish Academy of Science, Warsaw, Poland (Presenting author)

Keywords: Late Neolithic; pebble reduction strategies

This study is an analysis of local flint pebbles reduction strategies in the settlement of Sārnate. The site is located approximately 2.5 km from the present Baltic Sea shore on a former lakeshore on the Kurzeme Peninsula (western Latvia) and is dated to the Neolithic of the East Baltic. It was excavated between 1938 and 1959 by Eduards Šturms and Lūcija Vankina. During excavations in the site were discovered many separate dwellings. Therefore, in this site it is possible to analyze knapping strategies and techniques that were used in each dwelling and determine similarities and differences between them. According to the data from proximaldebitage analysis it is possible to divide dwellings into two major groups on the basis of the way flakes were produced from local flint pebbles. The first group consists of dwellings where flakes were removed from a pebble cortical surface of the pebble was used as a striking platform. In this group flakes are produced from impact along the cortical edge of the pebble. Using this strategy the dwelling inhabitants made quite thick and massive monopolar flakes that mostly belong to the secondary flake group (grouped by the Triple Cortex Typology). The same pebble reduction strategy was used for poorest quality imported flint as well. While good and excellent quality imported flint pebbles and nodules were transformed into platform cores or used as irregular multidirectional cores. In some cases, in this dwelling group local flint pebbles have been divided into massive debitage using bipolar technology as well. The secondary dwelling group consists of dwellings where the quality of a flint pebble did not affect the reduction strategy. In these dwellings both poor quality local flint pebbles and all kind of imported flint pebbles were transformed and used as platform cores and irregular multidirectional cores. In these dwellings flakes from local flint are more like flakes from imported flint - thinner and mostly with a flat striking platform. If the results of this study are compared with the study of pottery in the Sārnate settlement by Valdis Bērziņš, then the first group dwellings where raw material quality affected the pebble reduction strategy are mostly those where were used local pottery tradition: dwellings with Early Sārnate Ware and dwellings with Late Sārnate Ware; while in dwellings where raw material quality did not affect pebble reduction strategy Typical Comb Ware pottery was mostly used.

Localisation of Sources of Obsidian Registered in Bohemian Prehistory (Czech Republic)

Author - Burgert, Pavel, Institute of Archaeology of the CAS, Prague, Czech Republic (Presenting author); Co-author - Prichystal, Antonín, Department of Geological Sciences, Masaryk University, Faculty of Science, Brno, Czech Republic; Co-author - Prošek, Lubomír, Department of Chemistry, Masaryk University, Faculty of Science, Brno, Czech Republic; Co-author - Petřík, Jan, Department of Geological Sciences, Masaryk University, Faculty of Science, Brno, Czech Republic

Keywords: Czech Republic, Neolithic, obsidian

The poster summarises the results of the first geochemical analyses of prehistoric obsidian artefacts from Bohemia (Czech Republic, Central Europe). The analyses focused on eleven samples with reliable find contexts. The majority of the samples come from the Neolithic period (Linear Pottery Culture: LBK; 5500–5000 cal. BC; Brok Pottery Culture: STK; 5000–4500/4400 cal. BC). Based on the data obtained, it is possible to locate the raw material of nine samples to the Slovakian source called Carpathian 1b (Breho – Čajkov). However, the raw material of the two remaining samples dated to the same period comes from Hungarian sources, Carpathian 2b (Délbénye – Oláslátfa). It is therefore evident that in the Neolithic period, obsidian from Hungarian sources, specifically the Carpathian sources was used in Bohemia. Both sources are more than 500 km away from the sites studied, which suggests that direct access to the sources is highly unlikely. There are two possible explanations. Either, the obsidian raw material was transported to the Bohemian territory with the primary aim of gaining the raw material as such (good quality, black cortex), disregarding its source. Thus, the final evidence of the two sources in the sites is the result of a pure coincidence. The other explanation is based on the possibility that different societies (settlements) had different demands or exchange strategies.

Chocolate flint extraction points and workshops in Oronsko, Poland. Spatial and functional analysis

Author - Kereneder-Gubała, Katarzyna, Institute of Archaeology and Ethnology Polish Academy of Science, Warsaw, Poland (Presenting author)

Keywords: chocolate flint, Oronsko, Palaeolithic

This project “Exploitation and processing of chocolate flint during the Palaeolithic and Mesolithic in the northwestern part of its deposits based on non-invasive archaeological and geophysical research and test trenches” financed by the National Science Centre, Poland (2015/17/N/HS3/0179).

Analysis of household units from chopped stone tools at Alsónyék–Bátszék (Hungary)

Author - Szalayi, Kata, Eötvös Loránd University, Budapest, Hungary (Presenting author)

Keywords: Chopped stone tools, Late Neolithic, Lengyel culture

The Flint Inventory of the Neolithic and Bronze Age from the sites at Żylicy (western Belarus)

Author - Valent-Scherbach, Svitlana, Institute of History NAS of Belarus, Minsk, Republic of Belarus (Presenting author)

Keywords: Flint industry, Neolithic, Przypliat–Neman culture

Presentation Preference - Poster
Interpreting the Archaeological Record

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considered as sufficient and should be chosen as minimal requirement for artefact documentation. It allows also choosing items used for interpretation. Therefore, still the high-quality 2D documentation in representative projections of artefacts can be visualized. Accordingly, in the study were conducted experiments in which the 3D models of pebbles and lithic artefacts were created using Agisoft PhotoScan Professional and MeshLab. The studied objects had dimensions from 0.5-20 cm. Subsequently, application for visualization. Morphology analysis is based on precise and uniform documentation of artefacts and one of topical approaches is 3D morphometric methods. These methods are not widely used in archaeology, and studies carried out so far mainly have demonstrated the benefits of certain applications of morphometric methods has been delivered by development of various geometric morphometric methods. These methods are not developed by a new method for obtaining data for wider comparisons and determination of standard characteristics of artefact shape. The mentioned indicates that it is necessary to develop a comprehensive methodology for archaeological research and that requires evaluation of morphometric methods in an appropriate context. Morphology analysis is based on precise and uniform documentation of artefacts and one of topical approaches is 3D visualization. Accordingly, in the study were conducted experiments in which the 3D models of pebbles and lithic artefacts were created using Agisoft PhotoScan Professional and MeshLab. The studied objects had dimensions from 0.5-20 cm. Subsequently, application of various detailed morphometric methods were evaluated using 2D images and 3D models of the studied objects. In order to conduct comprehensive morphology analysis of artefacts, documentation and appropriate methodology are important. The study conducted reflects possibilities of accurate documentation in 3D, however, the solutions are resource intensive. The obtained data are more complete comparing with 2D documentation, however, dominant part of information cannot be directly used for interpretation. Therefore, still the high-quality 2D documentation in representative projections of artefacts can be considered as sufficient and should be chosen as minimal requirement for artefact documentation. It also allows choosing items for further detailed research that would be useful to conduct using 3D visualisations.
Anglo-Welsh social and political relations is therefore an original dimension of this paper to both castle studies and to the study of the medieval March of Wales.

However, the frontier of Cheviot also had influence beyond its boundaries: it was representative and indeed pivotal, to changes within the British Isles. The county was clearly and intrinsically linked with the overall political, social and economic dynamics of not only England, but also Wales and the Irish Sea Province. This paper therefore questions traditional documentary and secondary source narratives, which have taken on elusive Welsh versus English cultural identities based on false or irrelevant, modern, and thus constructive, historic time periods and temporal boundaries.

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TH1-17 Abstract 03
The archaeology of medieval buildings in a borderland: a study-case

Author - Dr. Istrate, Daniela Veronica, Braov, Romania (Presenting author)

Keywords: buildings archaeology, medieval church, Transylvania

Presentation Preference - Oral

My paper will explore the region of central-western Romania, commonly known as Transylvania, in the first centuries of the second millennium. This region was part of the kingdom of Hungary, but was in fact located on a confessional and ethnic frontier, between Orthodox and Catholic Europe, and in an area of brawling ethnic and linguistic variety—both factors responsible for giving the region its distinct character of a borderland. One of its most significant forms of expression of that character was religion: pagans, orthodox and catholics settled this area and found specific ways of living and practising their beliefs.

Archeology is indispensable for the understanding of the early period (10th-13th c.) for which there are very few, if any, written sources. Although the study of built structures is a relative new sub discipline in the field of medieval archaeology, in the last decades has brought important contributions to the better understanding of the history of this area.

In my paper I will provide an accurate overview of this topic and focus on the ruined church uncovered recently in Alba Iulia fortress – the oldest medieval church ever found north of the Lower Danube. The ruins were unexpectedly uncovered during structural works, in a very complicated stratigraphic context, consequence of the use of the area during the last two thousand years. Prehistoric, Roman, post-Roman, Deposit, and 8th-10th centuries’ habitation evidence this church, which was in use for about a hundred years, until it was in turn pulled down during the second half of the 11th century, when the first Roman Catholic Cathedral was being built. Subsequently, the ruins were disturbed and partly destroyed by the 11th-13th centuries’ medieval grayeyard and later by numerous medieval and modern interruptions. The analysis of this discovery (archaeological context, architectural features, building materials) offers a unique opportunity to explore the history of the Carpathian Basin around the year 1000.

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TH1-17 Abstract 04
PETRAPILOSA. Building and historical development of medieval fort

Author - M-A. Viljiné, Josip, Croatian Conservation Institute, Svetvinčenat, Croatia (Presenting author)

Keywords: development, Medieval fort, preliminary reconstructions

Presentation Preference - Oral

The Medieval fort Petrapilosa is situated in the northeast of the Istrian peninsula in the Republic of Croatia. It is one of the largest, and as historical sources indicates, one of the most significant feudal forts in Istria. Systematic archaeological researches of the fort area have been conducted in the last six years that confirmed the lengthy and very dynamic development of this fort. The results of the archaeological researches in combination with the detailed analysis of the preserved wall structure allowed us distinction of eleven phases of development that covers period from 11th till 17th century - a process that synthesizes both the stages of growth and development and episodes of destruction or degradation. These analyses allowed us a reconstruction of the appearance of the fort in its various developmental phases. Development of building structures was closely connected with different social conditions that more and less influenced the character of buildings and activities that have been happening in and around it. In a way, preserved structures of Petrapilosa are reflection of historical processes that have been changing Istrian peninsula through long period of Middle Ages.

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TH1-17 Abstract 05
Medieval Roof Trusses in the Swedish landscape of Västergötland

Author - Master Gullbrandsson, Robin, Västergötlands Museum, Skara, Sweden (Presenting author)

Keywords: Medieval churches, Medieval roof structures

Presentation Preference - Oral

This paper deals with the methods and results of an inventory made 2014-2015 with the aim to survey what is preserved of medieval roof constructions in church attics in the Diocese of Skara in the landscape of Västergötland of western Sweden. More or less intact roof trusses from the 12th century up until the first half of the 13th century are scarcely preserved outside Scandinavia, which add up to the importance of mapping this quite unknown heritage in Sweden. Similar surveys have been made in the dioceses of Lund, Skara, Stockholm, Strängnäs and Västerås during 2013-2015 and are about to be made in Linköping, thus giving us a more complete view of the grade of preservation.

It has been as-sumed that the Swedish material may consist of some hundred Romanesque roof structures and probably a hundred Gothic structures. Until the conduct of above mentioned surveys our knowledge of the number of preser-ved objects was scarce and more or less random. In the present stand it seems that the early med-ieval roof structures of churches in the landscapes of Götaland may comprise the largest preserved corpus of this kind in Northern Europe. This heritage is at the same time productive as a source for the dating of churches and for understanding the processes behind their erection.

164 churches in the Diocese of Skara have medieval origins. They are all situated in the old landscape of Västergötland. The survey has identified whole or partly preserved medieval roof constructions or traces of such in the attics of almost 70 of these churches. 28 roofs can be regarded as well preserved roof trusses with tie beam, dating from the 12th century and the first half of the 13th century. Ten are only partly preserved and 18 remains as reused parts in later constructions.

Some of the early medieval churches have been dated with dendrochronology and span from the 11th up to around 1250. A group of roof trusses with two carried struts (often meeting the rafters and tie beam) seem to belong to the oldest ones, though these are only partly preserved in a few geographically concentrated churches. The most common type of roof trusses has crossed struts, the most advanced of them boasts six and the most simple two. Some of these roof trusses have decorative features or mountings for liturgical bells, which clearly shows that the earliest stone churches in the diocese did not have ceilings or vaults. Four early medieval tower roofs have been preserved.

From the end of the 12th century up until the beginning of the 16th century, very few construct-ions are preserved. Probably there never existed any great number because of the economic and political decline for Västergötland after the plague and agrarian crisis in the mid-14th century. Roof trusses from these centuries exist today in 13 churches.

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TH1-17 Abstract 06
The Cathedral of Anagni.

A case study of the evolution of Southern Lazio in the Middle Ages

Author - Dr. Nastasi, Ariana, Università di Roma Sapienza, Roma, Italy (Presenting author)

Keywords: buildings archaeology, cathedral, medieval Italy

Presentation Preference - Oral

The cathedral is one of the most distinctive buildings of the medieval city. Symbol of the power of the Bishop and of the Church and connected with the heart of Ostianity represented by the city of Rome, the cathedral offers a valuable insight into medieval society. In Italy this type of building influenced settlement dynamics in different ways across the geographical areas. In particular, in Central and Southern Italy, the cathedral was often a site in conflict due to the proliferation of dioceses with limited territorial extension and uncertain borders subject to suppressions and unifications. It is within this context that the proposed case study of the Cathedral of St. Mary in Anagni – an important medieval city in Southern Lazio – is situated.

Today this church presents a Romanesque architectural style, as designed and developed by Bishop Peter from Salerno, in the eleventh century. However, its history dates back at least two centuries earlier. A comparison between archaeological data and written sources points to the hypothesis that the first cathedral was built in the ninth century by Bishop Rumualdus on the site of the present-day cathedral. The ruins were unexpectedly uncovered during structural works, in a very complicated stratigraphic context, consequence of the use of the area during the last two thousand years. Prehistoric, Roman, post-Roman, Deposit, and 8th-10th centuries’ habitation evidence this church, which was in use for about a hundred years, until it was in turn pulled down during the second half of the 11th century, when the first Roman Catholic Cathedral was being built. Subsequently, the ruins were disturbed and partly destroyed by the 11th-13th centuries’ medieval grayeyard and later by numerous medieval and modern interruptions. The analysis of this discovery (archaeological context, architectural features, building materials) offers a unique opportunity to explore the history of the Carpathian Basin around the year 1000.

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TH1-17 Abstract 07
The medieval hospitals of England: a complex issue

Author - Huggon, Martin, University of Sheffield, Sheffield, United Kingdom (Presenting author)

Keywords: Archaeology of charity, Hierarchies of space, Medieval Hospitals

Presentation Preference - Oral

This paper deals with the methods and results of an inventory made 2014-2015 with the aim to survey what is preserved of medieval roof constructions in church attics in the Diocese of Skara in the landscape of Västergötland of western Sweden. More or less intact roof trusses from the 12th century up until the first half of the 13th century are scarcely preserved outside Scandinavia, which add up to the importance of mapping this quite unknown heritage in Sweden. Similar surveys have been made in the dioceses of Lund, Skara, Stockholm, Strängnäs and Västerås during 2013-2015 and are about to be made in Linköping, thus giving us a more complete view of the grade of preservation.

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This paper will outline the importance of examining the full range of buildings found at the medieval hospitals of England, and how they interact as part of a complex, for understanding how these sites functioned, both physically and religiously. The medieval hospitals first appeared in England in the 1080s, with two founded by Archbishop Lanfranc of Canterbury, and they lasted until 1547 when Edward VI passed the Charities Act, abolishing the practice of prayers for the souls of the dead. In the four and a half centuries between these dates, the medieval hospitals were utilised by the charitable to cater to a range of people deemed worthy of Christian charity. Whilst poverty was an overwhelming concern, this often manifested in care for sufferers of leprosy or in sheltering poor wayfarers and pilgrims, and often attention has focused on seeing how different hospitals cared for different people. Unfortunately this has often meant that examination of their underlying ideological foundation, especially architectural layout, has been limited. Previous architectural discussion of English medieval hospitals have focussed specifically on the infirmary hall and chapel, the most likely elements to survive as standing remains, and have otherwise noted little overall planning to the site. If the rest of the buildings, such as kitchens or dormitories, are studied at all. Archaeologically, despite the ever increasing number of excavations from across the country, there has only been limited synthesis, the most complete by Roberta Gilchrist in 1995. In both fields the great variation in the nature and form of these buildings across the country has been noted and described as random, but medieval hospitals acted within a form of spiritual economy that also included institutions such as monasteries, nunneries, friaries, and charity. Despite the overwhelming religious nature of these institutions, the underlying presence of a structure to their space has never truly been investigated.

New research has suggested that when looking at these sites as a whole a hierarchy of space can be seen that implies that at some level there was a unified conception of how these sites should look and function, with areas to the south and east being ideologically higher than the north and west. Utilising case studies from excavated hospitals across England these structured spaces will be explored, from the famous St Mary Spital in London, to St Bartholomew’s at Bristol, to small pilgrim cells such as St Mary Magdalene at Patney, and suggest that the layout of English medieval hospitals was likely based upon religious ideology, social standing, and attitudes to gender. This paper will also highlight some of the implications this ordering of space may have had given the mixed nature of these communities, with men and women, religious and secular, rich and poor, living together. What is surprising is the apparent ubiquity of this structuring across the country and throughout the later medieval period.

TH1-17 Abstract 08
Saint Gunther and the Central Bavarian Forest - Was his monastery the beginning of settlement?
Author - Ranzinger, Mario, Heidelberg, Germany (Presenting author)
Keywords: Geoarchaeology, Monastery, Settlement
Presentation Preference - Oral

This question is the central part of a beginning master’s thesis dealing with geoarchaeological methods and how they can help us interpret archaeologically interpreted settlement, landscape and the human impact on landscape and nature.

The monastery of Rincnach, located in the Bavarian Forest, is said to have been the first settlement in this region. Apparently, Saint Gunther, founder of the monastery, started the clearing of the forest and the building itself back in 1011 AD. How this historical date is to be analysed with various methods. The research on geological and archaelogical evidence concerning settlement, landscape and the human impact on landscape and nature.

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The excavations have shown that several of the neighboring properties may also have been used for metalworking, which could mean that the buildings and other features in the excavated area formed part of a metalworking district in the heart of the town of Oslo.

The paper aims to present one of the buildings in a Norwegian medieval town property, a “bygård”, literally a “farm in the town”. The building itself has at least two building phases, and possibly several phases of occupation and use. There are several ovens used for metalworking on the property, as well as evidence of domestic activities like a latrine and keeping animals. I will show how the use of the building and the surrounding property changes over time and how they fit into the context of the town.

Recent excavations in Oslo’s medieval town revealed two masonry cellars close to the episcopal complex. Both cellars date to the late 13th or early 14th century, i.e. the high-medieval period in Norway. Most excavated masonry cellars in Oslo are interpreted as late or post-medieval.

However, this paper problematizes the basis for the dating of some of these structures. The recent finds accentuate the need to revisit Oslo’s masonry buildings and discuss the impression of the medieval town as an almost exclusively timber-constructed town, built around the high-status masonry complexes belonging to the bishop, the king, and the monastic orders. This paper will utilise both archaeological and written sources and address Oslo’s known secular masonry buildings, their chronology, context, use, and owners. A central question is how the masonry buildings functioned as social markers in a town where the secular architecture mainly consisted of timber constructions. Oslo might have a greater number of medieval masonry buildings than hitherto believed. This possibly impacts earlier interpretations of the town’s social topography. A central aspect considered in this paper is how the secular masonry architecture reflects the builders’ status, motives, and activities.

TH1-17 Abstract 10
The metalworker’s farm. A study of a medieval “bygård” in Oslo
Author - Edman, Theres Marie, Norwegian Institute for Cultural Heritage Research, Oslo, Norway (Presenting author)
Keywords: Buildings and property, medieval town, Norway
Presentation Preference - Oral

Since 2013 the Norwegian Institute for Cultural Heritage Research has been excavating several sites in the medieval town in Oslo, in connection with a major railway project. One of the sites contained remains from several phases of medieval buildings with domestic and industrial activity from the late 11th to the early 14th century.

The paper aims to present one of the buildings in a Norwegian medieval town property, a “bygård”, literally a “farm in the town”. The building itself has at least two building phases, and possibly several phases of occupation and use. There are several ovens used for metalworking on the property, as well as evidence of domestic activities like a latrine and keeping animals. I will show how the use of the building and the surrounding property changes over time and how they fit into the context of the town.

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TH1-17 Abstract 11
Finnish medieval brickmakers’ marks as markers of identity
Author - BA Aaltos, Ilari, University of Turku, Turku, Finland (Presenting author)
Keywords: Buildings, Identity, Symbols
Presentation Preference - Oral

Late medieval brickmakers’ marks used in the Nordic countries are a poorly studied set of symbols used by master brickmakers to sign their production. The signs consist mostly of symbols that derive from the common medieval imagery - attributes of saints, apotropaic symbols and letters. In Finland the brickmakers’ marks can be mostly found in still standing masonry buildings like castles and particularly churches. Lately they have also been found in excavations of urban sites. As the marks seem to have been personal, they offer also a mean of relative dating of masonry buildings.

It’s suggested here that these marks could be used to study both the medieval brickmaking industry and the visual and mental culture behind the marks. Furthermore the comparison of marks in different buildings makes it possible to study the geographic areas where the brickmakers worked. In this way the marks could reveal data about the craftsmen that has not been preserved in written sources. I will also bring up the question of the ethnicity of the medieval brickmakers who worked in the area of modern Finland. Were they Swedish-Finnish or German?

TH1-17 Abstract 12
To build the Medieval harbourside of Gammel Strand, Copenhagen, Denmark
Author - Whatley, Stuart, Museum of Copenhagen, Copenhagen, Denmark (Presenting author)
Keywords: Buildings, Landscape, Medieval
Presentation Preference - Oral

From the Early Medieval period onwards, the harbourside of Copenhagen was constantly developed to provide a safe and profitable harbour for shipping and trade. By the 1400s, the harbourside had expanded southwards to Gammel Strand, and this area became...
the central area of the harbour in Copenhagen. At this location a new set of administrative public buildings focused on trade were constructed, with the newly created land to the north, east and west developed into private housing for the elites. A curious mix of marine industry, administration, elite private housing and the fishing industry existed side by side in a way that would not occur in modern times. The buildings were located on the southern border of Copenhagen, and maritime border to the Baltic Sea.

The aim of this talk is to discuss the Late Medieval and Early Renaissance buildings uncovered in the Metro Citing excavations in relation to the development and later use of the area. From a combination of structural evidence, artefact remains and natural science evidence a picture emerges of how the structures were built, where the building materials were transported from, who would live there and how the buildings were used.

TH1-17 Abstract 15

Special building materials?

Author - Dr. Sofield, Clifford, University of Oxford, Oxford, United Kingdom (Presenting author)

Keywords: Brick, Geochemical, Vilnius

Presentation Preference - Poster

The Alp Fenga - Analysis of a post medieval alpine dairy hut in the Silvertta Alps

Author - Ranzinger, Mario, Heidelberg, Germany (Presenting author)

Keywords: Alps, Dairy Farming, Interdisciplinary

Presentation Preference - Poster

The Alp Fenga has been analysed in form of a bachelor thesis in the year 2013. It was possible to determine typology, chronology and functionality with an interdisciplinary approach.

Beginning in 2007 with a field survey it has been excavated in three campaigns. Due to the project “Rückwege” there should be created a record of human activities and environmental changes within this region.

The building can be interpreted due to the finds, results and historical notes. For example the ground plan of the ruin has similarities in the 18th/19th century. Furthermore with the help of dendrochronological examination, analysing finds (e.g. the only coin) and historical maps this dating could be verified. Although this building is meant to be built in the 18th/19th century, we also have clues and written evidences that the pasturing activities already started in the medieval period.

Another attempt in the whole region to record archaeological sites was to collect data with satellite images, drones and geochronological methods. Beside the chronology it was possible to find evidences for almost constant human activities in this high mountain region. In conclusion the Alp Fenga is an important part for the archaeological research of dairy farming in the Silvertta Alps.

TH1-17 Abstract 16

Architecture decoration from Malkoto kale near Voden, Bulgaria

Author - Bakarzitchev, Stefan, Regional historical museum - Yambool, Yambool, Bulgaria (Presenting author)

Keywords: architecture decorations, ceramic decorations, Medieval castle

Presentation Preference - Poster

Malkoto kale represents Medieval castle. The site is situated near Voden Village. It's situated on small pick accessed only from South. The area of the site is 0.09 ha.

The castle appeared in 10 c. when modern-day Bulgarian lands are included in the borders of Byzantium Empire. Malkoto kale is destroyed at the end of 12 c. during the Third crusade, led by Frederick Barbarossa (1132 - 1169). In 1198 year German crusades crossed the territory on whole Thrace on their way to Holy Lands.

The aim of the poster is to present the architecture decoration of the buildings in Malkoto kale. During the archaeological excavations are discovered western fortress wall with two of its towers: one circle and one rectangular, and are examined line of rooms, situated near the western wall. The buildings are decorated with brick niches and with rows from bricks and mortar. The rectangular tower is decorated with ceramic decoration, situated on two rows. All these decorations are typical for the rich towns in the Byzantium Empire during 10-12 c. Their presences here show the importance and wealth of the owner of the Malkoto kale.

TH1-17 Abstract 17

The formation of the three-compartment rural house in medieval Central Europe

Author - Associate Prof. Vareka, Pavel, University of West Bohemia, Pizen, Czech Republic (Presenting author)

Keywords: cultural synthesis, medieval archaeology, rural housing

Presentation Preference - Oral

A new house form represented by a three-compartment rural dwelling was formed in Central Europe during the 12th – 14th century. Consisting of a central entrance room, a living room and a storage room (grainary) (mostly in Eastern Central Europe) or a byre (in Western Central Europe) it has remained the most common type of traditional village house until the 20th century. Identical house forms appeared in areas of fundamentally different early medieval building traditions of “Germanic” and “Slavic” culture spheres. A comparison of the formal attributes of this new house form with earlier house types provides evidence of a formation process which can be characterised as a synthesis or type of cultural hybridity based on the mutual influences.

TH1-17 Abstract 18

Possibilities to interpret of Vilnius old wall bricks using geochemical research method

Author - Sarcevičius, Saulius, Lietuvos istorijos institutas, Vilnius, Lithuania (Presenting author)

Co-author(s) - Terrasievicius, Racinadas, Nature Research Centre, Vilnius, Lithuania

Keywords: Brick, Geochemical, Vilnius

Presentation Preference - Poster

The main focus will be on two widespread patterns: the placement of objects under hearths or floors, and the burial of material (especially animal remains) in ditches. The paper will argue that such deposits should be viewed not as accessories to a self-sufficient, completed structure, but as integral components of the building’s architecture, without which its ability to function as a building would be seriously, even fatally, compromised. The paper will close with a brief consideration of how objects deposited in buildings at their demolition may have been cornerstones of an ‘architecture of destruction.’

TH1-17 Abstract 9

Urban life in an early byzantine small scale house

Author - M.A. Steinborn, Miriam, Römisch Germanisches Zentralmuseum Mainz, Mainz, Germany (Presenting author)

Keywords: Byzantium, Excavation, Household

Presentation Preference - Oral

The early byzantine settlement of Cariní slogan southern Ser. This is supposed to be the imperial city Lusitano Prima, existed for nearly 90 years. Without any marks of earlier or later occupation, the excavations provide undisturbed insight into everyday life in an early medieval settlement of the 6th century. Excavations in Cariní slogan take place since 100 years. The early campaigns concentrated on representative buildings such as churches, while the emphasis nowadays is on the living quarters. Considering the concept and methodology of Household Archaeology, one single room house was excavated in 2014 and 2015 in high resolution with integration of archaeobotany and soil science. This finds indicate a habitual function.

The interpretation of the building bases on the results of the interdisciplinary research. The simple configuration of the house and the multiplicity of potential types of use in a single room structure challenge the examination. This is crucial point where field work and the theories of Household Archaeology come together. Working with an elementary constructed house and a few objects connected with specific activities restrict the possibilities which house with many rooms and outdoor areas may provide. It is necessary to examine the activities in-and outside the building to understand the function the household fulfills in the settlement system regarding social, religious and economic aspects. The building accommodated one or more persons who became involved in different or low social stratum. Taking their perspective on the settlement raises the question of their everyday life. The householder can be seen as the place where social roles are negotiated in daily routine and thus as a social landscape which reflects the mentality of the dwellers. The analysis of installations and formation processes helps to understand activities carried out in daily routine and how the domestic space may be used. The distribution of finds is imbalance between the inside of the house and its exterior what depicts the pattern of disposal organisation. This and other domestic activities display in little the organisation of the whole settlement. Working on households provides information of how the dwellers contributed to the development of the society. Changes and continuities in the ceramic spectrum and the settlement structure may indicate cultural but also economic transformations which concerned the ordinary people directly.

The talk will examine if it is generally possible to work with the household concept if there are unspecific structures or if it is rather necessary to apply it to gain more information. For this purpose it will place the archaeological remains of a specific small house into the context of the organisation of a settlement.
The rise and development of brick production in Vilnius, the capital of the former Grand Duchy of Lithuania, was inspired as strategically important craft. The production of bricks has been changing and improving during more than seven centuries. Therefore brick is an important source providing the knowledge about the technical development, production potential and cultural influence during different periods. The evaluation of physical and chemical properties of bricks would enable us to judge about the technological standards of Vilnius bricks, deviations from them and their reasons. The promising investigation methods of the old bricks are related to applied methods of exact sciences. One of them is geochemical method. The geochemical data statistically grouped using Ward's hierarchical clustering (Barcenačius, Tarailiūnaitė, 2015, Archaeologia Lituana, v. 16, p.45-62) enables to hypothesis that: a) in certain chronological periods the material for construction of buildings and production of bricks could be extracted from the same or adjacent clay deposits similar in mineral composition; b) there existed brick production technologies specific for that period. So, it is possible to try to create peculiar “multivariate recalibration matrices” with as many as possible dated or characterised by other parameters samples. According to them it would be possible to determine at least approximate data of the newly found interesting brick of unknown chronology or to compare other features.

Geochemical investigations are understood as a complex of methods which includes: a) purposeful selection of brick fragment samples, b) multi-elemental method of determination of real total contents of elements, c) multivariate statistical analysis (cluster, factor analysis), d) analysis of the ratios of geochemical indices, e) graphical representation of data. Energy-dispersive X-ray fluorescence is usually used for investigation of chemical composition. Its advantage is that great number of chemical elements which can be determined including those related to clay minerals and their additives (Al, Ca, Fe, Mg, Na, K, Si, Ti) accompanied by specific trace elements (Ga, Co, Cr, Cu, Mn, Nb, Ni, Rb, Sr, S, Pb, Zr, Zn, etc.).

Aiming to obtain more precise interpretation of brick origin and technological processes using geochemical methods it would be useful: a) to take more (15) sub-samples from the same brick (avoiding the effect of random sample selection), b) to take samples from the inner part of the brick (reducing anthropogeochronological component), c) to use multivariate analysis method with obligatory determination of total content of main major chemical elements and their specific satellites, d) to compile geochemical database of as many as possible exactly dated bricks (when a, b and c requirements are met), e) to select the set of chemical elements for multivariate analysis basing on various geochemical features (not only variability of composition), f) to verify and supplement the results of cluster analysis with the help of other multivariate statistical methods, g) to accumulate geochemical data on potential raw material (clay) deposits.

**TH1-18 Abstract 01**

### One burial at a time: Integrating eventful archaeology and mortuary analysis

**Author** - Polanyi, Tamás, Northwestern University, Evanston, United States of America (Presenting author)

**Keywords**: Bronze Age, death ritual, social change

**Presentation Preference** - Oral

Social change often comes as a thunderbolt shattering structured and institutionalized landscapes of human-material relations. Social change generally becomes recognized and experienced as an event. It is perceived as a single, synchronous episode affecting multiple intersecting spheres of life. Most of social progress, however, remains invisible, hidden from the broader public and from the outside observer with no durable and less visible material traces. Nevertheless, it is critical to recognize that individual occurrences of negotiating stasis and change contribute to the particular shape events take. Additionally, such occurrences construct the social, political and economic circumstances that enable events to have a sweeping material effect on society.

These observations are exponentially significant in the study of past societies. In archaeological analyses major transformations become recognized mostly through detectable and durable broad scale ruptures in the articulation of people and material resources. Most processes leading up to such events remain invisible. The goal of this paper is to provide a theoretical framework for the analysis of social negotiations shaping major shifts in European prehistory. Integrating Victor Turner’s theory on ritual process and William Sewell’s concept of historical change I will present a historical processualist approach to death rituals. I argue that a contextual and sequential analysis of funerals is a powerful tool to reveal micro-political processes contributing to broad historical transformations.

**TH1-18 Abstract 02**

### Big men and small chiefs – social transformations during the early 2nd millennium BC

**Author** - Ørivesen, Rune, University of Copenhagen, Copenhagen, Denmark (Presenting author)

**Keywords**: Early Bronze Age, Late Neolithic, Social transformation

**Presentation Preference** - Oral

The Neolithic societies of southern Scandinavia were clearly demarcated from those of the Mesolithic by labour-intensive, large-scale construction works such as monumental tombs and enclosures. However, we do not yet see the long-distance, monopolized exchange of metal and prestige items that characterises Bronze Age societies from period II onwards, and which bear witness to a chiefdom organisation.
How then should we perceive the Late Neolithic and Earliest Bronze Age societies of southern Scandinavia?

One of the most significant features of the Late Neolithic was the ‘reintroduction’ of metal. Even though limited in number, the presence of metal objects bears witness to the establishment of far-reaching contact and exchange networks, which then developed further from around 2000 BC, as a result of increased links with the Jutlandic culture. The amount of imported metal had, however, not yet reached a level, which allowed the creation of formal hierarchies.

Hoardings and depositions show the display of wealth and surplus, probably deposited as the culmination of large gatherings and feasts, which included the distribution of food and drink. The variation in length evident in contemporaneous cemeteries indicates furthermore that supreme examples functioned as elite items that were used as status symbols, bride price etc. What we see is probably the appearance of some kind of big-man competition for power and recognition through feasts and potlatch-like give-aways. However, this status was not yet formalised into fixed hierarchies. One of the reasons for this lack of formalised hierarchisation was probably that it was difficult to monopolise the necessary raw materials (for example flint for the production of flint daggers).

Copper and gold, on the other hand, held opportunities for control by powerful and influential lineages or individuals, as these metals could only be obtained through exchange. Consequently, if upcoming chiefs were able to monopolise external exchange, increased visibility and prestige would be facilitated and might have led to the formation of self-perpetuating elites. The occurrence of large ‘chieftain’ houses and the increasing number of metal objects evident from 2000 BC onwards shows that certain individuals and/or lineages were successful in creating a production surplus to be exchanged for metal objects and that these lineages were able to obtain influential positions in the exchange networks over time. The formation of chieftain structures was, of course, a long and complicated social process with no single explanatory factor, as clearly illustrated by copper imports in the Early Neolithic, which did not lead to the formation of formal hierarchies.

However, in contrast to the Early Neolithic, metal was, from around 2000 BC, an inevitable precondition for the production of ‘international’ status symbols and up-to-date weaponry such as daggers, halberds and spearheads, as well as gold and bronze rings etc. The necessity of obtaining bronze and gold meant that it became more difficult to manifest oneself as an influential individual or ‘big man’ without access to these prestige goods. As a consequence, formal hierarchies and centralisation of wealth developed further and the classic Nordic Bronze Age became a reality.

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TH1-18 Abstract 03
New types of longhouses as a result of an increasing need for storage in Late Neolithic?

Author - archaeologist Borup, Per, Horsens Museum, Horsens, Denmark (Presenting author)

Presentation Preference - Oral

At the location of Birka, in eastern Jutland, large quantities of charred grain reflect the extended agriculture in the Late Neolithic. Different crops were cultivated separately, presumably in a system of crop rotation. At the same time new types of ‘outhouses’ emerged at the settlement, apparently as a function of economy building or barns. Was it an increasing demand for storage that also soon affected the construction of the longhouses ending up with a three-aisled construction at the beginning of the Bronze Age? A moderate size indicates that the appearance of the three-aisle building here initially had a functional purpose related to the interior of the house.

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TH1-18 Abstract 04
Notion of the individual in archaeological interpretation of Neolithic – EBA transition processes

Author - Phd Paulina Gorniewicz, Center for Theoretical Study, Charles University in Prague, Prague 1, Czech Republic (Presenting author)

Keywords: Early Bronze Age, individual, Late Neolithic

Presentation Preference - Oral

In the UK, the period of Late Neolithic – Early Bronze Age is the time of changes in pottery types, wider range of artefacts, use of metal, the end of the building of major communal monuments and an increased emphasis on the individual in burials. However, the exact boundary between the two periods is difficult to recognize.

The most common prehistoric monuments of the period in the UK are round barrows. They differ from the Neolithic practice of long barrows by being primarily not just monumental, but also in the funerary deposits they contain. Long barrows usually enclose disarticulated remains of several individuals in a single deposit, whereas round barrows cover primary graves, sometimes with grave goods and secondary burials of individuals added later.

I adhere to the premise that material culture provides a means to develop an understanding of social dynamics. If so, how individuals are buried reflects the behaviour of social groups which in turn arises from the interactions between individual group members. The changing relationship between the living and the dead, reflected in the changes to funerary practices, thus allows us to study the relationship between individual interactions and group level behaviours.

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TH1-18 Abstract 05
Investigation of transition phases by the example of the Bronze Age amber finds in northern Germany

Author - Dr. des. Woltermann, Gisela, Postdoctoral Researcher, Germany, Münster, Germany (Presenting author)

Keywords: Amber finds, Bronze Age, Northern Germany

Presentation Preference - Oral

Multiple sociocultural processes are taking place at the transition between cultural phases. Their reflection by analysing the amber finds gives information about the influence of dynamic changes on the raw material accessibility and craftsmen production which point to a special demand of the Bronze Age Societies.

Amber finds were part of the ornamental art and were involved in complex social practices concerning the prestige system, the group identity and the individual representation. In the German Bronze Age, personal adornment was a discontinuous phenomenon, prevailed in different areas and appearing in varying sorts of jewellery types. This paper discusses the disparate effects of the Bronze Age transition phases (LN/EBA and EBA/LBA) at the amber artefacts in northern Germany with regard to their special find context and the patterns of distribution. The results will lead to a nuanced view of the influence of sociocultural transmissions on the amber use.

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TH1-18 Abstract 06
Finding a place call to home: an analysis of Bronze Age settlement change in South West Britain

Author - Caswell, Edward, Durham University, Durham, United Kingdom (Presenting author)

Keywords: Bronze Age, GIS, Settlement

Presentation Preference - Oral

The Bronze Age in Britain (c. 2200-800 BC) is the span of time in which inhabitants of the island truly shift to wholesale use of permanent sedentary settlements. Before this period houses are largely limited to the Early Neolithic and are far fewer in number than those that may be attributed to the Middle Bronze Age and beyond. As such the Bronze Age provides an opportunity to truly understand a society which underwent profound social transformation as expressed in the shift to permanent settlement structures.

However, despite extensive archaeological research and major research programmes, there are still no convincing explanations for the significant trends seen during this period such as: the relative invisibility of settlements from the c. 2200-1500 BC period; the dramatically increased visibility of settlements after c. 1500 BC (Brück 2000); the emergence of apparently defended settlements and hillforts from c. 1200 BC (Brown 2000); and the perplexing and continuing absence of any villages (Rathbun 2013).

Previous analyses of Bronze Age living spaces in Britain have traditionally concentrated upon the structure and activities occurring within defined settlements or small settlement clusters (e.g. Popa 2003). Instead, this paper will present a new method that systematically compares the contents of settlement environs using the initial results of my PhD research, focusing on 60 settlements sites found solely within the southwest region of Britain (Wiltshire to Salisbury, Gloucestershire to Dorset). I discuss the variations in these settlements’ placements over time in respect to contemporary and antecedent cultural and landscape features within their environs. These environs are defined through a custom cost surfaces model which has been used to estimate the maximum distances that might have been reached by occupants of these settlements, considering slope and terrain, within one day. The comparison of these enirons’ contents has begun to identify trends in priorities of these sites’ inhabitants in relation to both “economic” and earlier ritual features which will be shown to change over the course of the Bronze Age.

By doing so I hope to present and explore the social transformations that must have occurred during the Bronze Age in Britain and comment on how effectively this period represents a time in which society changed profoundly.
In 1973, Colin Renfrew published *Monuments, mobilisation and social organisation in Neolithic Wessex*. This seminal study examined how the amount of time invested in monument building changed throughout the Neolithic period in south central England. Renfrew’s (1973) calculations appeared to demonstrate that the number of ‘man-hours’ invested in building monuments increased as the absolute numbers of individual monuments fell. On the basis of these findings, Renfrew (1973) argued that a number of hierarchical, centrally controlled chiefdoms had emerged in Wessex by the Late Neolithic / EBA period. He surmised that whilst the smaller, tribal societies of the earlier Neolithic had built many, small monuments, the later and more populous polities of the Late Neolithic harnessed labour from vast geographical territories in order to build the few large henge enclosures of Stonehenge, Avebury, Silbury Hill etc.

The implications of Renfrew’s (1973) study were far reaching: the great monuments of Wessex were, in effect, presented as the earliest evidence of hierarchical institutions exercising power and control in Britain. Moreover, in contrast to earlier, culture-historical models of the past, Renfrew’s (1973) explanatory framework succinctly demonstrated how internal processes, not external ones, could drive large-scale social change. Throughout the 1980s and 90s, however, a number of researchers began to question Renfrew’s (1973) claims and the anthropological theory that underpinned them (e.g. Hodder, 1985; Barrett, 1994). They argued that functionalist, social evolutionary models like Renfrew’s (1973) were simply a means of making the historically specific and unfamiliar comprehensible (Barrett 1994: 161). In fact, the actions and experiences of individuals – the very things that actually constitute human history – were erroneously being written out of these overly generalised accounts of the past.

This postprocessual view garnered particular popularity within the field of British prehistoric monumentality and, from the mid-1980s onwards, there was a rapid move away from quantifying the intrinsic properties of Neolithic monuments towards a structuralist consideration of the kind of social orders their form, material, or position in the landscape could have embodied (e.g. Parker Pearson and Richards 1994). This theoretical shift allowed archaeologists to successfully retell narratives of monumentality around the individual but it also had two other consequences. Firstly, the empirical basis of Renfrew’s (1973) thesis was never thoroughly interrogated (though see Starin and Bradley, 1981) and, secondly, alternative narratives of how changing monumentality fitted into large-scale upheavals within social organisation were eschewed.

This paper attempts to redress this imbalance by critically examining Renfrew’s (1973) claim that the labour expended on constructing prehistoric monuments steadily increased over time. Renfrew’s (1973) methods are reviewed, replicated and his sample expanded so that a more comprehensive but comparable set of data are generated. These data are subjected to statistical analysis to examine whether the implied changing monumentality fitted into large-scale upheavals within social organisation were eschewed.

In south Scandinavia an interesting turning point appeared around 1200 BC when the tradition of building mounds came to an end and was replaced by urn burials. New excavations in south Sweden (Skoglund) demonstrate the urn burials to be organized as family-based groups, often including a female (probably a matriarch) and children. However, these groups were not isolated and were part of a broader social network that included both social and economic connections. This paper aims to take an in-depth look at the changes that take place during the transition from the Early Bronze Age (EBA) to the Late Bronze Age (LBA) in western Norway. Traditionally western Norway had a central position during the Late Neolithic and EBA, but during the Late Bronze Age there is an apparent change in relations and material culture in the LBA. This has been argued that the region loses much of its significance to the cost of eastern Norway. Therefore, this paper will look at the materiality including changes in burial patterns and the use of various raw materials of the LBA in western Norway and correlate this with possible changes in economic structures and agricultural practice. This will be combined with the broader north European pattern of changes in order to understand the social dynamics involved in these processes.

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Turganic Settlement in the Southern Ural: Stratigraphy, Planigraphy and Radiocarbon Chronology

Author: Prof. Marynova, Nina, Orenburg State Pedagogical University, Orenburg, Russian Federation (Presenting author)

Coauthor(s): Turetskiy, Michael, Volga Region Branch of Institute of the Russian History of Russian Academy of Sciences, Russian Federation

Abstract

The settlement is located in the north-western part of Orenburg region. About 800 square meters of the settlement area were investigated (1982–2014–2015). The stratigraphy on the all excavation trench is the same. The lower cultural layer of the Eneolithic (the E-complex) is presented with ceramics, and flint and bone artifacts. Ceramics can distinguish two types of Samarsky culture. The flint artifacts (about 2000 copies): about 60% of the finds are represented with blades and tools made from blades; about 20% are represented with flakes. The blades are very considerable in size – from microflints to unbroken blades of more than 10 cm. The tools made of blades are represented with end-scrapers, chisels, sharp points, arrow heads, and blades with dicing. The finding of an accumulation of semi-finished products and unbroken tip made of large bones of horse, bear, and deer horn, that were surrounded by flint microblades is very important. The found copper ingot which has been attributed as an object of Balkan origin also can be dated as Eneolithic: The BA-complex (Early Bronze Age) was well-represented findings as ceramics (about 2000 fragments of more than 50 vessels), animal bones, reconstitutions of construction stones, macro products made of sandstone and big pebbles, tools made of bones are numerous. Possibly, the findings of fragments of copper ore and slags, as well as stone casting molds, are also related to this complex. The found pendant with through hole and small horns made of plain bone blade is similar to the materials of the early Yamnaya culture.

Archaeozoological materials: the E-layer contains mainly the bones of domestic species: cattle and small cattle, dog, horse, and also of elk and beaver; the BA-layer contains predominantly the bones of domestic species and horse; the remains of wilding, including elk, auroch, bear, beaver, and fox, are live in number.

The series of 15 radiocarbon data based on animal bones from all the sections of the settlement area, and from different depths was undertaken. The materials of E-complex have been dated approximately by 4900–4400 BC (cal). Above that, some materials have been dated approximately by 4250–3950 BC (cal).

The series of radiocarbon dates based on animal bones from the upper cultural layer confirmed previously established data based on the shadings ceramics from Turganic settlement: Ki-15597 4710±80 BP. In total, the BA-layer could be dated by 3900 – 3400 лет ВС (cal).

This dating corresponds with the well-known dates of the ceramics from Repin Hutor and Kyzyl-Hak I and II settlements, and from some other sites.

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FOOD CHOICE AND ALIMENTARY PRACTICES: FROM MEALS TO DIET AND FROM SITE TO REGION – THE DIFFICULTIES AND BENEFITS OF EXAMINATIONS OF DIET AND DIETARY PRACTICES

Friday, 2 September 2016, 09:00-16:00

Faculty of Philosophy, Room 201

Author: Vahlholt, Julian, Irina, Metz, France (Presenting author)

Co-author(s): Hornelink, Merle, Archeodienst Noord bv, Groningen, Netherlands

Keywords: Diet, Archaeology, Food choice

Presentation Preference: Workshop

The development of cooking and food preparation practices transform raw ingredients into edible food. This transformation is not only chemical, but also cultural. This forms part of what the anthropologist Claude Lévi-Strauss suggested sets humans apart from apes and makes us a “cooking animal” (1964: Le Cru et le cuit). These complex actions (cooking and cultural assimilation) may take two forms, those which leave traces in the archaeological deposits and those actions which may leave no physical trace in the archaeological record.

When examining preserved food remains on a supranational level the environmental record within Europe has facilitated some successful studies for some regions and periods (Livarida and van der Veen 2008; van de Veen, Livarda and HH 2008). The evidence of preparation techniques is supported by the remains of flora and fauna that are indicative of food choice and alimentary practices. Later, from the historic period onwards, we have textual documents which add much detail in form of economic documents, recipes, and personal observations on food consumption.

But to what extent are these practices limited to different periods, cultures, peoples and places? And to what extent do modern political boundaries, differences in philosophical, or methodological approaches to archaeological remains limit our ability to create pan-European narratives on the nature of human food use from different periods?

This session aims to explore how food choice and alimentary practices in Europe changed through time, but also how these changes may be linked to culture, technological innovations, shifting borders and the rise and fall of civilizations. The session encourages researchers who have successfully studied different cultures or periods, passing existing cultural or political borders (i.e., from different cultures or European countries) or comparing rural environments to towns, but also those who have encountered difficulties when trying to operate such projects.

THE CHENOPODIUM ALBUM PERSERVATION IN ROMANIA PREHISTORY

Sign of consumption?

Author: Golea, Mihaela, National Institute for Research and Development in Environmental Protection, Bucharest, Romania (Presenting author)

Keywords: archaeology, Chenopodium album, seeds

Presentation Preference: Oral

From the oldest times, humans have been intentionally and selectively collecting the herbaceous plants. Often, such species were recognized for their contribution to vitamins and caloric enrichment in human’s diet and also, of their medicinal properties. The evolution of human’s culinary preferences was based, initially, on the natural products of their immediate environment. Alongside such plants (Polygonum lapathifolium L., Fallopia convolvulus L.) is Chenopodium album L. which has medicinal properties and nutritious values (such as laxative, blood purifier, vitamin A, C and so on). This species’ plant remains have been discovered in some Eneolithic and Bronze-Age archaeological sites in Romania. Although different discovery contexts imply different actions in using this plant, these discoveries can suggest the usage of this species, most probably as a supplement for human consumption.

However, only through discovery of a large quantity of seeds of Chenopodium album L. and knowing the contexts of discoveries, one can be sure of its usage and can suggest the awareness of this plant’s properties and benefits for consumption. Plus, the cultural heritage of different countries such as old recipes of Chenopodium album L., has a substantial impact in the reconsideration of its use in prehistoric times. One can think that these dishes have an older origin, which can be used in explaining empirically usage of this plants. The findings of plant remains of Chenopodium album L. will be presented in a matter that it will put into light the intentions of gathering of this species in the prehistoric times. Also, based on the experimental studies we will try to show the cooking process of these plants and their mode of consumption.

This work was performed through the Partnerships in Priority Areas Program – PN II, developed with the support of UEFISCDI, project no. PN-II-PT-PCCA-2013-4-2302.
TH1-19 Abstract 02
Bronze Age foodways in the Carpathian Basin: similarities and differences, continuities and changes

Author - Dr. Mónika Muñoz, Elena, Autonomous University of Barcelona, Bellaterra, Spain (Presenting author)
Co-author(s) - Rosell-Melé, Antoni, Institut de Ciència i Tecnologia Ambientals, Autonomous University of Barcelona, Barcelona, Spain

Keywords: Bronze Age, Carpathian Basin, subsistence economy

The Argyric society was developed during the Early Bronze Age (c.2200-1550 BC) in the South east of the Iberian Peninsula, and became one of the first State societies in continental Europe. This society had a very characteristic pottery repertoire, with a high degree of standardisation distributed in 8 ceramic forms. Nevertheless, the Argyric ceramics have generally been studied from a morphometric point of view, rather than their functional aspect. In this context, the organic residue analysis has been applied on just two occasions and on a small set of ceramics. For the first time in an Argyric context, we have investigated the molecular and isotopic composition of organic residues (by gas chromatography and mass spectrometry) over a wide suite of ceramics (43 pottery sherds) from two of the main Argyric sites: La Bastida (Totana, Spain) and La Almoheda (Píejo, Spain). One of the key results is the detection of insoluble substances in Argyric pottery related to the use of beekeepers. To ascertain the feasible sources and transformation processes of the identified acids, we have conducted heating and processing experiments of modern raw honey in ceramic, based on ethnographic references. Our results shed new light on the reconstruction of human feeding Argaric practices. The identification of lipids derived from beewax in a specific archeological context allow us to infer and hypothesise different uses for beewax in addition to secondary use of honey by Argaric societies.

TH1-19 Abstract 03
Evidence from experimental & organic residue analysis of beeswax and honey uses (Argaric Bronze Age)

Author - Dr. Mónica Muñoz, Elena, Autonomous University of Barcelona, Bellaterra, Spain (Presenting author)
Co-author(s) - Rosell-Melé, Antoni, Institut de Ciència i Tecnologia Ambientals, Autonomous University of Barcelona, Barcelona, Spain

Keywords: Beeswax, honey feeding, organic residues

The Argyric society was developed during the Early Bronze Age (c.2200-1550 BC) in the South east of the Iberian Peninsula, and became one of the first State societies in continental Europe. This society had a very characteristic pottery repertoire, with a high degree of standardisation distributed in 8 ceramic forms. Nevertheless, the Argyric ceramics have generally been studied from a morphometric point of view, rather than their functional aspect. In this context, the organic residue analysis has been applied on just two occasions and on a small set of ceramics. For the first time in an Argyric context, we have investigated the molecular and isotopic composition of organic residues (by gas chromatography and mass spectrometry) over a wide suite of ceramics (43 pottery sherds) from two of the main Argyric sites: La Bastida (Totana, Spain) and La Almoheda (Píejo, Spain). One of the key results is the detection of insoluble substances in Argyric pottery related to the use of beekeepers. To ascertain the feasible sources and transformation processes of the identified acids, we have conducted heating and processing experiments of modern raw honey in ceramic, based on ethnographic references. Our results shed new light on the reconstruction of human feeding Argaric practices. The identification of lipids derived from beewax in a specific archeological context allow us to infer and hypothesise different uses for beewax in addition to secondary use of honey by Argaric societies.

TH1-19 Abstract 04
Finding broken grain in the archaeobotanical record: ethnoarchaeological and experimental approaches

Author - Dr. Antonin Ferrar, Integrative Prehistory and Archaeological Science, Basel, Switzerland (Presenting author)
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Keywords: Cereal milling, cereal products, dehusking

Cereals have been a major contributor to human diet in many parts of the planet during the past 10,000 years. They can be consumed in a large variety of ways (gruel, bulgur, flour, bread, etc.), which makes the archaeological recognition of cereal food remains extremely difficult. In the last decade, a larger number of archaeobotanists have shown their concern for the identification of archaeological fragments of cereal grain produced prior to charring. Their identification seems to remain somewhat problematic, and their interpretation is open to discussion. They are often seen as evidence of bulgur production, but how can we exclude that they were not produced during cereal dehusking or threshing, or during flour production? During the last years we developed three independent lines of research that we would like to combine in this presentation. These are of different nature: ethnoarchaeobotanical, experimental and archaeobotanical.

The ethnoarchaeobotanical research aimed to record the steps involved in grinding and the many by-products obtained from this process. These change according to species and the desired product. The work was conducted in the villages of the Ouviern Berber tribe (Waf, westem Tunisia), where women still perform many of the domestic tasks related to the preparation of cereals for consumption, and they still often mill with rotary querns. This involved the manual clearing and grinding of bread wheat and durum wheat, and the cleaning, roasting and milling of hulled barley. We detail the different steps of each process, as well as the different by-products, products, byproducts and residues resulting from each stage of the operation. The experimental research consisted in the dehusking of several cereal species using different techniques and different pre-treatments in order to observe the degree and type of breakage that was produced on the grains.

Finally, a systematic analysis of the fragments produced prior to charring in Neolithic sites of the NE of the Iberian Peninsula was conducted. They were not only quantified but also the type of fragment and the size were recorded, as potential relevant variables to understand the process that generated these fragments. The combined sum of experiences will be used to make some recommendations for future research on this issue, both in terms of necessary experimental work and the archaeobotanical analysis of these remains.

TH1-19 Abstract 05
The diet of non-Romans living in the border area of the Netherlands

Author - Dr. Hondelick, Merit, ArcheoOastNord bv, Groningen, Netherlands (Presenting author)
Co-author(s) - Dr. Ros, Jerome, UMR7209, CNRS/MNHN, Paris, France

Keywords: Bio-archaeology, Food and alimentary practices, Roman Limes

The diet of non-Romans living in the border area of the Netherlands, as reconstructed by bioarchaeological research. The Roman empire has been subject of numerous archaeological and historical studies over the past decades. In the Netherlands, Roman occupation of the southern provinces has been studied intensively via archaeological research. Forts, villas and vixi have been excavated and some have reconstructed. These layouts speak to the imagination, as well as the ships used for transport. Recently, the Limes has been reconstructed to visualize the Roman border and demarcate the Roman province of Germany Inferior and the lands inhabited by the indigenous tribes.

It used to be thought that the arrival of the Romans brought on a culture shock in the area south of the Limes, imposing another dietary lifestyle on the tribes living under Roman rule. However, archaeological and historical research has shown that this was not the case. The indigenous people assimilated and took over some aspects of Roman life whilst at the same time continuing with some of their own traditions. Roman culture mixed with the traditional lifestyle of the peoples of Germany.

An important part of culture are food and alimentary practises. It is what you do and do not eat, how we eat, how we prepare food, how we think about food and how we think about food. It is assumed that in some way, the Roman food culture is reflected in the food culture that we have today. This paper tries to answer this question using archaeological, ethnoarchaeological and archaeological data retrieved from archaeological excavations in the area north of the former Limes.

TH1-19 Abstract 06
Islamic diet and agricultural practices in rural al-Andalus: new archaeobotanical evidences

Author - Dr. Ros, Jerome, UMR7209, CNRS/MNHN, Paris, France (Presenting author)
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Keywords: Al-Andalus, archaeobotany, Islamic diet

The literature (i.e. Watson, Aubaille-Sallenne, Decker), it is stated that the beginning of the Islamic period (7th c. A.D.) led to the development and spread of new type of agriculture, event often characterised as “the Islamic agricultural revolution”. This “new” agriculture would have been based on several criteria: spread of new irrigation methods, use of intensive fertilizers, spread and improvement of several agricultural practices (i.e. grafting), development of spring crops, broadening of the diversity of plants exploited and spread of new species, development of new varieties, etc. A recent synthesis led agriculture in al-Andalus labs 47 agricultural species, introduced or spread by arabian populations. Nonetheless, the knowledge we have of Islamic diet and agriculture in al-Andalus is mostly based on three types of sources: written sources (i.e. agronomic, medical, food treatises, tax sources, etc.), iconographic sources (illustration of said treatises) and archaeological sources (i.e. excavation of irrigation structures). Data documenting directly these questions remain scarce, especially for rural areas.
Interpreting the Archaeological Record

TH1-19 Abstract 07
PLANTCULT: An investigation of plant foods among prehistoric cuisines of Europe

Author: Prof. Valamoti, Soultana Maria, Aristotle University of Thessaloniki, Thessaloniki, Greece (Presenting author)
Keywords: ancient plant foods, prehistoric Europe
Presentation Preference - Oral

The plant component of cuisines of Europe's prehistoric farmers, together with the associated transformation equipment such as grinding equipment, cooking vessels and cooking installations will be explored within a five-year research project titled PLANTCULT, recently funded by the European Research Council (ERC). The project will investigate culinary practice among early European farming communities, from the Aegean to Central Europe, spanning the Neolithic through to the Iron Age (7th-1st millennia BC).

A collaboration between the Aristotle University of Thessaloniki in Greece (author), IPNA-Basel University in Switzerland (Prof. Stefanie Jacomet), University of Hohenheim in Germany (Dr. Hans Peter Shik) and University of Vienna (Dr. Andreas Heiss) this newly launched project seeks to identify the 'food cultures' of prehistoric Europe, and to reconstruct how cultivated and wild plant foods were transformed into dishes, exploring their underlying cultural and environmental contexts and their evolution through time. The project will explore how culinary identities were shaped through the selection of plant foods, both in terms of ingredients as well as processing and cooking practices. Through the examination of macroscopic and microscopic remains of plant foods, combined with experimental replication of various aspects of food preparation techniques originaligraphic investigations and insights of ancient tests, the project aims to provide a multifaceted and integrated approach of European cuisine during late prehistoric and early historic times. In presentation we focus on the data and methods that are forming the basis of the project and present an overview of the available data, research questions and lines of investigation that will be followed to address them.

TH1-19 Abstract 08
Medieval alimentation habits deduced from archaeobotanical studies of cesspits

Author: Dr. Welthold, Juliane, Irap, Metz, France (Presenting author)
Keywords: Archaeobotany: Early modern times, Middle Ages
Presentation Preference - Oral

Medieval alimentation habits deduced from cesspits: a comparison of archaeobotanical results from cesspits of towns in eastern France and from the Baltic harbor towns of Stralsund and Greifswald in northeastern Germany

Cesspits fillings are the most commonly studied contexts in late medieval and early modern archaeobotany. In most cases, especially when waterlogged plant remains were retrieved, abundant plant remains were recorded, but the archaeobotanical data sets from cesspits are hampered by taphonomic problems. Oil plants, spices, collected and wild fruits are in most cases much better preserved than cereals and pulses. Nevertheless, despite quite different preservation conditions for different types of plant food these embalmed remains of faecal remains and kitchen waste are most suitable for comparisons due to a high number of recorded taxa of cultivated and wild edible plants used for human consumption. Rescue excavations conducted by the Institute national de recherches archéologiques preventives (Inrap) in the medieval towns of Sarsbourg and Toul in eastern France revealed waterlogged and mineralized plant remains in huge quantities. These towns have developed since Roman times and some of the recorded spices and other cultivated plants are at least introduced since Roman times. These data of recent studies are confronted with archaeobotanical results from late medieval and early modern cesspits coming from the harbor towns of the Hanseatic League and the Hanseatic Germany which developed from the 13th century onwards. During medieval times both towns were part of the Hanseatic League and the medieval and early modern commercial network of the Baltic trade gave access to some imported luxury products like black pepper, cardamom, rice and others. In contrast to these harbor towns with wide-spread commercial contacts the studied towns in eastern France played a more modest role during late medieval and early modern times.

The communication aims to compare archaeobotanical data from two different regions without direct commercial contacts to study aspects of the social and economic background of plant food and alimentation and choices made by Man.

TH1-19 Abstract 09
Aspects of the Diet of the Medieval Population (10th – 12th Century AD) in Northern France: the archaeobotanical study from the castle of Boves and surroundings sites

Author: Dr. Preiss, Sidonie, Royal Belgian Institute of Natural Sciences, Brussels, Belgium (Presenting author)
Keywords: Medieval, diet, medieval period, social status
Presentation Preference - Oral

Archaeobotanical investigations from medieval sites in Northern France have provided charred and mineralised plant remains (seeds and fruits). Despite some taphonomical constraints of the different preservation of these plant assemblages, archaeological analysis revealed valuable information on the diet, food choice and alimentary practices of the medieval population in Northern France between 10th and 12th Century AD. The archaeobotanical results were influenced by the different types of features from which macro-remains were retrieved and by the reliability of the studied samples. Many seeds and fruits remains, especially found in latrines and/or dump pits, were used to understand the alimentary practices of the populations studied.

The social context of the archaeological sites is heterogeneous. Therefore, it's possible to compare and to discuss the potential of archaeological data helping to identify social differences by defining archaeobotanical indicators of social level from the food practices and the diet. Indeed, we can define and approach some direct (presence of certain species, taxonomic size spectrum...) and indirect indicators (method of administration, food preparation, food quality, such associations...) of the social status.

TH1-19 Abstract 10
The contribution of pollen analysis to the archaeobotany of cesspits

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Keywords: cesspits, diet, pollen
Presentation Preference - Oral

Archaeobotanical analysis of cesspits is an important source of information on former diet, medical practices and other types of plant use. A large range of food plants such as leafy vegetables, herbs and spices of which only the leaves or flowers are used, generally remain invisible or occur only very sporadic in the macrofossil records. This is because these plants are harvested and used as food before they produce seeds. As a result, little is known about the import, local production and consumption of many of these plants in the past.

The former use of some of these plants, such as garden cress (Anthocress ceratulum), beetroot/chard (Beta vulgaris), borage (Borago officinalis), capers (Capparis spinosa), spinach (Spinacea oleracea) and many other plants can be demonstrated by pollen analyses of archaeological remains of cesspits however. This paper now presents a first overview of a large set of pollen data from Roman, medieval and post medieval cesspits from Belgium and the Netherlands for several of these plants and discusses their use during the respective periods.

TH1-19 Abstract 11
Animals, Meats, Waste and Garbage in Medieval Visby

Author: MA Malmborg, Gustav, Uppsala University, Visby, Sweden (Presenting author)
Keywords: Medieval Visby, Social Economic, Zoisarchaeology
Presentation Preference - Oral

Faunal remains may give important clues to subsistence strategies, utilisation of meat and man – animal relationships in urban contexts. Bones are often recovered in various types of contexts that offer different opportunities to highlight aspects of urban life. The Medieval city of Visby on the island of Gotland has a unique system of latrine chambers, each belonging to a separate house and, thus, one specific household. From an osteoarchaeological – and also social archaeological – the find material in the latrines are interesting since it may be assumed that they represent one household only. The latrine contexts offer a possibility to investigate differences between households with a vaustation not offered by open air context such as yard deposit or out-door refuse areas where faunal remains are found commingled. The latrines were constructed under the houses and a number of them have been excavated. When in use, garbage and refuse-material – including faunal remains – was deposited in the latrines which had to be regularly emptied. Thus, the latrine finds offer a good opportunity to identify specific meat-cuts and other preferences which in turn highlight differences between the households, differences over time. Differences in economic – and in the end life conditions in Medieval Visby.
TH1-19 Abstract 12
Problems and progress in the study of postmedieval archaeobotany in London
Author - Steward, Karen, Museum of London Archaeology, London, United Kingdom (Presenting author)
Co-author(s) - Maltby, Mark, Bournemouth University, Poole, United Kingdom
Keywords: postmedieval, archaeobotany, London
Presentation Preference - Oral

In the 18th and 19th centuries, London was at the heart of the British trading empire. The collection, propagation and cultivation of new plant species from its colonies was a focus of the British Empire and its naturalists, and this had a huge impact on foodways in Britain.

An extensive palaeobotanical sampling program was carried out at the Early Medieval village of Gózquez (central Spain, AD 900-1200). Well preserved archaeobotanical remains from this site help to build a picture of London society in the 19th century. 8800 items from 34 positive samples were retrieved. Hulled barley and free-threshing wheats were the dominant species. Hulled wheats and rye were present in minor proportion, and Avena alone appeared sporadically. In this setting, any trace of millet production and consumption seemed to be completely absent.

At this point, we realised of several possible explanations for the invisibility of the production and consumption of millet at Gózquez. Insufficient sampling, unwise preservation of carbonized plant remains, or complete distinct routines in the processing of different cereal types may be possibly argued. Whatever the right explanation, this case study suggests that we should be extremely cautious when drawing conclusions if there is no way to consider unexpected biases on archaeological and palaeobotanical records.

TH1-19 Abstract 13
Unmasking millet from a multi-proxy approach
Author - Vigil-Escalera Guirado, Alfonso, University of Salamanca, Madrid, Spain (Presenting author)
Co-author(s) - Acetelu Bacognea, Francisco J., Universidad de Antioquia, Medellin, Colombia
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Keywords: biases, invisible food, millet
Presentation Preference - Oral

An extensive palaeobotanical sampling program was carried out at the Early Medieval village of Gózquez (central Spain, AD 950-1200). It is one of the most comprehensive collections of botanical remains so far analysed for this kind of geographic and chrono-stratigraphic context. 8800 items from 34 positive samples were retrieved. Hulled barley and free-threshing wheats were the dominant species. Hulled wheats and rye were present in minor proportion, and Avena alone appeared sporadically. In this setting, any trace of millet production and consumption seemed to be completely absent.

Other research and nitrogen isotope analyses performed on bone collagen of 40 individuals buried in the cemetery and some sites of the same village revealed a first surprising result: villagers widely consumed C4 plants. Since no such crop was identified in all the four items analysed in the first round, in addition to wheat, barley and oats.

At this point, we realised of several possible explanations for the invisibility of the production and consumption of millet at Gózquez. Insufficient sampling, unwise preservation of carbonized plant remains, or complete distinct routines in the processing of different cereal types may be possibly argued. Whatever the right explanation, this case study suggests that we should be extremely cautious when drawing conclusions if there is no way to consider unexpected biases on archaeological and palaeobotanical records.

TH1-19 Abstract 14
Reconstructing the Greek Byzantine Diet using a comparative analysis of archaeozoology, isotopic studies and literature
Author - Janine van Noorden, Leiden University, Leiden, The Netherlands (Presenting author)
Keywords: Late Byzantine period, archaeozoology, faunal remains, Euboea, Chalcis, Venetians, dietary variation, animal exploitation
Presentation Preference - Oral

Until now, not much archaeological research has been conducted on faunal diet in Late Byzantine Greece. Most of the knowledge on the diet in Greece from this period is based on literature studies. Recently, isotopic studies have also contributed to wider knowledge. However, so far no archaeozoological analysis has been conducted, focusing on this topic. The main goal of this research is to contribute to filling the lacuna of knowledge of the food supply in the Late Byzantine period in Greece and comparing the results to the existing data from isotopes and literature studies.

As a case study for this research, faunal material from Chalcis will be studied. In Byzantine times, between the 10th and 12th centuries, Chalcis was the harbour for Trebiz in Boeotia, one of the most important centres in this region. Later, from the 13th century, the city became a trading colony and transport port for the Venetians. The excavated material from a rescue excavation in...
TH1-19 Abstract 17

Analysis of a latrine from 17th century Copenhagen, Denmark

Author - Dr. Hald, Mette Marie, National Museum of Denmark, Copenhagen K, Denmark (Presenting author)
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Co-author(s) - Jensen Søe, Martin, Copenhagen University, Copenhagen, Denmark
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Keywords: archaeobotany, diet
Presentation Preference - Poster

During archaeological excavations in central Copenhagen a latrine dated to the 1680s was uncovered. The poster presents results from the combined analyses of animal bones, waterlogged plant remains, pollen, and eggs from intestinal parasites found in the latrine. The results show how the diet of the local users of the latrine was varied, including several types of fish, pork, a range of cereals, herbs and fruits, some of which were exotic. The number of intestinal parasites also shows that hygiene was rather low.

DNA analysis of the parasite eggs is carried out in order to get a species determination as well as investigating the zoonotic potential. The archaeological material from the vicinity suggests that the local inhabitants would have been in contact with traders from the Netherlands, based on the architectural, numismatic and ceramic finds. This is corroborated from the find of buckwheat chaff in the latrine, which is known to have been used a packaging material for goods exported from the Netherlands, while being only a very minor crop in Denmark.

TH1-19 Abstract 18

Middle Bronze Age spread of broomcorn millet in N-Italy: cultural choice or environmental change?

Author - Dr. Pevero, Renata, Integrative Prehistory and Archaeological Science IPNA/IPAS, Basel, Switzerland (Presenting author)
Keywords: archaeobotany, Middle Bronze Age, Panicum miliaceum
Presentation Preference - Poster

In the Neolithic Northern Italy, broomcorn millet (Panicum miliaceum) remains are sporadic and doubtful. Certain identifications originate from two Chalcolithic sites: Monte Covolo and Velturno-Tanzgasse. Nevertheless, these finds are represented by single grains. Panicum is still sporadic in Early Bronze Age (EBA), while it expands from the Middle Bronze Age onwards and reaches its maximal diffusion in the Iron Age and in medieval times.

The huge amount of broomcorn millet remains in the Middle Bronze Age (MBA) layers of the Lavagnone site (Garda region), are of importance as they are found in stratigraphic continuity with underlying EBA layers. This allows analysing quantitative changes in plant macroremain spectra, shedding light on the acquisition of new crops at the Early to Middle BA boundary. After this transition, we observed a higher biodiversity in the plant fossil assemblage, marked by increase and diversification of the terrestrial herbs. The occurrence of many new taxa accounts for a diversified and wider open land. Most of these newly introduced taxa (e.g. Agrostis capillaris, Medicago minima, Chlorrum inermis, Oropoyntrum acanthum, Plantaginaceae, Silene stellata, Verbascum) favour dry and warm habitats. It is in this scenario that broomcorn millet started to be widely cultivated. The ecological tolerances of broomcorn millet should also be considered in order to explain its adoption in a multiple cropping system. It is a summer crop, sown very late in spring, as it does not withstand frost during germination. It grows well in regions characterized by warm and Mediterranean-type climate with a short rainy season, on poor soils and under severe droughts.

The MLA Garda region held very well all these environmental features. The huge amount of broomcorn millet remains in the Middle Bronze Age layers of the Lavagnone site (Garda region), are of importance as they are found in stratigraphic continuity with underlying EBA layers. This allows analysing quantitative changes in plant macroremain spectra, shedding light on the acquisition of new crops at the Early to Middle BA boundary. After this transition, we observed a higher biodiversity in the plant fossil assemblage, marked by increase and diversification of the terrestrial herbs. The occurrence of many new taxa accounts for a diversified and wider open land. Most of these newly introduced taxa (e.g. Agrostis capillaris, Medicago minima, Chlorrum inermis, Oropoyntrum acanthum, Plantaginaceae, Silene stellata, Verbascum) favour dry and warm habitats. It is in this scenario that broomcorn millet started to be widely cultivated. The ecological tolerances of broomcorn millet should also be considered in order to explain its adoption in a multiple cropping system. It is a summer crop, sown very late in spring, as it does not withstand frost during germination. It grows well in regions characterized by warm and Mediterranean-type climate with a short rainy season, on poor soils and under severe droughts.

The MLA Garda region held very well all these environmental features.

All in all, ecological drivers seem to have played a significant role in spreading the cultivation of broomcorn millet in the Garda region. Furthermore, social processes and economic relations are not to be excluded in the perspective of an overall process of improvement of crop husbandry practices.

We can conclude that the plant economy of Middle Bronze Age in Northern Italy is well characterized by introduction of new cultivars (broomcorn millet), together with an intensification of pulse cultivation (horsebean), and a diversification of rotation systems.

TH1-19 Abstract 19

Unravel the Medieval Islamic diet: preliminary data from the malacoftuna of Tejo do Praio (Portugal)

Author - Branco, Rute, Universidade do Algarve - FCHS/NAP, Faro, Portugal (Presenting author)
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Keywords: Diet, Islamic, Zooarchaeology
Presentation Preference - Poster

The Tejo do Praio site is a Medieval Islamic settlement dating from the 10–12th century, located in Quinta do Lago in Loulé, Algarve, Portugal. Nowadays, the site is approximately 1.6 km from the coastline, within the Ria Formosa Natural Park. The unique nature of the site - due to its rural nature, residential areas, types of structures and proximity to the coastline - raises several questions, such as the importance and characterization of the exploitation of aquatic resources for this Islamic community.

The main objectives of this study are to understand the local diet, to characterize the exploitation strategies of wildlife and resources and to do an environmental characterization of the area during the occupation period. The results will then be integrated in what is already known for other Medieval Islamic contexts in Algarve. For this we will do the zooarchaeological analyses (classification of remains, abundances, anthropic and other modifications, biometry) of the aquatic invertebrate remains. Ultimately, zooarchaeology informs us on diet behaviour by studying the mechanisms used in the exploitation of natural resources by past societies, the processing techniques developed for animal resources and the possible trade of resources and commercial routes.

So far data show a greater abundance of Cerastoderma edule (common cockle), followed by Rudilpes decussatus (clams), species that presently are quite common in region, well known as the highest mollusk production area of Portugal. Among other identified species are Ostra edulis (oyster), Mytilus cf. galloprovincialis (mussels), Solen marginatus (razor clam), Venus verrucosa (venus) and remains of Pectinidae family (scallops). The level of fragmentation is very heterogeneous across the contexts, from a mix of pre- and post-depositional agents.

TH1-19 Abstract 20

Parasites in archaeological deposits. How to interpret their presence and how to recognize them

Author - Dasdoe, Anna Maria, INRAP, Paris, France (Presenting author)
Co-author(s) - Mosekilde, Jacob, Museum of Copenhagen, Copenhagen, Denmark
Co-author(s) - Valente, Maria João, Universidade do Algarve - FCHS/NAP, Faro, Portugal
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Keywords: Parasites, Islamic, Malacoftuna, Zoonotic
Presentation Preference - Poster

The study of archaeological deposits reveals a lot of information about the ways of life and the food economy of the ancient communities. Diet food, farming methods and the surrounding environment are not the only information that we find during the study of the finds. Often, pests and insects are part of the organic assemblages. Recognize and interpret these remains is not always easy. The following posters will analyze a study of a stabilizing area of the fourteenth and fifteenth century in the northeast of France.
THI-20 Abstract 02

**Discontinuities in fishing practices at the onset of Neolithic: a case study from Starcevo**

**Author** - PhD candidate Živaljević, Ivana, Laboratory for Bioarchaeology, Belgrade, Serbia (Presenting author)

**Co-author(s)** - Stefanović, Sofija, Laboratory for Bioarchaeology, Belgrade, Serbia

**Keywords:** Early Neolithic, Fishing, Starcevo

**Presentation Preference:** Oral

Whereas the significance of fishing is well documented at a number of Mesolithic and Early Neolithic (c. 9500 - 5500 cal BC) sites in the Danube Gorges (the Danube stretch between present-day Serbia and Romania) and is corroborated by archaeozoological, isotopic and archaeological evidence, this important activity has received less attention in the study of surrounding areas. The issue of determining the role of fishing is particularly relevant for the understanding of transitions from foraging to first food producing economies in the North-Central Balkans, the latter commonly associated with the Starčevo-Körösi-Criș cultural complex (c. 8000 - 5500 cal BC). Existing data on isotopic dietary signatures of human remains from Early Neolithic Starčevo-Körösi-Criș sites signal a more terrestrial diet (Whittle et al. 2002; 2005), however archaeological data from several Körösi sites in Hungary (Bartóssvárt 2012) suggest that the role of fishing, in addition to being obscured by inadequate recovery techniques, would have varied greatly depending on site location and other socio-economic factors. In this paper, we present and discuss the results of the analysis of fish remains from the eponymous, Early Neolithic site of Starčevo-Grad in Serbia. The site is located at the former bank of the Danube at the edge of its floodplain, little over a 100 km upstream from the Danube Gorges as the crow flies. The faunal remains collected over the course of 1992 and 1998-1970 excavation campaigns (originating from both domestic and wild animals, waterfowl and fishes) were previously published by Closs (1980), and are indicative of both a stock-breeding and a hunting/fishing economy. The fish remains, albeit few, were collected mostly by hand, and the role of fishing was probably more substantial. The occurrence of large fish hooks and fishing net weights speak in favour of such hypothesis, as well as the environment of the site, which was located in the very proximity of the river. In addition to the re-analysis of the remains from older excavations of Starčevo-Grad, our study also included the analysis of fish remains collected during 2003-2008 excavation campaigns. The aim of this paper, as well as future analyses of Early Neolithic faunal assemblages is to problematize the presumed dichotomy between Mesolithic and Early Neolithic subsistence strategies and to assess the role of fishing at the advent of food producing economies in the Central Balkans.

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THI-20 Abstract 03

**Comfortable fishers in Mesolithic western Norway**

**Author** - Prof. Bergsvik, Knut Andres, University of Bergen, Bergen, Norway (Presenting author)

**Co-author(s)** - Ritich, Kenneth, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany

**Keywords:** Fishbones, Fishing gear, Settlement patterns

**Presentation Preference:** Oral

In late Mesolithic western Norway fishing stood for a major factor in the subsistence. The large majority of the residential sites are situated close to the shoreline, near good fishing grounds. Line-sinkers of soapstone occur frequently at these sites, and at some of them - where conditions for preservation for faunal materials are favourable - fishhooks of bone are found, and also
Interpreting the Archaeological Record

TH1-20 Abstract 04
Written sources as a way of understanding Danish prehistoric eel fishing methods

Author: Researcher Pedersen, Lisbeth, Independent, Kalundborg, Denmark (Presenting author)
Keywords: diachronic studies, eel fishing, human diet, regional and chronological development of fishing
Presentation Preference: Oral

Fish constitute a significant source of essential nutrients in the human diet. Over time, people around the world have developed numerous different methods of obtaining vital nutritional elements from aquatic environments. Eels, with their substantial content of fatty acids, vitamins, and, not least, fat, are an example of an aquatic food source that has been prized in many parts of the world for millennia. Numerous different fishing methods have been employed, founded on observations of the mystical behaviour of this fish. Its remarkable biology did not begin to be understood until the 20th century and there are still some unanswered questions. The fishing methods and equipment required to catch eels, both on a daily basis and in large quantities as stored provisions, were developed on the basis of experience and oral traditions, handed down from generation to generation. In a Danish context, written sources such as laws texts and ethnological evidence can provide information that is useful in interpreting prehistoric eel-fishing strategies. Ethno-historical sources support evidence from studies of prehistoric wood suggesting that Stone Age people systematically managed the surrounding forest to obtain building materials of an appropriate quality and in the required quantities for their fishing structures in the sea.

Archaeological and archaeological data show that eels have been part of Danish food culture for the past 8000 years. In 1988 and 1999, remains of fishing structures dating back between 4500 and 7000 years were investigated. These archaeological structures were interpreted as so-called ålegårde – eel weirs, which the fisher-farmers of historical times built on the coast and cut into the sea. They were used to catch the schools of silver eels which, then as now, migrated every year from Baltic and Danish waters to the Sargasso Sea to mate and reproduce. This interpretation provided grounds for examining a number of different ethno-historical source categories from Danish museums and archives in order to assess information on construction methods, choice of materials and landscape use and marine biology in relation to the corresponding prehistoric structures. According to a Danish adage, it’s hard to catch an eel by its tail. This paper presents diachronic Danish examples showing how the skill, craftsmanship and know-how of the Stone Age fishermen, in relation to the manipulation of both marine and terrestrial resources targeted at catching the ‘tricky’ eel with its high nutritional value, were apparently passed down from generation to generation until the demise of this activity in the mid-20th century. But everything has its price! Some Danish sources reveal how people risked both life and limb when fishing from stationary structures during autumn and winter storms. Still eels are a much sought-targeted at catching the ‘tricky’ eel with its high nutritional value, were apparently passed down from generation to generation according to a Danish adage, it’s hard to catch an eel by its tail. This paper presents diachronic Danish examples showing how the skill, craftsmanship and know-how of the Stone Age fishermen, in relation to the manipulation of both marine and terrestrial resources targeted at catching the ‘tricky’ eel with its high nutritional value, were apparently passed down from generation to generation until the demise of this activity in the mid-20th century. But everything has its price! Some Danish sources reveal how people risked both life and limb when fishing from stationary structures during autumn and winter storms. Still eels are a much sought-after and highly prestigious food source in many parts of the world. Danish eel stories, from museums and archives, reveal how the people of Denmark have, since the Stone Age, employed special methods, ranging from almost childishly simple tools to complicated wooden structures stretching out into the sea, to ensure that the strong eel ended up making a valuable contribution to humankind.

TH1-20 Abstract 05
Stone Age Spear fishing in the Baltic Sea region

Author: Dr. Kłosiś, Stefanie, Archäologisches Landesamt Schleswig-Holstein, Schleswig, Germany (Presenting author)
Keywords: Baltic Sea, fishing, Mesolithic
Presentation Preference: Oral

A common fishing tool of Final Mesolithic (Ertebølle) and Early Neolithic coastal sites at the Baltic Sea is a specialised spear. This spear for active fishing was constructed with two wooden leister prongs and a bone point in the middle, which were fastened on a long straight handle. On underwater and wetland sites at the German Baltic Sea coastal wooden leister prongs, which were very well preserved, were excavated during the years 1996 to 2008. Archaeological and dendrological investigation of leister prongs will be presented in this talk supplemented by ethnographic examples and ancient finds of other time periods. The fish bone data and ethnographic comparison points to the fact that eel (Anguilla anguilla) was caught with spearfishing since very early times and this method is still used today. Very high find density of wooden leister prongs at specialised coastal hunting and fishing camp sites shows the intensive use of this method especially during the winter months. Thus, spear fishing of eel plays an important role in the subsistence system of Stone Age Hunter-Fisher-Gatherer groups in the Baltic Sea region.

TH1-20 Abstract 06
A Boreal Mesolithic wooden leister prong from Sise, Ventspils County, western Latvia

Author: Luebke,Harald, ZBSA Schloss Gottorf, Schleswig, Schleswig, Germany (Presenting author)
Co-author(s): Klodiš, Stefano, Institute of Pre- and Protohistorische Archaeologie, Christian-Albrechts-University, Kiel, Germany
Co-author(s): Bērziņš, Valdis, Institute of Latvian History at the University of Latvia (LVU), Riga, Latvia
Keywords: Ancient fishery, Mesolithic, wooden tools
Presentation Preference: Oral

The Stone Age site Sīse is situated in the valley of the River Uluva on the Kurzeme Peninsula in western Latvia. Next to the site is the former river mouth, where during the transgressive phases of the Anguilla anguilla years before our era it entered a large bay. In the subsequent regression phases the bay was transformed into lagoons that subsequently developed into freshwater lakes and peatlands. Archaeological finds recovered since the 1920s demonstrate the importance of this landscape for prehistoric hunter-fisher-gatherer groups. New research in this area started in 2010 in close cooperation with a local amateur archaeologist, resulting in a large collection of Mesolithic and Early Neolithic bone and antler tools. Excavation on the Riverbank in 2012 has brought to light wooden objects from stratified contexts as well: part of an eel clamp and a tool handle with preserved resin showing imprints of a binding material, which are dated to c. 8200–8600 BC. The wooden leister prong from Sīse is the oldest find of this tool type up to now in the Baltic region. The present paper will give an overview of the chronology and distribution of this tool type in the Baltic region.

TH1-20 Abstract 07
Fishing equipment of the late sedentary hunters of Russian Plain

Author: Dr. Kashina, Ekaterina, State Historical Museum, Moscow, Russian Federation (Presenting author)
Keywords: final Stone Age, fishing gear, North-East Europe
Presentation Preference: Oral

State Historical Museum, Moscow, obtains the largest collections of Stone Age artifacts in Russia, among them occasional finds, old and modern excavation materials are present. I will review different groups of items concerning sedentary hunters’ fishing gear dated IV–III millennium BC (such as dugouts/robgots, bark/skin canoes (studied by clay sculpture), wooden paddles (laminated preserved in peat bog layers), stone anchors, special bone points, fish hooks, fishing nets (studied by multiple imprints on ceramic vessels inner surface) and small sculptures of fish species (made of bone and flint). The main conclusions and problems of fishing gear investigation are discussed.

TH1-20 Abstract 08
Wood use and woodland management at Šventoji fisheries, SE Baltic, 3500–1000 cal BC

Author: Kešutis, Peseckas, Vilnius university, Faculty of history, Vilnius, Lithuania (Presenting author)
Co-author(s): Pilikauskas, Ortis, Lithuanian Institute of History, Vilnius, Lithuania
Keywords: tree species, wooden, woodland
Presentation Preference: Oral

Šventoji Subneolithic – Bronze age (4000–5000 cal BC) archaeological complex is well known for the extensive excavations that took place during the second half of the 20th century and the excellent preservation of some perishable organic materials. During the last decade of excavations at Šventoji (2006-2015), new sites located in abandoned Bronze Age (2000-500 cal BC) river channels and containing rich cultural layers with a wide range of artifacts and wooden fishing structures were added to the wetland archaeological complex. Until recently tree species of wooden artefacts found during the excavations at Šventoji were rarely identified, and then using mostly macroscopic evaluation. Fragmental data, in some cases collected using unreliable
methods, does not allow to get a full view of the wood use and woodland management strategies adopted by prehistoric fishers. During the last few years this topic received more attention. All wooden finds from recent excavations at Šventoji, archaeological complexes with specific ecological-anatomical identification of tree species, in some cases also identifying fishing season, and some tree growth conditions. This new data allows us to draw some insights into woodland management strategies, adopted by prehistoric fishers living on lagoon shores and riverbanks. In this report we would like to present the latest results of systematic analyses of wooden artifacts unearthed at Šventoji in 2014 and 2015.

**TH1-20 Abstract 09**

Subneolithic fishing in the southeastern Baltic in the light of recent research at Šventoji 43

Author - Gaidžiukas, Lukas, Vilnius University, Vilnius, Lithuania (Presenting author)

Co-author(s) - Dr. Pilčiauskienė, Giedrė, Vilnius University, Vilnius, Lithuania, Co-author(s) - Dr. Pilčiauskienė, Gytis, Lithuanian Institute of History, Vilnius, Lithuania

Keywords: Šventoji, fishing, Subneolithic

Presentation Preference - Oral

The prehistoric complex of Šventoji in SE Baltic is well known for its multiple archaeological sites, which range in timespan from Subneolithic to the Bronze Age (4000-500 cal BC). Surveys and excavations carried out there in 2013 and 2014 led to the discovery of several new sites, among them a Subneolithic site Šventoji 43, which is one of the earliest sites from Šventoji and includes a dwelling zone dated to 3900-3700 cal BC. The goal of the present paper is to present the results of the excavations at Šventoji 43 and also the analysis of the fish bones recovered at the site.

Šventoji 43 is distinguished from later Subneolithic sites of Šventoji by the presence of blades and microliths in the lithic assemblage and pottery which bears close resemblance to the typical Comb Ware. It is also evident that amber was worked directly on the site and shaped into ornaments, whose forms are identical to those found at Comb Ware sites in the Eastern Baltic. Archaeological wood has already perished, but a great quantity of both burned and unburned, mostly very fragmented bone was recovered, amounting to c. 26,000 fragments. 1436 fragments of bone belonging to fish, seal and forest mammals were identified. The greatest number of identified fragments come from seals among mammals while the majority of fish bones belong to pike and zander. Fish bone analysis shows that the main activity on site was fishing of pike and zander during the lagoonal lake phase and zander during the lagomorph lake phase. The greatest number of pike bones comes from the second period (2174-2130 cal BC). Zander bones are present in larger numbers in the period 2300-2174 cal BC and also in the period 2130-1950 cal BC.

**TH1-20 Abstract 10**

Backing up the frail evidence of the utilisation of Atlantic salmon in Mid-Holocene Finland

Author - Kiöstö, Satu, University of Helsinki / National Board of Antiquities, Espoo, Finland (Presenting author)

Co-author(s) - Numminen, Katarina, University of Helsinki, Helsinki, Finland

Keywords: ethnography, prehistoric fishing, salmon

Presentation Preference - Oral

The archaeological evidence confirming the significance of salmon fishing in prehistoric Finland is weak. Based on historic sources, mass-harvesting of migratory species, such as Atlantic salmon (Salmo salar) and whitefish (Coregonus lavaretus) formed the basis of the northeast coastal river economy for the 15th century. Preconceived, the historical origin of salmon fishing in the area is being perceived as a self-evident fact, even though the direct osteological and archeological evidence confirming this is scarce. The settlement pattern, site locations and technological level achieved in fishing during the Mid-Holocene (c. 3500–3000 cal BC) populations of coastal northern Ostrobotnia suggest focusing on mass-harvesting facilities, utilising the regular migrations of specific species, and investing in storing techniques. Application of ethnographic, historic and anthropological data collected among the Atlantic (Baltic) and Pacific (Columbia) salmon fishing communities may provide some additional information to be used in archaeological reasoning and interpretation. Analogous data may also provide important tools for understanding the fragmentary and biased archaeological record and open up new avenues for exploring prehistoric salmon exploitation.

**TH1-20 Abstract 11**

How much is the Fish? Roman Fishing on the Swiss Plateau

Author - Koch, Pirmin, University of Zurich/Kantonsarchäologie St. Gallen, Ziö, Switzerland (Presenting author)

Co-author(s) - Retniker, Jovan, University of York, York, United Kingdom, Co-author(s) - Brandi, Raphael, Brandi & Bandiera Consuloria Cultural, Só Luís, Brazil

Keywords: north-western provinces, Roman fishing, Swiss Plateau

Presentation Preference - Oral

Our knowledge of Roman fishing is based on a wide range of written and pictorial as well as archaeological sources. The study of the latter came into academic focus in the past few years (cf. International Workshop “NETS AND FISHING GEAR IN CLASSICAL ANTIQUITY: A FIRST APPROACH”, University of Cadiz 2007). All sources teach us about techniques and fish consumption as well as fish processing to manufacture the famous garum. Ancient authors (cf. Opyrias’ Hauculitio) and some rare inscriptions give us insights in the organisation and socio-economic structures behind the Roman fishing industries. Most of these sources originate from the Mediterranean.

In contrast, almost nothing is known about freshwater fishing in the north-western provinces. Even though fishing tools as hooks and net needles were regularly found at Roman sites (cf. Windsch- Vindobona, Innsbruck- Innsbruck, Bergisel-CH, Netherland-CH, Kempraten-CH etc.). The Roman poet Ausonius also reported that Romans fished with fishing rods and nets in the Moselle. Thus it must be assumed that fresh water fishing was more common than it seems.

Following this assumption, the paper provides a first comprehensive and interdisciplinary presentation of freshwater fishing during Roman times on the Swiss Plateau. This study area is chosen because of its diversified landscape with lakes, rivers and streams and its good state of research; find assemblages of several ancient cities, vicus, villae rusticae and rural settlements have been widely published and discussed.

This paper focuses on the investigation of fishing equipment and fish remains. Data will be compiled from the secondary literature. This quantitative approach will also consider their archaeological context to gain knowledge about the spatial and chronological distribution of the objects. This allows me to draw conclusions in terms of the organisation, nature, dynamic and range of fishing and fish consumption in the north-western provinces.

**TH1-20 Abstract 12**

Fishing as part of the local economy in the Steinhuder Meer – an ethno-historical case study

Author - Dr. Wasi, Timm, Retired, Munich, Germany (Presenting author)

Co-author(s) - Niedermeier, Franz, Munich, Germany (Presenting author)

Keywords: economy, ethnographic study, Fishing

Presentation Preference - Oral

The Steinhuder Meer is a lake of 30 sq km north-west of Hannover in Northern Germany. Mesolithic artifacts indicate that people made use of the resources of the lake since that time. As it was an economically underdeveloped area at that time, the two bordering states were a matter of constant quarrels in die Middle Ages and Early Modern Times. In the end the inhabitants of the lake and Steinhude won the conflict. Most of the fish was caught with the help of fish traps, a method which together with the traditional boats, known as Torfkippe, is still used today. To gain the necessary raw material for the fish nets was grown by the fishermen who were farmers as well, because they could not make their living from fishing alone. The surplus of flax was used for cloth making which was the start of a linen industry lasting to this very day. In addition the boats were used for transporting past across the lake and for cutting young reed for forage or grass from floating meadows. Traditionally the fishing rights were leased to individual fishermen. This changed around 1900 when the whole lake was leased to a single person. He introduced a type of vessel (Angelkahn) which derived from Havel region and modern methods like line fishing and the use of a large seine net. At the same time the railway reached the lake and tourists came in. In the beginning, before special boats for visitors were constructed, Torfkippe were also used for carrying day-trippers. They were fond of smoked eel which was not only sold in the village of Steinhude, but later also at the market in Hannover. In fact the consumption of eel was for many people a reason to visit the lake. Because of this economic success only eels were caught and the rest of the catch was dumped back into the lake. This process lasts until today, most of the eels are now imported from other regions. Perhaps this development can to develop patterns for the economic impact of large settlements like the so-called Forstensetze of the Harz, the Cotta of the Leine Period or the Roman military forts. In these places there were not only many people who had to be fed, but there lived also a group of wealthier persons who were able to afford special food, like eels or other delicacies. On the other hand Steinhuder Meer shows that the introduction of new means of production can sometimes be linked to a single event. Apart from these questions the paper will deal with the various methods how the fish was caught.
What is the role of cultural heritage for poverty alleviation in coastal areas of Latin America? Along the coastline of Brazil, small-scale fisheries are a traditional and crucial source of food and livelihood for thousands of people. Brazilian coastal communities efficiently integrate modern small-scale fishing techniques with pre-colonial indigenous knowledge, as a ‘neotraditional’ mix. In one of the poorest areas of Latin America, the results offer some insights into the role of archaeology and historical ecology for mitigating poverty in coastal areas of Latin America.

**Keywords:** Latin America, Poverty alleviation, Pre-Columbian fish traps

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**TH1-21**

**AFTER THE FLAMES. NEW APPROACHES TO THE STUDY OF THE MEDIEVAL SITES WITH FUNERAL CREMATIONS IN NORTHERN AND EASTERN EUROPE**

Friday, 2 September 2016, 09:00-13:00

**Faculty of Philology, Room SF2**

**Author:** Dobrovolzkiyaya, Maria, Institute of Archaeology, Moscow, Russian Federation (Presenting author)

**Co-author(s):** Makarov, Nikolai, Institute of Archaeology Russian Academy of Sciences, Moscow, Russian Federation

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**Keywords:** funeral cremation, ideologies of past societies, Medieval Northern and Eastern Europe

**Presentation Preference:** Regular session

The funeral rites involving cremation of the body were particularly prevalent in Eastern and Northern Europe in the Viking Period and the Middle Ages. Our knowledge about burial developed with the improvement of the methods of field and laboratory studies. The term “cremation” unites funeral rites with various forms of cremated bone remains depositions. We need to consider different aspects of the archaeological record to understand the cultural traditions associated with particular forms of funerary cremation. Here are some of them:

- The territorial setting of the cemetery in the context of settlements, economic zones, religious/anthropological spaces, and natural landscape.
- The forms of placement of the cremated bones in the grave (urn, pit, surface, etc.).
- The number of individuals in the grave, and their age and sex characteristics.
- The presence of cremated animal bones.
- The completeness of the cremated human remains.

It is thus possible to study the variability of cremation parameters and their spread over large territories, and to assume the ideas and worldviews of the people who practiced this burial rite. Different variants of cremation funeral rites have been distributed in Eastern and Northern Europe. For example, one of the variants of burial which became widespread in Medieval North-eastern Russia is the burial of small amounts of cremated human and animal remains in the surface layers of the ground. The special importance of the East Baltic region, in particular Lithuania, in the context European burial rites is the latest precisely documented cremations. The new body of data obtained from recent years’ excavations and application of new methods in both field and laboratory archaeology seems to promise productive discussion. The session expects presentations discussing new methodological and theoretical approaches to cremation burial, and cremation rites as unveiling the ideologies of past societies.

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**TH1-21 Abstract 01**

**Cremation graves of the Western Balts in the Late Iron Age. Comparative approach**

**Author:** Dr. Shiroukhov, Roman, Vilnius university, Vilnius, Lithuania (Presenting author)

**Keywords:** Aschenplätze, Collective cremation graves, Prussians, Curonians, Scalvians

**Presentation Preference:** Oral

All the Western Balts tribes have been connected by the burial rite of cremation since the Viking Age and till the intensification of Baltic Crusades. Altogether with language features and therefore similarities of culture, cremation has connected Prussians, Curonians, Scalvians, Galindians and Jotvingians in the 10-13th centuries. Despite this each Western Balts area had its own form of cremation graves, often not typical to their neighbors. For example, so named “double layer” cremation graves of Prussians, when cremated deceased was buried in the upper part of the pit above the unburned horse, were practiced in the region of Sambia and Natangia almost unchanged from the 8th to the first half of the 13th centuries, and are rare for Scalvians and unknown in Curonia. From the other point Southern Curonians began to burn their dead on a mass scale only in the 9-10th centuries. So, the development of Scalvian and Curonian burial rites looks more dynamic in a comparison to Prussians. Investigating a phenomena of Western Balts collective cremation graves it was concluded, that most of Curonian cremation graves of several individuals were erected in huge pits probably at one moment and belonged to the members of warrior elite or some influential clans and their relatives. In contrast to Curonian collective cremation, Sambian cemeteries Aklyja-3, Khomny and Ki. Kaup represent „Aschenplätze“ as certain areas of individual double layer cremations erected very close to each other, and not at once. Their stratigraphy is very different from Curonian, Scalvian or Galindian “collective” cremation graves. Each grave literally has its own unique cultural context and history.

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**TH1-21 Abstract 02**

**Cremation graves of the Western Balts in the Late Iron Age. Comparative approach**

**Author:** Dr. Shiroukhov, Roman, Vilnius university, Vilnius, Lithuania (Presenting author)

**Keywords:** Aschenplätze, Collective cremation graves, Prussians, Curonians, Scalvians

**Presentation Preference:** Oral

All the Western Balts tribes have been connected by the burial rite of cremation since the Viking Age and till the intensification of Baltic Crusades. Altogether with language features and therefore similarities of culture, cremation has connected Prussians, Curonians, Scalvians, Galindians and Jotvingians in the 10-13th centuries. Despite this each Western Balts area had its own form of cremation graves, often not typical to their neighbors. For example, so named “double layer” cremation graves of Prussians, when cremated deceased was buried in the upper part of the pit above the unburned horse, were practiced in the region of Sambia and Natangia almost unchanged from the 8th to the first half of the 13th centuries, and are rare for Scalvians and unknown in Curonia. From the other point Southern Curonians began to burn their dead on a mass scale only in the 9-10th centuries. So, the development of Scalvian and Curonian burial rites looks more dynamic in a comparison to Prussians. Investigating a phenomena of Western Balts collective cremation graves it was concluded, that most of Curonian cremation graves of several individuals were erected in huge pits probably at one moment and belonged to the members of warrior elite or some influential clans and their relatives. In contrast to Curonian collective cremation, Sambian cemeteries Aklyja-3, Khomny and Ki. Kaup represent „Aschenplätze“ as certain areas of individual double layer cremations erected very close to each other, and not at once. Their stratigraphy is very different from Curonian, Scalvian or Galindian “collective” cremation graves. Each grave literally has its own unique cultural context and history.
Interpreting the Archaeological Record

Cremations in Shekshovo: new evidence of the Viking Age burial rituals in Central Russia

Author - Dr. Zaytseva, Irina, Institute of Archaeology of RAS, Moscow, Russian Federation (Presenting author)

5th - 11th century were a time of dominance of funeral cremation in the North-West of Eastern Europe. Among sites of that time are the burial of cremated remains in the ground pits, the flat graves and the so-called "houses of the dead". The barrel burials stand out against this background, this cultural tradition was introduced into the territory of the North-West from the outside a few times. Materials of the studied sites allow to describe the specific funerary traditions and their interaction.

Cremation is known as a dominating funeral ritual in the Upper Volga in the IX-X-th cc, however present knowledge of cremation practices in this region in the Viking Age is based mainly on the documentation of the burial mounds excavated in the 1960-1980-ies and in the earlier times.

Recent investigations in Shekshovo burial site not far from Suzdal, produced with the implementation of modern excavation techniques (2011-2015), opened new research perspective, revealing important aspects of cremation ritual and transition from cremation to inhumation after conversion to Christianity. Field investigations in Shekshovo produced evidence of coexistence of the two forms of funeral rites with cremations. According to the first tradition, cremated skeletal remains have been placed in the mounds. Another tradition involves dispersing human and animal cremated bones on the surface or in the ground pits. There have coexisted in the X-th c. Recording of superficial cremations with small fragments of burned bones (from five to fifteen millimeters in diameter) and fragments of grave goods (glass beads, metal ornaments, coins) destroyed by fire in Shekshovo reveals special features of this funeral ritual. First, cremated remains were not grouped in the individual burials, but placed on a broad area forming common field with the burned ashes of the humans (men, women and children) as well as the animals. Second, the weight of cremated remains, which can be regarded as belonging to one individual is very small (about tens of grams). Therefore, most of the cremated remains of the skeletons were not interred on the cemetery. These features indicate special funeral practice, which was earlier recorded in Northern Russia, but proves to have much wider geographical spread including the center of the Volga-Oka region.

Find material associated with the cremations (melted objects of silver, non-ferrous metal and glass, mostly dress decoration) includes female cremations but also Vologa-Fennic and Baltic cultural traditions. C-14 dating and the study of the artifacts define that cremations in Shekshovo were performed in the X-th c. with the culmination in its second half. Infrahumations were introduced in the end of X-th c and there is no evidence that the practice of cremation had continued in the X-th c. Laboratory analysis of cremated remains allows to discuss sex-age characteristics of the group from Shekshovo. The data on the ratio of strontium isotopes (87/86 Sr) in the cremated remains may be used for the reconstruction the level of mobility of the population and for the identification of individuals newly arrived from other areas.

Field research in Shekshovo proves that burial sites with superficial cremations could survive on the land plots after intensive long-term agrarian cultivation. Discovery of these sites becomes realistic with the introduction of the more advanced approaches to the excavations and processing of osteological remains.

This paper discusses the preliminary results of the anthropological analysis of the human cremated bone excavated at the Broechem cemetery and sheds light on early medieval funerary practices in the Schacht valley in Belgium. The cemetery was excavated in 2001-2003 and 2007-2010 by the predecessors of the Flanders Heritage Agency. The funerary ensemble includes 442 inhumation graves and 71 cremation graves. Two groups of cremation graves are present. One group is situated in the northern part of the cemetery, which is the oldest section of the cemetery with deposits dating from the second half of the 5th to the first half of the 6th century. This cluster of cremation graves is characterised by big pits with a lot of charcoal and early finds from the 5th century, some with Germanic influences. One urn depositions and one 4-post grave house are to be mentioned. The second group is scattered all over the cemetery and is to be dated in the same period as the inhumation graves in these sections (second half of the 6th till the second half of the 7th century). The funerary structures consist mostly of so-called Brandgrabengräber or Knochenlager. The osteological analysis aims to provide a detailed description of the nature of the deposits, to identify and quantify the human and animal cremated bone, to assess taphonomic effects of thermal alteration and fragmentation, to estimate the minimum number of buried individuals, to assess demographic data (age, sex) and presence of pathological changes, to identify any evidence of pyre technology (used during the cremation process) and presence of type of goods. The analyses of anatomical and other dendrochronological characteristics observed in the charred fragments is expected to provide additional information on former wood use for fuel. Additionally for the study of the charcoals from Broechem, attention will be paid to possible differences in fuel selection between the different types of cremation graves.

Funeral cremation of the Middle Oka region from the Great Migration Period to the Viking Age

Author - Dr. Syrovatko, Alexander, Municipal budget organization "Kolomna archaeological center", Kolomna, Russia (Presenting author)

Many variants of the funeral rites were distributed rite in Eastern Europe during the second half of the 1st millennium AD. These centuries' burial sites of the Moscovi region were unknown until the last years. Systematic studies of these cemeteries have been done over the past 15 years only. All known burial are opened in the Middle and Upper Oka river, from Kolomna to Belyozhokh (Moscow region). Rite feature is that burned bone fragments placed on the ground surface. Urns were used rarely. The compact deposition of cremated bones suggests that they were put in any organic (leather? textile? wood?) boxes. There are no pits in these ground cemeteries. That is why these sites were not detected for a long time. Now for seven cemeteries of different ages are known. The earliest one goes from V. c. and the most late has been dated to the XI. c. These dating based on the grave goods characteristics. Some burials have no any grave goods. The age of these burials have been dated by 14C (charcoal samples). All findings are presented with imported products, which complicates the cultural attribution of the graves. For example, for Visby Fat and Finnish jewelry and buckles can be present in the burials together. Melted beads, melted objects from the bronze and silver chain mail parts, sygulams and buckles go from different European, Byzantine, Syrian and other centers. Glass beads and silver ornaments as well as jewelry from the different parts of Kazakh Khanate characterize Viking Age burials. The latest burials contain grave goods that are typical for the period of Old Russian state. Most things badly damaged pyre, melted, and cannot be
recognized. The human bones and animal bones are present together constantly. In some burials, animal bones predominate. During studies it was determined the sex, the age of the buried, the temperature of burning. In some cases, it was possible to determine some traumas.

Strontium isotope analysis taken as well. According to the results of our research, we can discuss two hypotheses. The first one is that the population of Moscow region was unchanged from the early Iron Age until the end of the first millennium AD. According to another hypothesis, the population could change several times during the second half of the first millennium AD. We discuss pro and contra.

THI-21 Abstract 06

Folk from “Lodges of the dead” (on the burial sites of the Russian North in first millennium AD)

Author - Kleshchenko, Ekaterina, Institute of Archaeology of Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)

Keywords: “Lodges of dead”, bioarchaeological approaches, cremations

Presentation Preference - Oral

“Lodges of dead” – is the special type of burial sites which was typical for the Mologa-Shekina interface and other parts of the Russian North and central region of the European Russia. This name comes from the special wooden small houses - lodges with materials of the funeral cremations as well as ash, pieces of carbon, fragments of bronzes, iron, glass, bone grave goods. The tradition of these sites stretches for many centuries, from the first cc. BC to the end of the first millennium AD.

These archaeological sites of the Mologa-Shekina interface (western part of the Vologda district) were excavated by A.N. Bashen’in [1] during 80-90 years of XX c. The author did not formulate the clear opinion about the ethnocultural background of these sites (2). Skeletal materials from “lodges of dead” of this region were not studied till nowadays.

The report is the first summary of the characteristics of the cremated remains from these burial structures. Burned bones from burial sites Chagoda 1, Pugino, Kurenvkha XII, Kurenvkha XVI were used in this research. Materials were examined with the help of computerized methods. All cremated fragments were verified by color, weight, number, high temperature cracks and deformations. Clear anatomatically fragments were used to determine the sex and age of the individuals, and to detect the presence of animals. All clear anatomical fragments were recorded in archaeological plans.

Along with the data of the research, every “lodge of dead” includes the remains of about 7-10 individuals (males, females, subadults). The fragments of the treated animal bones were detected as well. 87Sr/86Sr bone ratio indicates the presence of animals. All clear anatomical fragments were recorded in archaeological plans.

Archaeological researches and DNA analysis of the remains of the “lodge of dead” show that the burial structure is identical to the human remains. In some cases it was possible to identify the migrants. The last decade of the life of these humans took place in the 14th century and they were characterised by a higher average age (males and females, subadults). The fragments of the treated animal bones were detected as well. 87Sr/86Sr bone ratio indicates the presence of animals. All clear anatomical fragments were recorded in archaeological plans.

The bioarchaeological approaches. All cremated fragments were verified by color, weight, number, high temperature cracks and deformations. Clear anatomically fragments were used to determine the sex and age of the individuals, and to detect the presence of animals. All clear anatomical fragments were recorded in archaeological plans.

During studies it was determined the sex, the age of the buried, the temperature of burning. In some cases, it was possible to determine some traumas.

However, a number of cremated burials in the Old Russian barrows of the XIII beginning of the XITH centuries were excavated in the west part of Novgorod land. This group of burials has never been the subject of a special study for archaeologists. In the field reports and publications they have been interpreted as “a relic of paganism” without any arguments.

Micro-topography analysis of the cemeteries shows that such mounds with the cremated remains were not separated from the other mounds and located in the early part of the burial groups. The mounds with cremations and the mounds with inhumations of the same period are identical externally and internally. Simultaneously the cremated remains are quite different from the cremations of earlier times (for example, the Culture of Long mounds, Sopka culture, etc.) in size and in the degree of burning. The remains were scattered on the bottom of the burial pits, their size and shape are very similar to the inhumation graves. Finds (knives, iron weapon’s heads, coins) are rare in the inhumated group and located like in inhumation graves. The subjects typical for female costume have not been found yet. It is important to emphasize that the found things have no trace of a fire.

Mentioned peculiarities give us an opportunity to clarify why Christian burial custom was disrupted. Probably the cremation was the only possible way to deliver the body to the family cemetery, where the deceased was buried in the new Christian rites according to relative’s opinion. Perhaps the death came far away from home in a military campaign, hunting expedition or commercial travels. In this case other participants of expedition (relatives and/or neighbors, people who knew the deceased/victim well) felt obliged to bring the body to his relatives for burial at home.

THI-21 Abstract 08

Underwater burial sites of the 14th century: Kernave case

Author - Dr. Velia, Gentiladis, Vienus University, Vienus, Lithuania (Presenting author)

Keywords: burial tradition, cremation, underwater graves

Presentation Preference - Oral

At least three underwater burial sites with cremated graves from to the 14th century have been investigated in Eastern Lithuania. In recent years, the cremation graves were discovered close to Kernave town of the 13-14th centuries. In the dried stream watercourse about 13 kg of cremated human and animal bones, pottery and metal artifacts from the 14th century were discovered.

Burials in the water have received various scientific interpretations. The reports provides the archaeological research data analysis of Kernave burial site and reveals the relation of this object to contemporaneous town. The essential question – whether the burial in water was a long - time tradition or it was only the consequence of important historical events? Burial rituals in Kernave burial site can be dated rather broadly (the 14th century). However cremated underwater graves are essentially treated as a mass burial site, where there are no boundaries among individuals. Mass graves, whether in water or on land are usually interpreted as a simultaneous consequence of deaths of several persons. So, the possibility remains that all the dead were buried there because of the certain circumstances, which occurred for the short period of time. Thus not only burial site was massive, but also the cremation process itself. It also should be noted that when the deceased is buried in this way, any grave personification opportunity disappears. East Lithuanian region is noted for barrow burials tradition with very conservative funeral customs which existed 1000 years until the 13th century. Barrow was installed and used for a long time as a posthumous dwelling for a certain family. The specific individual burial place had to be important and at least several family generations were familiar with it. Therefore, the cardinal change of these traditions had to be the consequence of sudden and unavoidable events. Perhaps these events were the cause of death of significant group of persons. In this context, the attention should be drawn to the fact that precisely in the second half of 14th century the eastern Lithuania was reached by the largest forces of German Order and during the attacks of 1385 and 1390 Kernave town was left in ruins. Furthermore, precisely at that time the “black death” spread throughout Europe and perhaps plague could reach Kernave too.

THI-21 Abstract 09

Urn Cremation in the Southeast Baltic in the late Roman period. Field record sand laboratory study

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Keywords: late Roman period, Southeast Baltic, urn cremation

Presentation Preference - Poster

The cremation was the prevalent burial rite since Roman times and early Middle Ages in Western Baltic. In this regard it should be noted that the development of new approaches to the study of cremation urn particularly relevant. A lot of new burial sites opened in the second half of the last century, but they have not been studied with the biocultural approaches.

New cemeteries with inhumations and cremations of the Roman period (Sambian-Natangerian archaeological culture) discovered by Sambian expedition Institute of Archaeology in recent years. Most of the vessels were disturbed, so we cannot
reconstruct the sequence of packing urns by bones and a grave goods. Often fragments of cremated bones are located out of vessels (above, from the side, spread over the site). Bioarchaeological approaches contribute to understand the causes of these locations (taphonomic changes and so forth.)

Romanov-Pugachev pond - one of the monuments, which was opened recently in the Zelenograd district of Kalininograd region (East Prussia). Some graves disturbed by robbers, but one urn burial with cremation has been intact. The vessel was filled with heavy clay soil. Recording and sorting out the urn contents took place in the laboratory. Contents urn studied in layers, taking into account the depth of the layer. As a result, it was revealed that the burned bone fragments were placed in an urn without anatomical order. Weight cremated bones indicates that the cremated fragments of the funeral pyre was collected selectively, but not completely. The most parts of cremenation are located in two layers of the urn: at the bottom and in the middle. Objects of iron and iron weapon (ax, spear, umbo and other fragments) tightly pushed out of each of these two clusters of the cremated bones.

This methodical approach of the study of the contents of urn in the laboratory enables to reconstruct the complex and multi-stage procedure for the funeral rite. Also, thanks to this method, we can discuss some of the important characteristics as: the temperature and time of pyre burning; the presence or absence of single and double (collective) burials; the age and sex of the individuals from the burials with weapons.

Grave goods burned on a pyre and those that have been put into the urn without burning. Further rise of data will contribute to estimate the interaction of local and outside cultural influences and migrations on the funerary traditions of the inhabitants of the region of Sambian peninsula.

1. Walker R.L., Miller K.R. Time, temperature and oxygen availability: an experimental study of the effect of environmental condition on color and weight, deformations and cracks were estimated. The color is invariable, light-grey. According Walker-Miller data 2, the of the burned bones in pits and diffuse cremated bone fragments scattered on the ancient surface are variants of the individual

site existed from VI till X cc. Ground graves with cremation is more late type of burials and associate with IX-X cc. The batches near the Kolomna town. There are kurgans and ground graves with cremations on this site territory. Systematic excavations take

This report - the description of the unusual case of burial cremation of the first half of the 10th century. It comes out of the ordinary

compactly located. We consider all these variations, since they have a specific meaning and formal position in the funeral rites.

Multivariate of funeral rites of the Late Roman period - the Early Middle Ages in the central part of European Russia (Moscow

region) are not studied in detail. A special place in this variety are the cremation. In particular, the burials differ in the way the

location of the burned burials (burned mound and place ground). The batches of the burned bones may be scattered and

and compactly located. We consider all these variations, since they have a specific meaning and formal position in the funeral rites.

This report - the description of the unusual case of burial cremation of the first half of the 10th century. It comes out of the ordinary ones by “heavy weight” of all individual burials in the Middle Oka.

Schurovo archaeological site is located on the first terrace of the right bank of the Oka (the middle reaches of the river) near the Kolomna town. There are kurgans and ground graves with cremations on this site territory. Systematic excavations take place since 2001 by Kolomna archeological center expedition (A.S. Syrovatko). According to the dating of the grave goods the site existed from VI till X cc. Ground graves with cremation is more late type of burials and associate with IX-X cc. The batches of the burned bones in pits and diffuse cremated bone fragments scattered on the ancient surface are variants of the individual burials. Only a few cases are placed in the pits. In 2013, well preserved burial pit has been discovered among others during

field archaeological work. The bones of this burial were studied in detail. The number of fragments, size of the fragments, the color and weight, deformations and cracks were estimated. The color is invariable, light-grey. According Walker-Miller data 2, the temperature of the fire was about 750°C and above during an hour. The size of fragments is in borders 5-55 mm.

The total weight of the bones burial was 10470 g (NB - average weight of a single burial of about500 g). The grave goods are

typical for this site. Most part of the fragments (8875 g.) is indelible. Nevertheless, we could estimate anatomical position of the 8 fragments from different part of skull and postcranial skeleton of the adult human (20-30 year, the sex is unclear). The mass of these fragments is about 32 g. Cremated bones (273 fragments, 1762 g.) of large and small mammals have been identified besides human bones. Thus, this is the extraordinary burial. We offer two versions of interpretations:

• The high-status burial;
• Rich sacrifice (animal bodies) were burned on the pyre; 
• Cult events that goes beyond the funerary practices (sacrifice??).

1 Syrovatko A.S. Burials with cremations on the Middle Oka river of the second half of the I millennium AD//Russia Archeology - poster

Interpreting the Archaeological Record

MESOLITHIC DWELLING STRUCTURES: FROM METHODOLOGICAL APPROACHES TO ARCHAEOLOGICAL INTERPRETATION

Thursday, 1 September 2016, 09:00-13:00
Faculty of History, Room 331

Author - Miquel Soler, University of Rennes 1, Rennes, France (Presenting author)
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Keywords: Archaeology, Settlements, Spatial analysis

Presentation Preference - Oral

The study of Mesolithic settlements is a key issue to understanding the articulation of a cultural and socioeconomic system that lasted for several millennia and its collapse. Analyzing the spatial organization of settlements increases our knowledge on activity areas, subsistence strategies, seasonality of occupations and social organization. One of the most informative aspects is the study of dwelling structures identified in the archaeological record as post holes, stakes, pits, walls, floors, hearths, etc. The interpretation of their functions often leads to heavy assumptions (mobility system, storage, social hierarchy). The passage of these archaeological facts to their interpretations is obviously a crucial phase of our work, we need closer monitoring.

Research on dwelling structures can be approached from a wide range of theoretical and methodological points of view, which in turn can provide heterogeneous perspectives of archaeological interpretation that lead to the enrichment of discussion and debates. The session aims to gather together presentations on dwelling structures from archaeological sites but also multidisciplinary research on the structures from multiple methodological perspectives (e.g. spatial analysis by GIS, lithic refitting, geoarchaeology, micromorphology, geochemistry).

In this session we intend to discuss this crucial topic for the European Mesolithic, considering all geographical locations (coastal settlements located as well as inland sites) and all Mesolithic chronologies, to offer a very wide panel of the concepts, methods and technical means at the disposal of the archaeologists.

TH1-23 Abstract 01

Social organization behind shell-middens: ethnoarchaeological experiences from Tierra del Fuego

Author - Garcia-Piquer, Abet, Autonomous University of Barcelona, Barcelona, Spain (Presenting author)
Co-author(s) - Etelez, Jordi, Autonomous University of Barcelona, Barcelona, Spain

Keywords: Ethnoarchaeology, Mesolithic, Shell-middens

Presentation Preference - Oral

Mesolithic shell-middens sites have been used to support the existence of economic intensification and reliance on maritime resources and sedentarism. The archaeological visibility of shell-middens and the good preservation of archaeological remains have led to a long tradition of research.

Nevertheless, the stratigraphic analysis of shell-middens always carries specific problems, given their very heterogeneous nature and the successive post-depositional processes that may have occurred. Indeed, traditional methods and techniques of excavation as well as the character of undifferentiated palimpsest commonly attributed to shell-mounds, have reduced the advantages of good preservation of the archaeological record.

Since 1988, a Spanish-Argentinian team has been developing ethnoarchaeological projects in Tierra del Fuego (Argentina) with the objective of improving methodology and developing conceptual instruments in order to advance in the study of prehistoric huntergatherer societies. The archaeological sites on the coast of Tierra del Fuego archipelago are shell-middens corresponding to fisher-hunter-gatherer groups that intensively exploited the littoral resources. Thus, in the frame of these projects, we excavated two settlements of the eighteenth and nineteenth centuries Yamana people. Tunal-VII and Lanashuaia, both located on the northern coast of the Beagle Channel.

The ethnographic record, including pictures, descriptions of shape, size and the discontinuous but repeated use of circular huts by the present-day people, has allowed us to test a specially developed excavation methodology. We separated and registered 3D dimensions of fine deposition pockets. Experiments of sampling strategies for malacological and fish remains allowed to choose the best and less time-consuming procedure to obtain reliable samples. Columns and wide-area samples for soil micromorphology and chemical analyses contributed to the interpretation of the formation processes. We also analysed the spatial distribution and densities of consumed goods and residues, the articulation of skeletons, the refitting broken bones and debitage in order to get a complete understanding of human activity in the sites.

TH1-23 Abstract 04

Little house on the shore: Understanding the dryland structures at Star Carr, UK

Author - Dr. M. Conneller, Chantall, University of Manchester, Manchester, United Kingdom (Presenting author)
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Co-author(s) - Taylor, B., University of Chester, Chester, United Kingdom

Keywords: Archaeology, Mesolithic, Dwelling Space in an interdisciplinary perspective

Presentation Preference - Oral

TH1-23 Abstract 02

Mesolithic dwelling space in an interdisciplinary perspective

Author - Res. Assoc. Grøn, Ole, Norwegian Maritime Museum, Oslo, Norway (Presenting author)

Keywords: Dwelling, Interdisciplinary, Mesolithic

Presentation Preference - Oral

This paper discusses the authors’ development of an empirically based approach for analysis of the Mesolithic use of dwelling space based on theory, concepts and data from mathematics/physics, experimental social psychology, social anthropology as well as archaeology. The underlying assumption is that the space of hunter-gatherers is organised in accordance with culture-specific patterns so that the general positions of the individuals in a specific culture reflect their age, sex and status.

One focus is the merging of theory from several disciplines into one theoretical context. Another is the involved disciplines’ reaction on such a merging.

TH1-23 Abstract 03

Early Mesolithic site space in western Norway

Author - Dr. art. Haug, Arne Johan, Museum of archaeology, University of Stavanger, Stavanger, Norway (Presenting author)

Keywords: Dwelling, Lithic dispersal patterns, Norwegian Early Mesolithic

Presentation Preference - Oral

It has been hypothesized that western Norwegian Early Mesolithic sites are characterized by a standard lithic tool inventory with a uniform spatial configuration of the lithic debris. Specific lithic dispersal patterns are associated with both dwellings and “open air sites”. The dwellings are mainly identified as tent rings of stone cobbles and with associated fireplaces and lithic debris. These features have been suggested as indicative of the early Mesolithic way of life as mobile hunter-fishers being present in both coastal and mountain areas. Presumably the lithic dispersal patterns primarily seems to be the remains of activities performed by a single individual. But it also raises the apparent question concerning lithic tool sharing. Site evidence at the transition from Early to the Middle Mesolithic seems to indicate a change and different site pattern due to changes in the spatial configuration of activities related to the lithic debris.

Early Mesolithic sites in general, are small sites and among the few sites which it is realistically possible to analyse site structures and patterns on an individual spatial level. However, lack of identified structures makes a continued discussion concerning identification of dwellings through their relation to lithic dispersal patterns important.

More discrete site analyses are needed through a consideration of site characteristics, excavation methods and lithic technological, functional and spatial features, in order to analyse trends in Early Mesolithic site patterns. Aspects of this cultural-historical development and methodological challenges will be discussed.
Keywords: Mesolithic, refitting, Star Carr
Presentation Preference - Oral

During excavations at the early Mesolithic site of Star Carr, UK, between 2007 and 2015, three features were encountered. One of these was an unambiguous pit and post structure with the pit filled with large quantities of lithics and organic material. In 2014 what appears to have been a similar feature was discovered, though this had been partially truncated by previous excavations. Finally in 2014/2015, a series of post-holes were encountered, though many of these were ambiguous in an area that had been heavily affected by root action. In this paper we present results of post-excaavation analyses of these features. Using refitting, use-wear and micromorphology, we investigate the nature of these structures, and their differing history of use and abandonment. Beyond this what do these structures and their relationship to adjacent debris tell us about the nature of dryland activities that complement the well-known wetland archaeology of the site.

THI-23 Abstract 07
Mesolithic shell midden sites from northern Iberia: habitation sites or waste disposal mounds?
Author: Dr. Gutiérrez-Zugast, Igor, Instituto Internacional de Investigaciones Prehistóricas de Cantabria, Santander, Spain (Presenting author)
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Presentation Preference - Oral

Research on Mesolithic coastal settlements in northern Iberia has been focused in the so-called Asturian area (northern Iberia). Settlement patterns in the area have been defined by the formation of numerous shell middens. The huge amount of shells discarded at the sites, together with the limited presence of other materials, firstly led to consider these deposits as mere waste disposal mounds, whilst habitation areas were thought to be elsewhere. However, after a century of research in the area no Mesolithic habitation sites related to the shell middens have been found.

Extensive excavations in shell middens were limited to the site of Mazacillos II in the late 70's and early 80's, where several living floors were recorded. From 2009 extensive excavations at the shell midden sites of El Toral III and El Mazo have brought to light different dwelling structures, such as post holes and hearths. In addition to these features, the excavation of discrete shell midden units produced a variety of materials including molluscs, mammal, fish & bird bones, lithics, charcoal, seeds and human remains, confirming that shell middens in northern Iberia were not only places where the shells were processed and discarded, but habitation sites where a wide range of activities took place.

THI-23 Abstract 06
New insights into open-air Mesolithic settlement in northern Spain.
Recent research at El Alloru
Author - Prof. Arias, Pablo, Universidad de Cantabria, Santander, Spain (Presenting author)
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Keywords: Asturias, Dwelling structures, Settlement

Presentation Preference - Oral

The Mesolithic of the coastal karstic platform of eastern Asturias is characterized by more than one hundred deposits of marine shells and other archaeological material cemented by carbonate in the walls and ceilings of karstic cavities. There are only a handful of shell middens that allowed archaeological excavation. The knowledge about the Asturian shell middens still lacks information about the formation and post-depositional processes that are clearly affecting them and complicating archaeological interpretations on its functionality and accumulation. This is also partially due to the scarcity of geochronological approaches to these deposits.

At El Mazo limestone shelter the discovery of a widely stratified shell midden constitutes a rare chance to answering these questions. From a geochronological point of view, El Mazo is particularly relevant for the existence of several layers rich in marine molluscs embedded in matrices with different sedimentary compositions, some of them only a few centimetre thick.

Structures apparently well preserved were also identified, such as combustion features, also with heterogeneous configurations (e.g. presence/absence of stone structuration), which might be indicating different behaviours and types of occupations through time.

Undisturbed sedimentary block samples were collected to investigate into the microstratigraphy of this shell midden and the structures within the shell layers. The study under the microscope of the thin sections obtained allows to systematically identify sedimentary microfacies and ascribe them to possible in-situ and reworked contexts, including those of fire combustion features.

Ultimately, the identification of sedimentary structures resulting from human activities, that many times leave imprints visible only microscopically, might lead to the reconstruction of the behaviours behind the accumulation of the shell middens.

THI-23 Abstract 08
Microstratigraphic investigations at the Mesolithic shell midden of El Mazo, Asturias, Spain
Author - Duarte, Carlos, University of Cantabria, Santander, Spain (Presenting author)
Co-author(s): Iriarte, Eneko, University of Burgos, Burgos, Spain
Co-author(s): Fano, Miguel, University of Cantabria, Santander, Spain
Co-author(s): Arias, Pablo, Universidad de Cantabria, Santander, Spain

Keywords: El Mazo, Microstratigraphy, Shell midden

Presentation Preference - Oral

The Mesolithic of the coastal karstic platform of eastern Asturias is characterized by more than one hundred deposits of marine shells and other archaeological material cemented by carbonate in the walls and ceilings of karstic cavities. There are only a handful of shell middens that allowed archaeological excavation. The knowledge about the Asturian shell middens still lacks information about the formation and post-depositional processes that are clearly affecting them and complicating archaeological interpretations on its functionality and accumulation. This is also partially due to the scarcity of geochronological approaches to these deposits.

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Ultimately, the identification of sedimentary structures resulting from human activities, that many times leave imprints visible only microscopically, might lead to the reconstruction of the behaviours behind the accumulation of the shell middens.
TH1-23 Abstract 09

Can pits define a settlement?

One example from inland Iberia Mesolithic

Author - Gaspar, Rita, Porto, Portugal (Presenting author)
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Presentation Preference - Oral

In the last years new discoveries regarding Early Holocene human occupations have been made in inland Iberia, namely in northeast Portugal. One particular site, Foz do Medal, will bring important contributions to the study of Mesolithic communities due to its well preserved records as well as to its location in the border of Spanish Meseta.

Foz do Medal has more than 60 pits within three Mesolithic phases, from the 8th to the 6th millennium cal. BC. In some Mesolithic phases pits appear associated to other types of structures, such as post holes, hearths and hut floors. Nevertheless pits dominate the settlement area. Its contents were analysed by a multidisciplinary team, revealing lithic industry, faunal and archaeobotanic remains. One pit presented a human burial.

Throughout Europe pits have been found in several Mesolithic sites and their interpretation has been a matter of debate. Interpretations range from storage structures to hunting traps.

Considering the amount of pits that were found and the interdisciplinary approach carried out in their investigation, Foz do Medal can be a very important site in such debate. Furthermore the excavation provided relevant data regarding subsistence strategies and the use of bothiotic and abiotic resources.

TH1-24 Abstract 01

Introduction: studying evidence for weighing through the ages - problems and challenges

Author - Associate Prof. Rahmstorf, Lorentz, University of Copenhagen, Copenhagen S, Denmark (Presenting author)
Co-author(s) - Dr. Ialongo, Nicola, Sapienza University of Rome, Roma, Italy (Presenting author)
Co-author(s) - Dr. Vacca, Agnese, Sapienza University of Rome, Roma, Italy
Co-author(s) - Prof. Peyronel, Luca, University IULM of Milan, Milan, Italy
Keywords: cognition, metrology, trade
Presentation Preference - Oral

The discipline of ancient metrology is generally considered to be a difficult subject and weighing equipment is often not sufficiently discussed in publications. - If the evidence has indeed been recognised at all. One of the aims of this session is to promote such studies and to demonstrate its relevance for many key issues of the human past, among them cognition, trade and economic integration, mathematical conception and socio-economic organisation. The time is past due to disseminate the relevance of weights and measures, especially because the identification of such tools often allows for a considerable reinterpretation of the cultural context in which they appear.

We will highlight some of the problems and challenges we have to face when studying (potential) weights, scales or weight-regulated artefacts. Issues we will touch upon comprise the relation of weighing to metallurgy, abstraction, standardisation, metrology, trade and traders and even to the ancient perception and description of the world.

TH1-24 Abstract 02

Normative and behavioural aspects in Near Eastern weight systems: a Case study from Ebla (Syria)

Author - Dr. Ialongo, Nicola, Sapienza University of Rome, Roma, Italy (Presenting author)
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Co-author(s) - Prof. Peyronel, Luca, University IULM of Milan, Milan, Italy
Keywords: balance weights, Ebla, hoards
Presentation Preference - Oral

The material remains of past cultures are conceptualizations of their creators. Artefacts associated with the application of weight standards from prehistory to the Middle Ages may be analysed in this way. Certainly, weights and scales facilitated trade and exchange, integrated different geographical spheres and cultures in economic terms and became in this way a medium in defining interpersonal and intergroup communication. Weighing is also closely connected the other kinds of measurements of concrete things as well as the conceptualization of numbers.

During this session we would like to raise the following topics:

- When emerged the concept of weighing and under which circumstances? How closely was it related to the increasing importance of metallurgy?
- Whether and to what extent weighing units were abstract concepts?
- Why were certain shapes of weights chosen and preferred in certain regions and periods?
- How were various weighing systems constructed and how were they transformed through time? Can we really define the origin and end of the use of specific weighing systems and units?
- What are the contextual associations of weighing equipment (scales and weights)? What does this tell us about use of these tools and the social status of the users?
- Influenced weighing systems the perception and description of the world?

We would like to invite all scholars to this workshop who analyse such issues by the study of archaeological remains.
Interpreting the Archaeological Record

TH1-24 Abstract 04
Identifying weights in later Bronze Age Western Europe

Author - Associate Prof. Rahmstorf, Lorenz, University of Copenhagen, Copenhagen S, Denmark (Presenting author)

Keywords: Central Europe, metal production, weight

Presentation Preference - Oral

In Europe, outside the Aegean, secure evidence for the use of weights is known from the second half of the second millennium. The increasing attestation of weights in Europe has been noted in recent decades by archaeologists, particularly by Christopher F. E. P. Parsons for Central Europe, by Andrea Cardarelli and others for Italy, and Raquel Vila for Portugal. These individual authors have contributed immensely to the identification and publication of weights from various regions of Europe, but large blind spots in-between these specific research areas still prevail. In some regions we know of balances but no weights have so far been reported—a situation which cannot reflect any ancient reality. In this presentation I will discuss some new finds of weighing equipment from Western Europe from the late second and early first millennium BCE that have been established through systematic research. The identification of weights or scales allows for radical new interpretations for specific sites, the intensity of exchange—i.e. trade—and cultural developments in these regions.

TH1-24 Abstract 05
The social use of metrology in the western Mediterranean Iron Age

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Keywords: Iberian Peninsula, Institutions, Weighing

Presentation Preference - Oral

In this paper, we would like to present the first steps of an investigation aimed at discussing the nature of metrology in a specific context of the Mediterranean Iron Age, the Iberian one. Metrology is basically an institution, whose materiality in the Iron Age is mainly linked with weighing. It can take different aspects. When based on experience, on practice and on spontaneous and mutual agreement, we can speak of a practical institution. When enforced by law, and guaranteed through the activity of magistrates, it is a formal institution that may have, much more than the first one, a secondary impact on the material record: its existence will promote normative behaviours, as the fabrication of standardized pottery vessels.

The use of weights and scales during the Iberian Iron Age is well known and has generated an extensive bibliography. These works rely mostly in two assumptions. The first one is that weighing has to be understood on the widest frame of the trading practices connecting at this time the Iberians with others peoples of the Mediterranean area, namely the Greeks and the Punics. The second one is that the weights themselves are characteristics of a metrology having a wide range of application, including—and often predominantly—the proto-monetary sphere. In other word, the adoption of such technology would have meant the deliberate development of an exotic, formal institution, whose imitation aimed at inserting the native networks in the wider Mediterranean ones. This convergence of the Iberian institutions of trade with those of the “Classic” Mediterranean is considered as part of a wider evolutionary process, which conclusion would be the constitution of Iberian “Early States”.

We will first look for the evidence linked to weighing. Such evidence is overwhelmingly concentrated in the Valencian Country. We will show that here, from the end of the 5th cent onward, metrology is quite coherent from one place to another. However, through the contextual analysis of the weighing instruments, we will argue that weighing is not prominently linked with long distance trade, but rather with one’s patrimony management, and was a highly performative activity. In a second time, we will examine the evidence for normative behaviours, much sketched. We will introduce a new analytic method allowing the direct comparison of vessel production standardization in different contexts of the Ancient Mediterranean, in order to show that Iberian practices in this regard didn’t show much preoccupation for the adequacy to any norm. The only tendency for a homogenization of the capacities seem indeed to result from the productive routine. On this ground, we will conclude, that in the Iberian context, metrology is not a formal institution enforced through legal control and public coercion, but a practical one, aimed not at diminishing the transaction costs in a trade context, but at creating interpersonal trust between partners whose association went far beyond the strictly economic sphere.
Metal ingots as a medium of exchange in the Bronze Age and the Iron Age

**TH1-24 Abstract 06**

**Title**: Metal ingots as a medium of exchange in the Bronze Age and the Iron Age

**Authors**: Phil Gralak, Tomasz, Wrocław University, Wrocław, Poland (Presenting author)

**Keywords**: medium of exchange, metal ingots, trade

**Presentation Preference**: Oral

Metal ingots constituted a long-lasting phenomenon that occurred from the beginning of the Bronze Age to the late Middle Ages. They appeared at the earliest in the Sitchina culture in Central Europe. Specimens made of bronze are rib-shaped, while gold ones were made of spiral wire. In the era of the Umkelhof complex, longitudinal ingots of bronze and tin appeared. Some were made of naturally formed constructions which facilitated their breaking. They were often found in contexts associated with metallurgy. In the Hallstatt period, objects of this type made from iron appeared. In the La Tène period, ingots of gold, silver or bronze, often broken, have been found together with chopped coins. Analogous finds date from the Roman period, the Migration period and the Middle Ages. From that time spirally wound ingots and coils of wire are also known. Silver ingots made of medium of exchange in medieval Lithuania. It seems the reason for such a long use of ingots is their unique usability. They served as a source of raw material, yet remained bullish money. Their form facilitated their breaking up to smaller pieces in order to achieve the proper weight. This method of their use facilitated relationships with communities using different weight measurement systems. They were also necessary, even if coins were available, in areas where political power was not able to guarantee and enforce their value.

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**TH1-24 Abstract 07**

**Title**: Late Antique and Byzantine weights in the Mediterranean Area. The Glass weights

**Authors**: Tobias, Bendigetz, Institut für Archäologien, Universität Innsbruck, Stans, Austria (Presenting author)

**Keywords**: Byzantine, glass weight

**Presentation Preference**: Oral

Byzantine glass weights are essential tools of a regulated and controlled coin circulation. To understand the financial management and ultimately the Byzantine tax system of the 6th and 7th century AD they are of a great use. They are made of translucent glass of different colour. Dominant are pale yellow and green colours, but even pieces made of dark blue and red or opaque brown glass occur. On the front side they are stamped sometimes with the bust of a dignitary surrounded by a legend including his title and name. The majority of the weights are stamped with the names of dignitaries in the form of monograms. For the first time 1360 Byzantine glass weights were systematically collected from various public and private collections in a database. About the half of these weights were studied and measured by the author himself to achieve reliable data. The typology of the glass weights is based on the inscriptions, various monograms and figural elements. The aim of the project is to establish a typological and chronological framework of glass weights from the period of the 6th and 7th century AD.

The main problems in the research of the glass weights occur in the understanding of the whole system and the chronology of the different weight types, which is based on their prosopographic identification.

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**TH1-24 Abstract 08**

**Title**: Multifaceted Head of Neck Ornaments “Pern Type”

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**Keywords**: EAAN986, Managing the Archaeological Heritage

**Presentation Preference**: Oral

The neck silver jewelry of the Viking Age in a large number found in hoards in the Kama River basin, had multifaceted clasp, which was a truncated pyramid. The usual method of archaeological search for analogies, is comparative benchmarking, but still detect only similar things. In fact, many-sided fastener rings “Pernian” type is half the geometric figures tetraktis with truncated corners, which found in Hungarian antiquities originating in the territory of Bulgaria by Alexander Siptan. It is an object against a fastener ring and a size two times greater than it.

Therefore the search for the source of a head, which said Ture Arne even have continued in Iran and the African side. Finding head of the Hungarian antiquities 9-10 centuries suggests that the grains of the Persian such as appeared in the area between the Vyatka and the Kama in the ancient homeland Dumlurt-Firno-Permin population as cultural synthesis (cultural genes). But they began to fall out in hoards with the Arab coins first on Gotland, and then Southern Sweden and Denmark and is only the latest in Vyatka and Kama. With 833 for 845 years.

Neck decoration Scandinavians were of iron, they were not used and the Slavs. Slavs used as an expensive silver jewelry and fashion item or as a store of value. But in Sweden rings Permian type were made to get rid of the excess of silver in the form of coins, which were worn as bracelets.

Neck rings were brought to the Baltic States through the Arab coin, which is before the first silver crisis of 60 - 90 years of the 9th century rushed flow to Sweden. Therefore the treasures with the Arab coins could fall in the period of excess revenues coins from the east, and in the period of the Urnfield complex, besides multi-faceted neck rings head marked by 2 things: bracelets on hand, clasps-hiruous.

Mass discoveries brooches, buckles during archaeological excavations in the Baltic States are talking about ethnic identification of this type of things, but in the entire Baltic region is alien neck rings and bracelets. Some of the findings of these items without heads arrived in the Eastern Baltic from different ethnic backgrounds, because they are known only in hoards. All three subjects costume complex served as money, and the neck ring served as ring money By Br. Hard. Cash and weight standards allow a very high degree of accuracy to determine specific ethnic identity even hoards. If weight hoards standards correspond to the different ethnic groups, and it indicates the direction of trade relations or to cultural and consumer preferences cash holders. Treasures, consisting of the neck rings is preferable to studying in weight than coin treasures, as things that are hidden in them larger and the measurement error is small. Weight measurements artifacts nesary. They may correspond to the Nordic, Byzantine, Iranian, Pusian, Danish weight standards, which were used in Sweden. It is possible to say that the neck rings on hoards have tangible evidence of large wholesale trading or tax collection.

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**TH1-24 Abstract 09**

**Title**: A new type of weights from Volga Bulgaria

**Authors**: Koval, Vladimir, Institute of archaeology RAS, Moscow, Russian Federation (Presenting author)

**Keywords**: medieval market, Volga Bulgaria, weights

**Presentation Preference**: Poster

In 13-14 cc. Volga region of centuries, mysterious objects have been known. They were bronze cylinder 2 halves on which flat surfaces are placed relief images of a lion and (and) a tree with two birds. These cylinders are hollow or filled with lead. Previously they were called matrices, seals or stamps. In fact, such weights, a large number of which were found during excavations of the market in the center of Bolgar (the capital of Volga Bulgaria), were made exactly in Bolgar.

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**TH1-24 Abstract 10**

**Title**: Roman weights from Aquileia: identification proposals of their ancient users

**Authors**: Graduated Stud. Sutto, Maria, Università degli Studi di Padova, Padova, Italy (Presenting author)

**Keywords**: Aquileia, Roman weights, Weights’ users

**Presentation Preference**: Poster

Aquileia was one of the richest and most prosperous Roman colonies from the Republican period until the Imperial Age. It was also a very important landmark for commercial trade from its foundation (181 A.D.) till the late antiquity. The copious findings of metallic and stone weights in the different urban and rural areas of Aquileia - today sometimes hardly recognizable - are in fact a meaningful proof of the socio-economic role in all the north-eastern area of the Roman Empire. Some important questions have emerged: who were these Roman weights’ users? Who owned weighing artifacts in ancient Aquileia? There were certainly different users of these weights, depending on their function and their context of use. Both the iconographic, literary and epigraphic sources give only few and meagre answers to these issues. Nevertheless, the weights themselves can provide more accurate hints about their uses. It is possible, for instance, to distinguish official ponders, used in public contexts, from private ponders, used inside small shops.

Speculations about the identity of the weights’ users may be suggested for some of them, thanks to the different data gathered from stratigraphic-archaeological and morphologic studies. For example, the official weights found in the proximity of the fluvial harbor of Aquileia were surely employed by magistrates sent by the central authority or by officials in charge of the measures’ surveillance. It is possible also to make some assumptions about private weights. The recent investigations in the domus located in the “ex Cossar property” in Aquileia, carried out by the Cultural Heritage Department of the University of Padua, have been an important source of information. The several stone and metallic Roman weights found there might probably be used in the commercial area of the domus, overlooking a street. The finding of these artifacts, one of them with the user’s name inscribed on its surface and possibly related to a domestic context, rises some interesting questions: was there any relationship between the domus’ owner and the weights’ owner? If there was any, what was it? Were they the same person? Did this person carry out a guarantee role upon the weighing instruments employed in his property or was he an external tenant? To attempt to retrace the identity of the Roman weights’ users could mean to find out the role fulfilled by them inside the ancient society of Aquileia; were they magistrates sent by the authority or private citizens? Hence, Roman weights may provide important valuable insights into the typologies of the measuring control system carried out in the city during the Roman period.
TH1-24 Abstract 11

Analysis of weights and measures from the flat axes mould discovered in Pendia’s Hillfort (Spain)

Author: Dr. Rodriguez del Cueto, Fernando, Universidadd de Oviedo, Oviedo, Spain (Presenting author)

Keywords: Bronze Age, Hillforts, Weights and measures

Presentation Preference - Poster

In 2008 a flat axes mould was discovered in one of the streets of Pendia’s Hillfort, a fortified enclosure in NW of Iberia (IV BC-II AD). Despite its location, in secondary position after using for casting, this find shows a long term survival. Moreover, this mould is related with the first metallurgical activities in our region. Finally, this piece allow a first approach to check if there is some patterns in weights and measures issue during the production of several prehistoric tools.

TH1-24 Abstract 12

Scales and Weights in Roman Trade: The Case of the Wreck Found in Valle Pega (Comacchio, Italy)

Author: Dr. Corti, Carla, University of Verona, Campogalliano, Italy (Presenting author)

Keywords: Roman trade, scales and weights, weighing procedures

Presentation Preference - Poster

In 1981 in the delta of the Po river, in Valle Ponti near Comacchio, was found one the wreck of a Roman ship with its cargo. The boat was engaged in small scale coastal shipping, but it was able also to transport by river. The shipwreck occurred around 12 BC along the north-western Adriatic coast, between two branches of the ancient Po.

The ship’s cargo excavated by archaeologists includes a big variety of merchandise: lead ingots, some with the stamp of Agripa, amphorae and ceramics of various type and provenance, lamps, wooden beams, fourths of meat and various small objects, including several little lead temples. A turn-over steelyard for retail trade and a big stone weight are also found in the cargo. They were part of the ship’s equipment.

The turn-over steelyard has two capacities and a stamp with the mention of one personage, probably the mensor who built the instrument in according to similar finds. The stone weight, a centussis (100 librae), was used instead for wholesale trade. This finding of these measuring instruments on the Valle Ponti’s wreck provides an opportunity for some remarks about in weights and measures issue during the production of several prehistoric tools.

TH1-25 Abstract 01

How do we understand animal deposits from the Roman Iron Age in the wetlands in Denmark?

Author: PhD student Pantmann, Pernille, Museum of Northern Zealand, Hilleroed, Denmark (Presenting author)

Keywords: Animal deposits, sacred versus profane, Wetlands

Presentation Preference - Oral

Animal deposits are perhaps the most frequent type of sacrifice in Danish wetlands, and they appear in most of the prehistory. However, in Denmark animal deposits tend to be overlooked compared to other finds from the wetlands, which includes precious metal objects, bog bodies and weapons etc. In contrast, our neighboring countries traditionally prioritize animal deposits a little higher. However, there is still a tendency to look upon animal deposits from a zoological point of view. In order fully to understand all aspects of the Iron Age utility of the wetlands, we have to reexamine the animal deposits and discuss their part in sacred and profane lifestyle of the Iron Age.

TH1-25 Abstract 02

Bokaren- a bog revisited

Author: Ekund, Susanna, BAU, Uppsala, Sweden (Presenting author)

Keywords: Bog body, Ritual practices

Presentation Preference - Oral

Bog bodies have a special attraction and some of these, such as the Tollund man has reached iconic status. However, not all bodies from bogs are preserved similarly and not all remains from bogs are from humans, there are also bones from animal. This session welcome papers that focus on the practices around deposition, retrieval and curating of these remains. The session would address issues about bog bodies in human/animal relations, necropolitics and self-sacrifice, links between archaeology and written sources/folklore as well as ethics of display and present day religion. To what extent would the bog body debate be stimulated by a gender, multispecies and environmental humanities perspective that explores human, non-human relations with watery environments? Can we move on in the discussion on depositions in wetlands being garbage or the holiest of holy? The session would like to invite researchers that adress the theories or lack (?) of theory in bog body studies. The session would also like to adress the geographical bias in bog body studies and broaden up, particularly with studies from Eastern Europe and if possible with studies of depositions of bodies in wet context from central europe and the alpine region.
Archaeological finds of human and animal remains in bogs and wetlands are random and unpredictable causing trouble for both archaeologist and antiquarian authorities. In Sweden new finds are scarce but searching museums and archives you can find numerous notes of earlier discoveries. This paper asks the question what is the potential in these old notations by presenting recently conducted work on one such a site – Lake Bokaren in central eastern Sweden just some 20 kilometers east of Uppsala. The place was first found when farmers were trying to ditch out the bog/lake to retrieve new farmland in 1939 and found to two human skulls and a couple of horse skulls. The finding was followed by a small excavation in 1941 where more animal bones (primarily horse skulls) were retrieved alongside with a wooden platform covered with flux. Unfortunately this quite spectacular find were forgotten about and the report never written up. It’s only been referred to in some texts. We have now been able to recall most of the material from the excavation that was spread out at different museum storages and we have studied the documentation. We have also dated some the human skulls and some of the animal’s bones and performed osteological analysis of the human skulls. Last year we got the chance to return to the place for a small scale research excavation to see how the finds had been preserved and trying to find out how big the actual site was. We found another human being and two horse skulls together with worked wood. The site appears to be quite big, and there is more the 35 meters between the findings of horse skull and human bones and we were not able to find the boundaries of the site. The ritualpracitices spreads out for a about 1000 years from 300 AD until 1300 AD, which is quite remarkable since it means well into the Swedish middle ages and Christian period. It’s interesting that both the humans and the animals have been exposed to similar types of violence on this site, and this might be one of the clues in how to interpret the mysterious bog bodies. Lake Bokaren is placed near double parish boundaries, between Rasbo and Stavby parishes. This can be interpreted as if this was a place where various localities got together around sacrifice. It’s also challenging to try and put the place in perspective in connection to folklore and oral traditions in the neighborhood. For instance many holy springs are known in the area.

TH1-25 Abstract 03
Place-lore concerning bog bodies
and a bog body concerning place-lore
Author - Kama, Plne, University of Tartu, Tartu, Estonia (Presenting author)
Presentation Preference - Oral

...Under the swamp sods and when chopping down shrubs, many human bones came out from Lawinoo ‘encampment swamp’. Also pigs dug out human bones with rusted pieces of iron. It seems that fighting had been so fierce that there was not enough time to bury the dead, so they were tranpled into the swamp [...] (E 63001/2)

The aim of this paper is to introduce Estonian place-lore concerning bog bodies. This oral history is collected and written down mostly in the past, but some narratives are vital among locals also nowadays. There are different stories that describe burials, drownings, suicides and executions in wetlands: actions that may result in bog bodies. In oral tradition, there is also place-lore describing finds of human remains from peat. This refers to incidents where bog bodies were found in the past of which we do not have any knowledge based on archaeological records. In more details I show how a real archaeological find, a Rääksi bog body is reflected in place-lore. How information in place-lore is comparable with archaeological data and how this folklore should be received by archaeologists, will be discussed.

TH1-25 Abstract 04
Sacifice and necropolitics
Author - Associate Prof. Christina, Fredengren, Stockholm, Sweden (Presenting author)
Keywords: Bog bodies, Necropolitics, Sacrifice
Presentation Preference - Oral

This paper will analyse mechanisms of inclusion and exclusion in Late Bronze Age and Iron Age Scandinavia (with case studies mainly from Sweden) manifested in the deposition of human and non-human remains in places outside burial grounds such as in wells, rivers, wetlands and bogs, traditionally seen as sacrificial. Problematising the concept of sacrifice, this paper will deal with the question of bio-politics insofar that it will look at what lives these individuals led as reflected in the skeletal remains. It also particularly deals with questions about Necropolitics and the control of the boundary between life and death and the effects of such control on societies, but also reflect on Zoe-politics as a historical phenomena (cf. Agamben 1998, Mbembe 2003, Braidioti 2013).
THE LIFE BIOGRAPHY OF ARTEFACTS AND RITUAL PRACTICE

TH1-26

Taking a closer look – causewayed enclosures through the lens of a large scale use-wear analysis

TH1-26 Abstract 01

Author: Bye-Jensen, Peter, University of Southampton, Hayling Island, United Kingdom (Presenting author)
Co-author(s): Mateer, Helen, University of the West of England, Bristol, United Kingdom
Keywords: Neolithic British, life histories, deposits, use-wear, Neolithic causewayed enclosures
Presentation Preference: Oral

This paper presents a closer look at the phenomenon of monumentality in the early Neolithic, at a micro scale. The methodological approach is use-wear analysis of flint assemblages from selected contexts of a number of well excavated early Neolithic causewayed enclosures in southern Britain and southern Scandinavia. The UK sites include: Etton (Cambridgeshire) and Staines (Surrey), with reference also being made to preliminary analyses of assemblages from Hambledon Hill (Dorset) and Windmill Hill (Wiltsite); for southern Scandinavia, Sarup (Denmark). Results from the use-wear analysis offer a way of characterizing activities at these sites that has not been attempted before. In particular, use-wear analysis has been able to reveal some of the encamped life histories that the flint artefacts hold, and in this way contributes to understanding the temporality in depositional practices at causewayed enclosures. The project has also sought to develop methods in use-wear analysis, notably through the use of high-end digital microscopic technology in combination with a conventional microscope.

Grinding Tools and Circular Enclosures – Ceremonial Behaviour or Common Refuse Management?

TH1-26 Abstract 02

Author: Řídký, Jaroslav, Prague, Czech Republic (Presenting author)
Co-author(s): Burgert, Pavel, Prague, Czech Republic
Keywords: Circular enclosures, Grinding tools, Neolithic
Presentation Preference: Oral

The presentation will introduce assemblages of stone grinding tools from the late Neolithic sites (4900 – 4500 cal. BC) in the Czech Republic that were collected in the vicinity of circular enclosures (roendes) the function of which is assumed to be socio-r ritual. The assemblages consist mostly of fragments of tools from ditch fillings of the roendes, or from other pits in their vicinity. We would like to present assemblages from several long-term excavations where the origin of raw source, the manufacturing process, the stage of preservation, and the location of the artefacts in relation to the roend or other features are known. The following issues related to the socio-r ritual features and other surrounding artefacts will be discussed: Is there any evidence that there is a direct relation between the grinding tools and the socio-r ritual structure, such as ritual grinding activities during various ceremonies, or do they represent just a common refuse management in the settlements? Why were some of the grinding tools intentionally destroyed and others not?

The ritual use of flint

TH1-26 Abstract 03

Author: Prof. Larsson, Larsa, Department of Archaeology and Ancient History, Skivarp, Sweden (Presenting author)
Keywords: fire, flint axes, Southern Scandinavia
Presentation Preference: Oral

In Southern Scandinavia, as in other areas, flint had a special position as a raw material for making a variety of tools. Flint was not only an important element of daily activities, however; it also became a catalyst of ritual. Flint became a very important element in marking the relationship between people and their conceptions of a different world populated by deities and dead ancestors. In this relationship flint axes played a very special role. The final stage of axes was mainly determined by shape and cultural connections. Deliberate deposition of axes in Southern Scandinavia chiefly occurs in a large number in wetland but also at and in megalithic graves. The transformation of flint tools could also involve changing the material through heating. The use of heat differs depending on tool types. A small number of sites have a large amount of material from deliberate heating, while the majority of other sites, such as megalithic graves, causewayed enclosures and palisades have a smaller number of objects partly altered by fire, primarily axes. Theses depositions are also combined with waste from the manufacturing of axes, combinding “birth” and “death”.

From the living to the dead. Lithic artefact deposits in TRB burials in Jutland

TH1-26 Abstract 04

Author: Czudnowska, Marzena, Aarhus University, Wroclaw, Poland (Presenting author)
Keywords: burial, lithics, TRB
Presentation Preference: Oral

From the Megalithic period onward, sometimes even up to the Iron Age, lithics are frequently found in funerary context. Evidence of ritual use of flint is known from Neolithic settlements, enclosures, ritual houses and graves. Several traditions of treatment and handling of flint such as ritual destruction, burning or scratching the surface of the artefacts were recognized. In this paper, special emphasis is placed on possible role and meaning of lithics in TRB burial ceremony rituals. Artefact analyses were divided in two major parts: First, the technology of production and the possible traces of use found on flakes, blades and tools were discussed. The second part consisted of statistical analysis of lithic artefact type variation and their possible relation to other grave goods. The results were then compared to the ones obtained from material from TRB settlements. This leads to the general discussion about the interpretation of role and meaning of flint in the burial context. By using such combination of methods, it is possible to discuss different reasons for placement of lithics in the burial context. Various artefacts could be interpreted either as a part of the grave goods set (accessories for further life in afterlife), the belongings of the deceased (which could signify his status or occupation during life) or traces of ritual knapping or other activities during the burial ceremony.

The biography of megalithic art at Millin Bay, Northern Ireland

TH1-26 Abstract 05

Author: Dr. Robin, Guillaume, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)
Co-author(s): Dr. Hensey, Robert, National University of Ireland, Galway, Galway, Ireland
Keywords: Digital methods, Megalithic art, Neolithic Ireland
Presentation Preference: Oral

The megalithic monuments of Western Europe are famous for their engraved and painted decoration which adorns the walls of their chambers, passages and sometimes their external features. While most of that art was primarily created to be seen within the fixed setting of the monuments, excavations and studies in Iberia, France and Ireland have shown that a surprising percentage of this art was hidden in inaccessible parts of the architecture, or was erased from the walls, and that many decorated stones were broken and reworked before being re-employed as the structural components of new monuments. This raises at least two important questions: what was the earliest history of the decorated stones before they were placed inside the monuments? And, what was the role, if any, of such ‘un-displayed’ art in their final monumental contexts?
An interesting case study is the Neolithic site of Milin Bay in Northern Ireland, dated c. 3600-3300 BC. The site was excavated in the early 1950s, revealing an unusual long oblique structure containing 16 burials and 64 stones with decoration associated with the Irish megalithic art tradition, which regularly features abstract carved motifs (concentric circles, spirals, meandering lines, etc.). Several of these stones display evidence of intentional breakage, as well as several episodes of art-adorning superimposition, suggesting that the decorated stones had a complex biography before subsequent use in the burial architecture of the tomb. What happened to these stones before they were eventually deposited underground and used as structural components in the monument?

This paper will present the results of new recording and analysis of the decorated stones from Milin Bay. Using photographic techniques and 3D structure-from-motion photogrammetry, we examine technical signatures in the making of the art as well as overlapping art indicating sequences of art production, together with evidence of intentional breakage and other alterations of the stones. This examination allows us to infer the multiple stages and ‘chains of practices’ involved in the production, use and reuse of the Milin Bay stones as ritual artifacts.

Here we approach megalithic art not as a spatially and temporally fixed assemblage of structural stones but as a series of individual artifacts that were moved, transformed, decorated, reworked, sometimes broken, and eventually brought together and reused as structural elements incrusting the architectural setting of tombs.

This paper will consider Milin Bay in its broader context, with reference to wider evidence of worked and displaced megalithic art in Ireland and Europe, and will discuss the reuse of megalithic art as representing a specialised form of prehistoric monumental construction.

**TH1-26 Abstract 08**

**Useful, beautiful or ritual? The life biography of grave goods from prehistoric burial sites**

Author: Kogalniceanu, Raluca, Institute of Archaeology, Bucharest, Bucharest, Romania (Presenting author)

Keywords: grave goods, Prehistory, South-East Europe

Presentation Preference: Oral

Neolithic communities used to send their members, on their last road, accompanied by various things, from pottery and animal bones to personal adornments, and other objects such as flint blades, axes, clay figurines, etc. The grave is supposed to be the final resting place for the human individual, but also the end-place of the objects accompanying the deceased. The analysis of grave goods usually focuses on typologies, quantities, whether they are gendered grave goods or not, and how they help create the identity of the deceased. More rarely, they focus on whether they were especially created for the particular event of somebody’s burial or they had been previously used. The work done on the Neolithic and Copper Age funerary contexts from Romania shows that in some cases grave goods were especially made for the deceased, and, in fact, had a life of their own before that. The longest chain of events in an object’s life identified so far belongs to the adornments made of Spondylus shell that underwent long-distance trade, manufacture, short-distance trade, wear, repair or transformation (or both), wear, and deposition. Another object with a medium life biography is the stone axeadz/axel, which could include medium-distance trade, manufacture, use, repair, use and final deposition. On the other hand, there certainly seem to be objects with a very short biography, namely those fabricated especially for the event of the burial. One example of this type seems to be illustrated by clay vessels or figurines that are poorly manufactured, indicating that their use might have been deemed from the start to be very short-termed. The presentation will review the data, with particular examples, mostly from the Lower Danube area but not exclusively, across a span of time covering the Neolithic and the Copper Age periods. I will also try to discuss the possible underlying reasons behind particular choices made by the prehistoric communities regarding the grave goods deposited together with the deceased.

**TH1-26 Abstract 09**

**Function and meaning of stones from the grave of the Globular Amphora Culture in Wilczyce (Poland)**

Author: MA (Mgr) Kieneder-Gubala, Katarzyna, Institute of Archaeology and Ethnology Polish Academy of Science, Warsaw, Poland (Presenting author)

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Keywords: grave, neolithic, stones

Presentation Preference: Oral

Stones were used by prehistoric societies in everyday activities, such as preparing of food, production of other tools made of stones, flints, bones or manufacturing of paints. They also served as a weapon, symbol of prestige and were an important material for dwellings, graves and other constructions of ritual meaning.

During the neolithic Globular Amphora Culture in Poland, the role of stone as a building material for grave construction was significant. In this time numerous objects covered with the stone were used as floor in graves, as a material for graves and other constructions of ritual meaning.

**TH1-26 Abstract 07**

**Practical and symbolic aspects of arrowheads life cycle in Central Europe (2,500 - 1,800 BC)**

Author: PhD Kanakova, Ludmila, Masaryk University - Faculty of Arts, Brno, Czech Republic (Presenting author)

Keywords: arrowheads life cycle, Eneolithic/Early Bronze Age, practical vs symbolic

Presentation Preference: Oral

Despite the descending importance of lithic industry at the end of Eneolithic, highly attractive morphotypes – lithic arrowheads – play an important role in symbolic communication in Central European societies. The crystallizing social class of warriors was not yet defined at vertical stratification in the sense of warrior/power elites with their characteristic metal military – swords, shields, spears or armour parts. Lithic arrowheads are deposited exclusively in male graves, although other warrior equipment, such as wrist guards, copper daggers or battle axes, sometimes appear in wealthy female graves too. Arrowheads are unambiguously interpreted as a typical attribute of warriors because agricultural importance of hunting is minimal in that epoch. Nevertheless, their presence in burial grounds and settlements is low. Only a small part of male graves include arrowheads. And only a small part of them include more than a single specimen. Archery sets are not frequent. Together with other indicators – rare goods of shooting injuries on spondylus, questionable functionality of wrist guards, low percentage of diagnostic impact fracture of arrowhead tip – it makes us to interpret arrowheads as only a symbolic attribute of male warrior troops crystallizing in that turbulent times. Nevertheless, our results testify to a long practical life of the majority of analysed arrowheads from different contemporary cultures; despite the fact that the deposition of arrowheads in graves is undoubtedly symbolic. We see a cyclic operational sequence with several reparations of tip fracture, practical ergonomic-balistic features, natation, transport use and systematic care for functional condition of projectiles. This kind of manipulation is not only practical or useful. Weapons repair, sharpening, inspecting etc. plays an important role in warriors’ ritualised inter-community behaviour. Warrior grave goods are accompanied by trophy artefacts in graves of some cultures; and we can suppose that the deep symbolism of trophy game hunting was closely tied with ritualised fraternisation of members in male warrior brotherhoods.
other fragments of stones, probably primary being the part of these platforms or some kind of coffers (?) and grave goods in form of wooden or leather tools, as well as animal bones and pottery. In the upper layer there was the skeleton of aurochs. Some of the stones have traces of primary use as grinding, polishing or hammer stones, but there are also stones without any traces of use.

This paper concerns on stone artefacts from the Globular Amorphous Culture grave from Wilczycze and the possibilities of interpretation of their primary function as well as traces of its intentional "ritual use" and/or "use in rituals", on the base of the analysis of their spread in the grave, as well as macro- and microscopic features.

TH1-26 Abstract 10

The role of chipped stone artefacts in the Late Neolithic burial practice at Alsónyék (Hungary)

Author - Sályagi, Kata, Eötvös Loránd University, Budapest, Hungary (Presenting author)

Keywords: Chipped stone tools, Late Neolithic, Lengyel culture

Presentation Preference - Oral

The Late Neolithic Alsónyék–Bágszak site has an enormous extension, which reflects in large amount of stone tools (nearly 8000 pieces stone tools). This site’s chipped stone assemblage contains many long-distance import stone tools (e.g. large-size volhynian flint blades which were removed by indirect percussion). The enormous extension of this site and structured construction of the settlement and a lot of burials; these factors which we can reason the intensive intercultural connections of the Southeast–Transdanubian group of the Late Neolithic Lengyel culture. This hypothesis is not reflected from the settlement’s chipped stone tools, in contrast to the stone tools from burials These shows the raw material manipulation’s role inside the site. Based on these, we find the everyday’s ingredient tools (e.g.: blade, end-scraper on blade and end-scraper on flake) form local and regional raw materials. The long-distance raw materials made import tools from burials means the ritual sphere’s artefacts.

TH1-26 Abstract 11

Ornament biographies in amber and antler from the late Neolithic in north-western Norway

Author - PhD Henriksen, Marthe, Norwegian University of Science and Technology, Trondheim, Norway (Presenting author)

Keywords: deposits, biographies, amber, antler, Norway, ornaments, late Neolithic

Presentation Preference - Oral

In the coastal region of north-western Norway, pendants of amber constitute a characteristic element amongst the many objects deposited mainly in bogs in the late Neolithic (c. 2350-1700 BC). The pendants are of different shapes and sizes. Of particular interest are the crescent-shaped pendants that originally formed part of larger composite ornaments. These ornaments are also found in antler in the same area. This group of ornaments stand out from the other pendants of amber in terms of shape, but also by having been created and used as composite ornaments from the outset. Whether manufactured locally or imported as finished products, the amber itself had to be imported, suggesting these ornaments were highly valued items, used for expressing both interest and in the social status. Biographical analysis of Mesolithic hoarding from a rich and varied group of depositions from the late Neolithic and early Bronze Age in Norway, the crescent-shaped ornaments have been interpreted as votive offerings. However, this hypothesis does not necessarily provide the best tool for understanding the ornaments and their deposition. In the present study of the ornaments in both amber and antler, a biographical approach is applied, focusing on the relations tied to the objects during their life-course. Against this backdrop, an alternative view of the ornaments, their role in society and the final deposition is presented.

TH1-26 Abstract 12

A biographical analysis of Mesolithic hoarding in South Scandinavia

Author - PhD student Jensen, Mathias P.B., Aarhus University, Højbjerg, Denmark (Presenting author)

Keywords: hoarding, Mesolithic, ritual

Presentation Preference - Oral

Hoarding has often been characterised as a ritualised post-Mesolithic phenomenon, but when similar Mesolithic deposits are identified they are often considered ‘unique events’ and as profane caches of raw material. These Mesolithic hoards, which are often carefully arranged or bundled, contain a wide range of objects from blades, cores and debitage, to axes, beads and unusually large or unique objects. Preliminary results from this study indicate that some of the objects appear to have been produced immediately prior to deposition, whilst others appear to be well-used, and even burnt or broken. All too often hoards are just considered as an isolated event of deposition, instead of the final stage in a chain of practices that led to the act of deposition of particular objects. Without understanding the pre-depositional life history of the objects in these deposits we severely limit our interpretation of the deposits themselves, the possible pre-depositional ritualised practices that culminated in these hoards and why specific objects were deposited in this manner. This paper seeks to address the following questions: Are there any large-scale patterns or are they all idiosyncratic and isolated events? Do these deposits represent profane caches, ritualised hoards, neither or a mix? What, if any, relationship is there between the pre-depositional life history of the objects and the mode of deposition? By understanding the biography of these objects and practices we may further our understanding of both Mesolithic ritualised practices as well as the longue durée of hoarding practices in Southern Scandinavia.
of tools could have been used. Visible ornaments on the obverse and backside of the artefact differs not only in the geometrical pattern, but also differences are observed in the manufacturing of the ornaments, which shows that ornaments could have been made using different type tools, i. e. flint and/or metal implements.

Also, use-wear analysis showed that above mentioned ornaments were filled with organic pigment, which granted a multicolored brightness for the amber disc.

FTIR spectral analysis of dark substance from a pits as well as light red remnants from two scratches of ornamentation was carried out. The material possibly applied for decoration was identified to be a mixture of coniferous tree resin and probable gum, bees wax and fat, while the red traces – aluminum silicate, red ochre and bees wax. The origin of the brown yellow spot on the surface of the artefact was analyzed using both FTIR and micro Raman spectroscopy. The presence of coniferous resin and wax was identified. This investigation has proved FTIR and micro FT-Raman spectroscopy could be particularly suitable technique for non-damaging analysis of such significant archaeological objects.

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**TH1-26 Abstract 15**

Color Symbolism and its Reflection in Prehistory of Latvia

**Author** - PhD candidate Kokins, Algiers, University of Latvia; Faculty of Geography and Earth Sciences, Riga, Latvia (Presenting author)

**Keywords** - color, red, ochre, symbolism

**Presentation Preference** - Poster

There are many ways how to approach the study of history – archaeological evidences in excavation sites, dating methods, pollen analysis as well as stratigraphy of geological layers, DNA sequencing techniques for tracing migration roots, admixture analysis etc. to capture in a frame of reference physical evidences of early humans and their past. By studying physical evidence, we see close links to psychological, social and behavioral traits, as well as development of societies, evolutionary perspectives of human mind and material culture. Harder to approach are the development of linguistic capacities, cultural activities as dance and religious beliefs – cosmology and symbolism, primarily-color symbolism through prehistory. Stone Age cemetery Zvejnieki (8.-5. BCE) is closely associated with the usage of ore and processed minerals – like red ochre in burial grounds. As well as evidence for white circle structures, that point to ritualistic symbolism. Thus, the physical evidence here reflects on mental phenomena linked to early megalithic and neolithic nomadic tribes.

The archaeological site Zvejnieki was excavated in 1960, and physical evidence of the colors that were used is no longer available. However, it is still possible to study indirectly the question about the mental and physical capacities involved, in order to recreate a span in time, where such activities as coloring a deceased family member was a valuable task to do.

In the study, the first questions to answer were weather there are naturally occurring ochre sites in Near proximity from burial grounds and in such case what are the material properties of ochre color and purity of the tone. Further research was directed to find out if modification of natural ochre could take place and what could be the range of colors possible to obtain from local material. At the same time information about similar symbolic behavior in other archaeological sites were studied. During the research the ochre source minerals were found near Stone Age cemetery Zvejnieki. The laboratory analysis for characterization of the material included granulometry evaluation, color spectrum, mineral treatment in various temperatures to alter the color and different natural binders were tested. In order to compare the color variation defined by impurities in the material, iron rich minerals were collected from different parts of Latvia.

It should be noted that considerable amount of ochre color source material can be found in less than a 500 m distance near Zvejnieki archaeological site, but the colors are yellows or brown (gothish). Thus, the material was not directly suitable for the purpose of red burial. However, the experiments conducted confirm that it was relatively easy to alter color, if necessary, by treating material in temperature not exceeding heat of ordinary campfire to gain a consistent red color (hematite).

Near Zvejnieki archaeological site, but the colors are yellowish or brown (gothite). Thus, the material was not directly suitable for treating material in temperature not exceeding heat of ordinary campfire to gain a consistent red color (hematite). Furthermore, the research was directed to find out if modification of natural ochre could take place and what could be the range of colors possible to obtain from local material. At the same time information about similar symbolic behavior in other archaeological sites were studied. During the research the ochre source minerals were found near Stone Age cemetery Zvejnieki. The laboratory analysis for characterization of the material included granulometry evaluation, color spectrum, mineral treatment in various temperatures to alter the color and different natural binders were tested. In order to compare the color variation defined by impurities in the material, iron rich minerals were collected from different parts of Latvia.

Overall, it can be concluded that it is necessary to carry out appropriate documentation in burial sites where the use of colors are present, for example, the chemical composition analysis. It can help to provide a valuable insight into such fine aspects of prehistory culture as symbolism.

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**TH1-27 Abstract 01**

The Personal Value of Correspondence: Letters as material culture in Late Antiquity

**Author** - Dr. Stoner, Jo, University of Kent, Eastbourne, United Kingdom (Presenting author)

**Keywords** - Late Antiquity, Letters, Sentimental value

**Presentation Preference** - Oral

The period of Late Antiquity (approximately fourth to seventh centuries AD) has left us with a huge number of documentary texts, handwritten on paper or ostraca, and preserved by the arid conditions of Egypt and the Naar East. These documents provide a rare glimpse into late antique society, and as such modern scholarship has tended to focus on the textual contents and its value as evidence of everyday life. Consequently, documentary texts are usually considered as utilitarian and ephemeral objects, whose primary function was to communicate information, after which they were likely discarded.

However, these rare survivals in the archaeological record suggest that informal texts were extensively used and thus had a significant presence within the material culture of Late Antiquity. Therefore it is important to consider these texts as complete objects and possessions that, like other artefacts, had biographies that created meaning and subsequent value. In this paper, texts – specifically private letters written between individuals – are considered in terms of their materiality and reframed as personal artefacts with the potential for significant value beyond utility.

By focusing upon private letters, it is clear that such texts can be deeply valued personal objects. Not only do letters physically trace connections between disparate individuals, but their lifespans also have the potential to extend significantly beyond the anticipated movement from writer to recipient. As such, they can function in ways that are separate from the documentation of information. Furthermore, this paper reconsiders letters specifically as material gifts and, through reference to the theories of Mauss, Bell, Rimbach-Halton and Czikszentmihalyi, explores how their essentially handmade nature affected the creation of personal meaning and sentimental value.

The approaches taken to private letters in this paper allow these documents to be viewed once again as whole objects, treating texts with material form to provide a more rounded view of such sources. It allows focus to shift from elite and prestigious possessions that usually are at the centre of discussions of value within scholarship on this period. By assessing and reevaluating the ways in which we can look at documentary texts, we can better understand the different and often simultaneously held values present within individual objects, both from Late Antiquity and modernity.
TH1-27 Abstract 02
Are Merovingian brooches inalienable personal possessions?

Author - M.A. Sorg, Marion, Albert-Ludwigs-Universität Freiburg / Institut für Archäologische Wissenschaften, Freiburg im Breisgau, Germany (Presenting author)

Keywords: Inalienable personal possessions, Merovingian brooches, Wear marks

Presentation Preference - Oral

There is a long tradition among Central European archaeologists dealing with the Early Medieval period to see especially Merovingian bow brooches as inalienable personal possessions of the women buried with them. Although critique on this concept increased over the last decades and alternative models for interpretation have been put forward – like brooches being symbols of an identity – so far no empirical study on that question has been conducted.

The intention of my research was to investigate if we can tell from the brooches themselves whether they were inalienable personal possessions of the deceased or not. Can the theory that brooches were received at a certain age, were worn the whole life and were buried with the owner after her death, be proven? If this was really the case, there should be a clear correlation between the age at death of a woman and the degree of wear detectable on the brooches in her grave. By developing a scheme for rating the degree of wear we’ve been able to analyse a large group of Merovingian brooches of several cemeteries in southern Germany in regards to their possible correlation to the age of the bearers and their distribution patterns within the age-groups.

In addition to this I designed theoretical models on how brooches could have made their way into the graves. These models were then compared with the results of my empirical investigation on wear marks and the age of the bearers. Only models consistent with the empirical data were considered plausible and were examined in more detail.

The results indicate that Merovingian brooches were neither inalienable personal possessions, as traditional research saw them, nor symbols of an age-related role as some scholars suggested as an alternative explanation. My conclusions rather suggest that they were personal possessions which the women privileged to wear them were able to replace if they wanted, in compliance with certain rules.

TH1-27 Abstract 03
Jewels between genders: the shifting values of bodily adornment in England AD 350-700

Author - Dr. Martin, Toby, University of Oxford, Oxford, United Kingdom (Presenting author)

Keywords: Dress and identity, Early Medieval, Gender

Presentation Preference - Oral

Skillfully crafted dress accessories such as brooches and buckles were highly valued between the fourth and seventh centuries AD in Europe, and it is this value that to some extent explains frequent occurrences of graves. While their value has traditionally been considered in terms of ‘wealth’, this term has proven to carry with it connotations that are incongruous when applied to economies based more upon gifts than markets. In fact, our understanding of why these objects were valued is relatively under-developed. We might imagine that decorative and substantial personal ornaments were highly valued for a number of interrelated reasons including the materials from which they were made, the skills invested in them, the known individuals through whom the items had been exchanged, and the repeated use of these objects on a daily basis in close association with their wearers’ bodies. This paper concentrates on that final category and contends that a large part of the value of these items came from their implementation in the construction of elite and gendered identities. This usage and these values, however, were highly dynamic. In late Roman Britain exceptionally large and decorative brooches were closely associated with high status women, but by the later fifth century this had become an exclusively feminine practice. Thereafter, highly ostentatious feminine jewellery declined in the later sixth century, when a new type of gold and gemset jewellery predominantly associated with men replaced it. Thanks to recent advances in chronological research, an horizon of particularly richly ornamented female burials has emerged dating the latter part of the seventh century, which may well represent a final swing of the pendulum before furnished burial ceased entirely. This flip-flop of emphasis between the bodily adornment of men and women in graves through these centuries can tell us much not only about how these objects were valued, but also about the dynamic meanings and values of the bodies of men and women through late Roman Britain to Early Anglo-Saxon England. This paper explores these relationships in comparison with other regions in Europe including Western Frankia, southern Scandinavia and the Eastern Baltic.

TH1-27 Abstract 04
How much is that necklace in the coffin? Grave wealth and grave robbery in early medieval Europe

Author - Dr. Klevnäs, Alison, Stockholm University, Stockholm, Sweden (Presenting author)

Keywords: Artifacts, Burial, Early medieval

Presentation Preference - Oral

Grave robbery – a practice of reopening recent burials and taking objects from them – was widespread across early medieval Europe, peaking in the seventh century. Afflicted graves have been recorded in hundreds of cemeteries from eastern Austria to southern England. Their disorder and depletion contrast markedly with the carefully laid out and often lavishly furnished burial displays of the period. Many explanations have been put forward for the reopening practice, but common interpretations are that high-value artifacts or high-value reusable materials were being recovered from graves. This paper looks in detail at how objects in particular were taken from graves, using results from recent research (Taplow/graves.eu), it shows that a limited range of artefact types were taken, but that the selection was not based on raw materials or use value.

Many apparently highly valuable objects were deliberately left behind. What lies behind the selection? It will be suggested that the life trajectories which could end in graves differed significantly between artefact types, especially in the degree and nature of objects’ connections with their owners, leading to different capacities for separation of the bodies with which they were eventually buried. An argument will therefore be made for low fungibility between many fifth- to seventh-century grave-good types: different forms of possession did not necessarily bear equivalent or interchangeable forms of value. Considerable complexity needs adding to our understanding of artefact worth in this period – in particular its emergence from interactions of human and object life courses.

TH1-27 Abstract 05
‘Cheap’ bone things, games and travel – on the value of gaming-pieces in an early medieval grave

Author - Dr. Hills, Catherine, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Presentation Preference - Oral

A grave from Merovingian times, recently found by chance in Leipheim (southern Germany), revealed some small finds that give us a glimpse on the possible dichotomy between the material value of a thing and the ‘real’ value perceived by onlookers at that time. It is a single grave of a man dating roughly to the late 6th or early 7th centuries AD. Buried with weapons, a silver buckle, a glass beaker, a bridle and most prominently a horse, the man’s grave furnishings range well above average for that time and region; yet, the only outstanding finds are fourteen gaming-pieces and a die. Accessories for board games are extremely rare in the – otherwise often so richly furnished – graves of the 6th and 7th centuries in continental Europe. Also, the gaming-pieces in Leipheim belong to a type not known in southern Germany so far, with the closest parallels found in the exceptionally richly furnished burial mound in Taplow, Buckinghamshire, England. While the grave’s furnishings in Leipheim are poor in comparison to Taplow, they still allude to the same lifestyle – which is, in short and clichéd: horse-riding warriors drinking and playing board games (or maybe rather: high-ranking men entertaining guests with drinks and games). Both the context gaming pieces are usually found in, i.e. very richly furnished graves of men, and their general rarity seem to indicate board games were restricted to a rather exclusive echelon of society. At the same time, their material value can be estimated as quite low, as both the raw materials and the skills to produce gaming-pieces – even the nicely turned Leipheim and Taplow ones – were easily available. Thus, gaming-pieces highlight how value might often be not so much in the things themselves but rather in how and by whom they were used. They raise questions of where, how and from whom both the gaming accessories and, more importantly, familiarity with the concept of board games were acquired, and also whether their rarity in graves mirrors their restricted use in the living society, or only representational needs that only were relevant for some funerals. The presentation aims to explore these and also some more thoughts on where the idea of board games might have come from, and why gaming-pieces were so rarely put into graves.

TH1-27 Abstract 06
“Aumelts” in anglo-Saxon graves

Author - Dr. Hills, Catherine, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: Aumelts, Anglo-Saxon, Burial

Presentation Preference - Oral

Anglo-Saxon women’s graves of the fifth to seventh centuries sometimes include items which have been described and discussed as “aumelts”, by Audrey Meaney (1981) and others. These are not functional dress fasteners or ornaments, although they may include broken brooches, braid fittings or horse harnesses. There are also fragments of glass, pieces of Roman ivories such as crystal, chalk or animal teeth. Some elements of necklaces such as pierced Roman or Iron Age coins can also be seen in this context. Bags containing one or more of these items have been found by Fiedler (2014) to be associated with girdle-hangers, and interpreted as indications of the special status of the women who wore them: not straightforwardly social or wealth status, but relating to the role these women played possibly in connection with birth and death. This paper will look at some of these items to
see how their significance and use changes over time in different contexts, for example from a functional glass vessel to a worn broken fragment carefully kept and deposited in a grave. Questions to be asked include: what kind of “value” did these things have for the woman who were buried with them? Is the name “amulet” appropriate? Do these objects provide a link between pre-Christian and Christian burial practice in Anglo-Saxon England?


Archaeologists are increasingly focused on understanding the implications of social learning on the development of material culture. Such studies look to establish the roles of social learning, individual choice, and information transmission within cultural contexts. This study examines the contents of Blackfoot ceremonial bundles to investigate whether heritable continuity is evident in their assembly, allowing for inferences regarding social learning, cultural transmission, and transmission bias among proto-Blackfoot bundle-holders. Among the context-era Blackfoot, flexible concepts of the value of different material objects enabled individual bundle-holders to respond creatively when presented with historical, environmental, and social contingencies—and this fluidity is mirrored in ceremonial bundle materials. This study seeks to illuminate the relationships between bundle contents and their distribution in various bundle types as indicators of socially-prescribed and maintained traditions. As such, we hypothesise that rules prescribing a communal value to specific bundle contents were more or less flexible depending on the level of social significance attributed to the ceremonies connected to each bundle under the assumption that the greater the overall social significance of a bundle’s associated ceremonial practice, the more constrained bundle-holders were in the development or maintenance of particular contents. In contrast, bundle-holders in possession of bundles associated more closely with personal practice were able to embellish the contents of those bundles under less-prescribed social constraints.

The things with value. An ontological investigation

While ideas about the various and unstable meanings of value and possession as well as their situatedness have gained considerable interest within archaeology, the ontological statues of these notions remain largely unexplored. This is problematic, for the reason that it leaves us in the dark about what we are actually talking about; and, even more important, it keeps assumptions and beliefs about the nature of the world equivalent. Inspired by Deleuze, Guattari, and DeLanda, but also by Lucas, Fowler and Normark, I propose to investigate ‘value’ and ‘possessions’ not as references to other abstractions, but as concepts and as such as entities that are active parts of the archaeological record. Being entities themselves, they are connected to and interact with other entities within and outside the archaeological record (e.g. books, brooches, archaeologists, ideas, animals, pots, voices). Challenging the idea of the preeminence of human intention, I argue, that it is these relations and interactions that continuously define and redefine ‘value’ and ‘possession’.

Consequently, objects are not passive receivers or holders of worth either, nor are they indifferently imbued with ideas of value or meaning, but are (re)defined by the interactions they establish with other entities that may or may not include notions of value or possession.

Unraveling Value: Cultural Transmission Value-based Constraints among Blackfoot Ceremonial Bundles

Author - Walsh, Matthew, Aarhus University, Aarhus, Denmark (Presenting author)

Keywords: Blackfoot, Ceremonial Bundles, Cultural Transmission

Presentation Preference - Oral

In this paper we will address a number of examples from the Neolithic of Anatolia that indicate the drive behind manufacture and use of beads, and we will discuss the role of these beads in Near Eastern societies. In my paper I will present theories and estimations of value of the Greek vases for all the stages of consumption, straight from the kiln up to the present day, where they rest in museums exhibition. Give details on how these theories were created, as they often reflect different worldviews and are stretched over four centuries, as well as explain how they reflect on the studies of Ancient Greek culture. The fluctuating value of the vase not only obfuscates proper understanding and placing of object within Greek culture, but it also changes the grounds for interpreting the iconographical message conveyed in the pot. Greek painted pottery consists of enormous cluster of scenes, ranging in hundreds of thousands which are used for studies of the ancient society. The value of the item is often pivotal as it represents the social class for which these objects were made and by which they were consumed and it allows to connect certain ideology with particular set of scenes.

Materializing value in archaeological beads

Author - Dr. Millar, Holly, University of Nottingham, Nottingham, United Kingdom (Presenting author)

Co-author(s) - Dr. Baysal, Emine, Trakya University, Edirne, Turkey

Keywords: Beads, Interpretation, Neolithic Anatolia

Presentation Preference - Oral

Despite moves in recent decades for archaeology to look beyond “form” and “function” for more exotic meaning in material culture, there are categories of artifacts that are still under-studied and under-theorized in this way, such as beads. Understanding the sociocultural-economic significance of beads is obscured by their general classification, through typological assessments, as ‘ornamentation’. This implies outward-looking, visually driven social practice with decorative purpose, limiting interpretation of value and worth to societies and individuals. Beads, like any aspect of material culture, do not passively impact their meaning, yet through recognising only the visual impact of these items in archaeological interpretation, this is what we seemingly expect.

Given the potential for beads to have circulated through society in various ways, as shown through ethnographic examples, it is important that we look beyond this for interpretation of value and worth.

In this paper we will address a number of examples from the Neolithic of Anatolia that indicate the drive behind manufacture and use of beads was not often based on aesthetic consideration. The artefacts highlighted are thought to have been relatively mundane objects, manufactured on readily available materials and were not particularly visually arresting, yet their value and
significance can be interpreted from evidence of extreme cruelty, intense fear, modification and repurposing over the long

duration of the object’s existence, or, even more, on the typology of these items: their shape and a relative weight of the ‘exotic’
or economic value of material—would miss this information. Beads can be vessels of meaning, not only vessels conveying
meaning and, as material objects, beads are both cultural products and cultural producers, because of the ways in
which they may have circulated in the community, driving interaction and sustaining community links beyond visual
signalling.

TH1-27 Abstract 12

More luxury for common people than we thought before:
Asian items in medieval and later Europe

Author: Dr. Janta, Gasior H., University Bremen, Bremen, Germany (Presenting author)

Keywords: different knowledge and social environments, globalisation and global interlacing, perception of Asia in medieval Europe

Presentation Preference: Oral

For a long time the historical and archaeological research accepted the conception that items from Asia which reached the
medieval Europe were solely assigned to lordly circles. The reason for this assumption was the focus of outstanding and curious
collectors’ items in the lordly treasuries and cabinets of wonder. However the archaeological research of the last decades in
the whole of Europe adduced numerous of finds in different social environments. My contribution to the congress introduces these
types of objects and categories of objects inside their social contexts. With the increase of archaeological excavations the rate of finds
continues to rise. That’s why our conception from a perception of the eastern continent in the west changes.

Medieval users of suchlike items possessed a potential knowledge, in that case about a distant continent. Thereby it makes no
difference if this knowledge was reality or wishful thinking. Often this knowledge concentrated in lordly circles. Nevertheless
many of these objects connected with a daily nutrition. The property and frequently use of respective objects in the medieval and
later civil society was able to break through the controlling of the knowledge.

Another question weighs the aspects of a globalisation. The existing contacts of the Trans-
Eurasian exchanges until the discovery of the maritime route from Europe to India often were selective. Just a few of contacts stretched steady over the time. Most of them were unilateral, rarely bilateral. One has to question how comprehensive been these contacts inside the Trans-
Eurasian exchanges. Which regions had an amount? How tall was a mutual influencing? A higher measure of a mutual interlacing is certifiable. However the notion of a globalisation seems not quite appropriate for this period of history.

TH1-27 Abstract 13

Striking Objects: Comparing the metal used for Roman copper-alloy coinage and domestic artefacts

Author: Dr. Petar, Bray, University of Oxford, Ruislip, United Kingdom (Presenting author)

Keywords: Chemical analysis, Roman Coins, Value

Presentation Preference: Oral

Roman coinage sits at the intersection of a remarkable number of research projects. The art history and iconography of the images
stamped on the coins, and the detailed chronology they can create are both full-time specialisms. Coins are used in
detailed models of economy, trade, and exchange far beyond the geographical limits of the Empire. As a researcher who spends
much of his time studying Bronze Age metallurgy, Roman coins are an astonishing opportunity for examining pellets of copper-
alloy that are often stamped with a date, place, and value.

Due to the richness of the data immediately associated with the coins, it is sometimes hard to consider them within the
broader context of Roman metal use. This paper highlights new approaches to synthesising and characterising the large corpus
of chemical data taken from Roman coins over the last two hundred years. These approaches emphasise the flow of metal and ideas,
and the negotiated creation of value and identity. The contemporary domestic metal assemblage has been interpreted using the
same methods, which reveals close links between the Imperial control of mints and the wider availability of metal. This
work aims to contribute to the broader debate on the creation of economic and social value, as well as discuss the changing
prevalence of recycling and debasement.

TH1-27 Abstract 14

Moulding meanings. Late Bronze Age valuables
through the organisation of metalworking

Author: PhD student Sörman, Anna, Stockholm University, Stockholm, Sweden (Presenting author)

Keywords: Craft organisation, Late Bronze Age, Prestige goods

Presentation Preference: Oral

Metalwork from the Late Bronze Age of southern Scandinavia includes a wide range of high-quality prestige goods for personal
display, ritual and gift giving. The production of these highly valued bronzes is generally understood as centralised by community
elites and assumed to have been carried out at exclusive workshop sites. The investment of socio-political and religious power
into these prestige objects is thus typically portrayed as an outcome of ritualised and highly exotic specialised craftsmanship
to ritual and exclusive settings in aristocratic milieu. This reflects a common notion where exclusive objects are assumed to gain
their value in exclusive settings and through exclusive skills. However, tracing the production contexts of prestige goods in the
archaeological record shows that the manufacturing of these valuables was staged in many different ways, none of which seem
to reflect exclusive and exotic workshops sites. Looking closer at the organisation of production of valuable craft objects shows
that crafting events were staged in many different arenas. In this paper I will discuss how the organisation of metalworking can
illuminate the creation of power and value of prestigious possessions of Late Bronze Age Scandinavia beyond the assumption of
exclusive workshops for exclusive values. I will discuss how (1) the context and staging of production, (2) the intended bearer of
the object, and (3) the citation to other objects all worked as important ingredients in the act of producing powerful posses-
sions.

TH1-27 Abstract 15

Fragility and Frivolity: the perceived value of 15th-18th century glass in the Eastern Adriatic

Author: Garwood, Samantha, The University of Sheffield, Sheffield, United Kingdom (Presenting author)

Presentation Preference: Oral

Despite the fact that there was a broad selection of intrinsically valuable goods available to the wealthy during the Renaissance,
a changing relationship with art in the household meant that objects of glass or ceramic were increasingly prized for their high
level of craftsmanship, and were sought alongside gold or silver. For Venetian glass in particular, the skill of the city’s glassmakers
and the purity of the raw materials they used meant that the value of the glassware they produced was much higher than the
comparatively inexpensive cost of silica and soda ash with which the glass was manufactured. At the same time, however, the
low cost of glassware meant that members of lower classes could also afford to purchase glass vessels for their domestic use.

Unlike more durable forms of material culture circulating at the time, part of the allure of glass was its fragility and ephemerality.
Of course, this means that these objects rarely reach us today as much more than small rim fragments, and their value in their
original context is not always readily apparent. This paper will explore these ideas of value and worth through late-15th to early-
18th century glass excavated along the eastern Adriatic coast, looking at Venetian-style glass’s rise in popularity up until its
decline in public favour, and will also consider the newfound value which modern archaeologists place on these artefacts.

TH1-27 Abstract 16

More than a pleasing form of real estate:
what is a valuable textile and how do we identify it?

Author: Dr. Harris, Susanna, University of Glasgow, Glasgow, United Kingdom (Presenting author)

Keywords: Artefact, Textile, Value

Presentation Preference: Oral

Until recently textiles in archaeology were studied predominantly in terms of the technology of production and the social identity
of clothing. Lately scholars have recognised the expense of textiles in terms of labour and resources, which addresses the
question of value largely through an economic perspective. We may ask more broadly: why were textiles valued, what for, by
whom, and were some textiles valued more highly than others? This raises deeper theoretical concerns in understanding textiles
as a specific form of valued material culture. Such theoretical concerns need to be addressed in archaeological methodologies
of artefact analysis. In this paper I suggest that there are five principle ways archaeologists can recognise the value of textile
through the material record: through materials with affordances, in terms of expense and exclusivity, as artefact biographies, as
items with conspicuous, sensory appeal and in terms of fungibility. By addressing value, rather than wealth or prestige, we open
up questions as to how textiles were valued across social matrices, according to changing ambitions during the life course and
through the biography of the textile. Textile value will be explored through archaeological evidence in Mediterranean Europe from
1000-500 BC.

Keywords: Craft organisation, Late Bronze Age, Prestige goods
The Neolithic period in West Asia (c. 10,500-6,000 cal. BC) saw the appearance of the world’s first permanent, farming villages. With this development came significant changes in social structure, subsistence activities and artistic expression as villagers experimented with, and adapted to this new way of life. An enigmatic feature of Neolithic societies is the appearance of small, geometric-shaped clay objects, or “tokens” as they are more commonly known. Clay objects occur in various shapes including spheres, discs and cones, measuring c.1.50-3.50 cm. Initially appearing at a small number of sites in Anatolia, Upper Mesopotamia, the Zagros and the Levant from the start of the Neolithic period, by the Late Neolithic, clay objects are evident across the region, often found in their hundreds when present at a site. Until recently, clay objects have been overlooked upon excavation, frequently ignored, or dismissed as children’s toys, naturally occurring lumps of clay or mere doodles. More recently Schmandt-Besserat (1992, 1996) has interpreted clay objects as mnemonic “tokens”, the precursors of cuneiform writing yet their function, with imbued value and meaning; a quality which was appreciated and valued.

Schmandt-Besserat (1992, 1996) has interpreted clay objects as mnemonic “tokens”, the precursors of cuneiform writing yet their function, with imbued value and meaning; a quality which was appreciated and valued. The lack of clay object assemblage homogeneity within and across sites where they occur, along with the lack of a certain, singular and consistent function for these artefacts within the wide context of Neolithic West Asia, adds to the difficulty of artefact categorisation. Functional uncertainty leads to problems differentiating clay objects from other small artefacts made from clay, yet of a more certain categorisation (schematic figurines and labrets for example). Perceived value of archaeological finds is understood as a response to a material order established. Among the factors that generated the disequilibrium of this order and its renegotiation, we will analyse the importance borne of the distribution networks as agents of change in demand, more and more directed at new ceramic products with greater sensorial capacity. The introduction of glazed, painted pottery to the tables of the aristocracy set a new sensory aesthetic that ended up transforming the local productive horizon. An interpretative model would emerge from these considerations that explain the progressive changes to the Basque ceramic record over the Middle Ages as a chained process. First new products were imported that changed consumption patterns and then technological innovation processes were initiated that resulted in their taking root on a regional scale.

When it comes to understanding the reasons that justify this process of transvaluation of the ceramic record, we will explore the potential of the communicative value of pottery in its social context of use as a key explanatory factor. For this purpose, we will evaluate the role of pottery in the non-verbal processes of communication and its suitability in the social construct strategies of inequality. Lastly, we will evaluate up to what point the diachronic process that is produced between the capacity of social action of pottery and the adaptability of the regional production system to the new pottery types enables us to explain the nature of the medieval ceramic register in the Basque Country.

The Neolithic site of Sultana-Malu Rosu (Romania) is well known in the overall framework of the Gumelnia-Kodjadermen- Karanovo VI cultural complex (ca. 4500-3800 BC) due to the large amount of good quality pottery, among which some of the vessels are unique in terms of shape and decoration. These characteristics are the ones that assign value and special meaning for vessels according to both old and new interpretations. However, most of the pottery from this site is represented by common vessels and other thousands of shards. Also, the site formation has its own identity with the final contexts of the pottery varying from crushed sherds used as temper (grog) to whole vessels assembled in burnt houses or used in mortuary practices. The aim of this paper is to examine certain stages of the biography of various types of pottery concerning their value both for individuals and the community. Our inferences will be mainly based on the analysis of pottery related to the archaeological record. The close inspection of pottery will include provenance studies based on archaeometric analyses, identifying manufacture technologies, morphological and typological classification, wear-use analysis, and fragmentation patterns. This approach can establish certain pathways and changes in the vessels’ life, addressing various interpretations of the value and meaning of the objects at every stage of their existence.

This work was performed through the Partnerships in Priority Areas Program - PN II, developed with the support of MEN - UEFISCDI, project no. PN-II-PT-PCCA-2013-4-2302.

THI-27 Abstract 20
Interpreting Clay Objects in Neolithic West Asia: Reconsidering “tokens” as early accounting tools
Author - Dr. Barrenson-Chapman, Lucy, Bilateral Exchange University, Zonguldak, Turkey (Presenting author)
Keywords: Neolithic, Token/clay object, West Asia
Presentation Preference - Oral

THI-27 Abstract 19
The transvaluation of pottery manufactures in the Basque Country along the Middle Ages
Author - Dr. Etxebarri-Ruiz, Bérgo, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain (Presenting author)
Co-author(s) - Azkarte, Agustín, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain
Co-author(s) - Beloain, José Luis, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain
Presentation Preference - Oral

The patterns of domestic pottery production progressively changed over the Middle Ages in the Basque Country. Although some productions present since the 7th Century remained beyond the 15th Century, the ceramic record was completely transformed both quantitatively and qualitatively up to the point that the in the ceramic record of the 15th Centuries they have barely any points in common. One of the implications of this process is the change of value of the productions prevailing in the light of the introduction of new products, generating a progressive latent transvaluation in the ceramic record. Thus, the new also constantly determined the value of the old.

With this paper, we wish to characterise the transformation of the ceramic record between the 7th and 15th Centuries, understood as a response to a material order established. Among the factors that generated the disequilibrium of this order and its renegotiation, we will analyse the importance borne of the distribution networks as agents of change in demand, more and more directed at new ceramic products with greater sensorial capacity. The introduction of glazed, painted pottery to the tables of the aristocracy set a new sensory aesthetic that ended up transforming the local productive horizon. An interpretative model would emerge from these considerations that explain the progressive changes to the Basque ceramic record over the Middle Ages as a chained process. First new products were imported that changed consumption patterns and then technological innovation processes were initiated that resulted in their taking root on a regional scale.

When it comes to understanding the reasons that justify this process of transvaluation of the ceramic record, we will explore the potential of the communicative value of pottery in its social context of use as a key explanatory factor. For this purpose, we will evaluate the role of pottery in the non-verbal processes of communication and its suitability in the social construct strategies of inequality. Lastly, we will evaluate up to what point the diachronic process that is produced between the capacity of social action of pottery and the adaptability of the regional production system to the new pottery types enables us to explain the nature of the medieval ceramic register in the Basque Country.

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THI-27 Abstract 18
Valuable pots made with cheap clay.
A biographical approach of the pottery from Sultana-Malu Rosu
Author - Opris, Vasile, Bucharest Municipality Museum, Bucharest, Romania (Presenting author)
Co-author(s) - Ignat, Theodor, Bucharest Municipality Museum, Bucharest, Romania
Co-author(s) - Lazar, Catalin, National History Museum of Romania, Bucharest, Romania
Keywords: biography, Eneolithic, pottery
Presentation Preference - Oral

The Eneolithic site of Sultana-Malu Rosu (Romania) is well known in the overall framework of the Gumelnia-Kodjadermen- Karanovo VI cultural complex (ca. 4500-3800 BC) due to the large amount of good quality pottery, among which some of the vessels are unique in terms of shape and decoration. These characteristics are the ones that assign value and special meaning for vessels according to both old and new interpretations. However, most of the pottery from this site is represented by common vessels and other thousands of shards. Also, the site formation has its own identity with the final contexts of the pottery varying from crushed sherd used as temper (grog) to whole vessels assembled in burnt houses or used in mortuary practices.

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THI-27 Abstract 17
A stitch in time: Use and reuse of funerary textiles
Author - Dr. Bennison-Chapman, Lucy, Bilateral Exchange University, Zonguldak, Turkey (Presenting author)
Keywords: Neolithic, Token/clay object, West Asia
Presentation Preference - Oral

The Neolithic period in West Asia (c. 10,500-6,000 cal. BC) saw the appearance of the world’s first permanent, farming villages. With this development came significant changes in social structure, subsistence activities and artistic expression as villagers experimented with, and adapted to this new way of life. An enigmatic feature of Neolithic settlements is the appearance of small, geometric-shaped clay objects, or “tokens” as they are more commonly known. Clay objects occur in various shapes including spheres, discs and cones, measuring c.1.50-3.50 cm. Initially appearing at a small number of sites in Anatolia, Upper Mesopotamia, the Zagros and the Levant from the start of the Neolithic period, by the Late Neolithic, clay objects are evident across the region, often found in their hundreds when present at a site. Until recently, clay objects have been overlooked upon excavation, frequently ignored, or dismissed as children’s toys, naturally occurring lumps of clay or mere doodles. More recently Schmandt-Besserat (1992, 1996) has interpreted clay objects as mnemonic “tokens”, the precursors of cuneiform writing yet their function, with imbued value and meaning; a quality which was appreciated and valued.

Schmandt-Besserat (1992, 1996) has interpreted clay objects as mnemonic “tokens”, the precursors of cuneiform writing yet their function, with imbued value and meaning; a quality which was appreciated and valued. The lack of clay object assemblage homogeneity within and across sites where they occur, along with the lack of a certain, singular and consistent function for these artefacts within the wide context of Neolithic West Asia, adds to the difficulty of artefact categorisation. Functional uncertainty leads to problems differentiating clay objects from other small artefacts made from clay, yet of a more certain categorisation (schematic figurines and tablets for example). Perceived value of archaeological finds is ineffectually tied to their function, yet when a function, and even the classification of an artefact type is debated, our interpretation of an objects’ value within a particular community is easily lost. Their large numbers when present, simple shape, crude appearance and depositional patterning proves “tokens” were quickly and easily made, and disposed of as readily. Yet, Neolithic clay objects were valued, multi-functional artefacts. Even within a single site, comparable objects likely performed multiple roles (e.g. counting tools, information storage mechanisms, gaming pieces, apotropaic devices). As tools, clay objects operated with fluidity of function, with imbued value and meaning; a quality which was appreciated and valued.
This paper will address diverse “regimes of value” which were brought together by the booming medieval trade along the Volga River during the 9th-10th centuries CE. The paper will focus on how value was attributed to different goods and objects in various cultural contexts, and how fungibility of goods was fluid among different trading communities. The latter included the nomads of the Khazar Empire, the Viking Rus, and a variety of local sedentary communities, who lived along the Volga River. While we possess some textual narratives about the Volga trade, its participants, their rituals, goods, and fungibilities, archaeology speaks louder than words in terms of the meaning of value in this trade. By looking primarily at the archaeological context of medieval burial practices, it is possible to see how new means (objects and goods) were put to old ends in the process of social exchange. Namely, how items such as coins, belt sets, and beads, were circulated among the specific communities, and then taken out of circulation in the process of ritual (burial) action—and in some instances, extracted again. The aim is to show how the politics of value developed during this period of trade and affected the participating communities. The problems connected with archaeological interpretation of these processes will also be addressed.
A landscape of belief: Orkney’s medieval churches

Author: Dr. Gibbon, Sarah Jane, University of the Highlands and Islands, Kirkwall, United Kingdom (Presenting author)

Keywords: church, landscape, Orkney

Presentation Preference – Oral

Over two hundred churches were founded in Orkney in the eleventh and twelfth centuries. This paper will explore the various functions of these churches by considering them in their landscape contexts as a means of overcoming the lack of contemporary written sources relating to them.

The churches can be grouped according to three different landscape settings: proprietary churches located in close proximity to central places within settlement units (townships), isolated churches located some distance from known settlements, and churches located on prominent axial routes or isolated from settlement focus but not isolated. In addition to identifying different types of churches, some sense of chronology and religious development within the Orkney Earldom will be presented, mapping the transition from the forced conversion of the islands by Olaf Tryggvason in 995 to the creation of a urban diocesan centre, part of the newly created archdiocese of Nidaros, in 1152/3.

Chapels, Church sites and Settlement in Medieval Faroe Islands

Author - Argeo, Simun Vilhelm, Faroese National Heritage, Tórshavn, Faroe Islands (Presenting author)

Keywords: chapels, church sites, settlement

Presentation Preference - Oral

In the Faroes a group of sites has, because of their characteristics and associated placenames, been interpreted as medieval chapels - maybe even remains representing the early Christianisation process. But because of the lack of church archaeological investigations our knowledge of the Faroese Medieval church is quite limited. The paper will discuss the characterisation of the archaeological material at hand based on an ongoing project involving surveys and investigations of possible church ruins. In an attempt to understand these relics - their relation and function within the Medieval church in the Faroes - they will be placed in a settlement-historical as well as in a North Atlantic context.

Novel topographical surveys and analysis of ecclesiastical sites in the Faroe Islands

Author - Michelsen, Helgi Dal, Faroese National Museum, Høvvík, Faroe Islands (Presenting author)

Keywords: early churches, ecclesiastical landscape, North Atlantic

Presentation Preference - Oral

In the Faroe Islands there are ecclesiastical sites that by tradition or place name are associated with bannahal (Faroese for chapel). The lack of historical and archaeological data has made questions regarding the date and function of these sites difficult to answer. Nevertheless they have been used e.g. in explaining when and by whom the Christianisation was introduced. Only one of the sites has partly been excavated in the 1960s, and only two other sites had been archaeologically surveyed before 2013. To get a better understanding of the variety of ecclesiastical sites the Faroese National Museum started a surveying project in 2013. The aim is to create a platform for future archaeological work and to create a basis of comparable archaeological data to use locally and across the North Atlantic region.

The methods used in the project are a combination of topographical surveying, Georadar survey and archaeological test excavations. The topographic mapping is made by a combination of Structure from Motion (SFM) and photogrammetry. The collected data are analysed, visualised and compared in an ArcGIS environment. This paper will present the preliminary results of the project.
TH1-29 Abstract 01

Rocking the Cradle of Scotland

Author: Prof. Driscoll, Stephen, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Keywords: 3D animation, Excavation, Museum
Presentation Preference: Oral

The Cradle of Scotland was a museum exhibition generated by the 10-year long research project into the archaeology in the heart of Scotland, the Strathwamp Environz & Royal Forteviot project (http://www.gla.ac.uk/schools/humanities/research/archaeologyresearch/). Although opened at the 2015 EAA Annual meeting in Glasgow, it was intended to a popular audience which could not be expected to be familiar with technical archaeological evidence. The project was a multi period study including landscape survey and numerous excavation and has generated data spanning 5000 years. In order to engage with a range of audiences and communicate different kinds of information we drew upon a techniques including the reproduction of artefacts, the recreation of a Bronze Age burial, scale drawings of sculpture reproduced life size, 3D digital animations of sculpture scans and detailed paintings illustrating key moments in narratives of different sites.

The exhibition provided a great stimulus for interpreting the site and allowed us to work with a range of and interpretative artists, from traditional archaeological illustrators to re-enactors and digital designers. The exhibition generated a series of striking and successful representations of the discoveries. This paper provides the first public opportunity to reflect on questions about authenticity, accuracy and accessibility raised by these efforts following their exposure to audiences. This paper also constitutes a step in critical process leading to the final academic publication of the results of the study.

TH1-28 Abstract 08

Communities of death in medieval Iceland

Author: Prof. Vésteinsson, Orri, University of Iceland, Reykjavik, Iceland (Presenting author)
Keywords: church, Iceland, Medieval
Presentation Preference: Oral

In Iceland, the introduction of Christianity around 1000 AD was associated with fundamental changes in burial customs. In pre-Christian times each farm had its own cemetery but under the new custom only about a half of the farms had churches with cemeteries. Farms without a church and cemetery were as a rule those of lower status and their occupants presumably buried their dead either in their neighbours’ cemeteries or (if different) in the cemetery of their patron or landlord. Already within the first century of Christian practice the small farm-based churches began to lose their number and the twelve and thirteenth centuries are characterized by their continued decline and by increasing centralisation of functions in churches which would eventually become parish centres. The paper will explore how this development, from private to communal cemeteries, reflects fundamental changes in community organisation and social structure.

TH1-28 Abstract 09

“Small churches” in Norse Greenland – what became of them?

Author: Dr. Arneborg, Jette, Danish National Museum, Copenhagen, Denmark (Presenting author)
Keywords: Churches and church-farms, Norse Greenland, reorganisation of ecclesiastical landscape
Presentation Preference: Oral

Greenland was settled in the later part of the 10th century when Christianity had been introduced in northern Europe. Christianity was a part of the settlers’ kit, and churches and churchyards were built on the farms from the very beginning of settlement. The churches were built close to the farmhouses, and they were characterised by their “secular” architecture, small size, and a surrounding circular or sub-circular enclosure. During the 13th century the early churchyards were taken out of use, as were apparently the church buildings, and a number of farms lost their status as church farms. In the same period new and larger churches were built either on earlier church farms or on newly established ones, now adapting “traditional” church building architecture known in Scandinavia. Based on archaeological excavations of “small churches” 2001 – 2010 I will explore the changes in Norse Greenlandic church building in the context of ecclesiastical and community organisation.

TH1-29 Abstract 08

VISUALIZING THE PAST.
EXPLORING MEANINGFUL APPROACHES IN INTERPRETING THE ARCHAEOLOGICAL RECORD THROUGH ILLUSTRATIONS AND RECONSTRUCTIONS

Saturday, 3 September 2016, 09:00-13:00
Faculty of History, Room 332

TH1-29 Abstract 01

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The exhibition provided a great stimulus for interpreting the site and allowed us to work with a range of and interpretative artists, from traditional archaeological illustrators to re-enactors and digital designers. The exhibition generated a series of striking and successful representations of the discoveries. This paper provides the first public opportunity to reflect on questions about authenticity, accuracy and accessibility raised by these efforts following their exposure to audiences. This paper also constitutes a step in critical process leading to the final academic publication of the results of the study.

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TH1-28 Abstract 09

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Keywords:
- Hall, Derek, Stirling University, Perth, United Kingdom (Presenting author)
- Oral
TH1-29 Abstract 02

Reconstructing the Past

Author: BA Gerrit Jako, Sjipj, Reinwardt Academy, Utrecht, Netherlands (Presenting author)

Keywords: Archaeological reconstructions, Museological theory, Open air museum

Presentation Preference - Oral

One way in which archaeology can reach back and experience some parts of ancient life is through attempts to reproduce former conditions and circumstances. By using reconstructions, visitors of archaeological open-air museum can experience what the meaning and importance of these objects was for their original creators and owners. Spread throughout Europe, there are about 200 archaeological open-air museums that have these kind of reconstructions forming their main collection.

This research will give an insight into the different types of archaeological reconstructions. This can occur both in physical form and in intangible form. Each different form has its own character and method for transferring the knowledge of the past to the public. Every form has its own function or significance, and some forms are more complete than others.

Often these reconstructions are necessary to make the information of the original such as drawings and plans are understandable for visitors. This is due to the visitors often not being able to interpret the information themselves. 

The presentation in form of reconstruction can, moreover, convey a sense of realism, since not only sight but also other senses are triggered during a visit to a reconstruction.

An archaeological open-air museum is a permanent non-profit institution. This is characterized by outdoor true to scale architectural reconstructions and representations of how people lived and acted in the past. It holds collections of intangible heritage resources and provides an interpretation of how people lived and acted in the past. This is accomplished according to sound scientific methods for the purposes of education, study and enjoyment of its visitors. Visits of the archaeological open-air museum get, because of that a specific view on the past, a very specific story told about the daily life of everyday people.

In this research creates a basic foundation for developing a new museological theory of archaeological reconstructions. The ultimate goal of this new theory is to improve the quality of the presentations of reconstructions in archaeological open-air museums, by creating a link between general museological theory and archaeological open-air museums.

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TH1-29 Abstract 03

Turves and trusses: reconstructing an early medieval building tradition in the northern Netherlands

Author: M.A. Postma, Dani, Groningen Institute of Archaeology, Leiden, Netherlands (Presenting author)

Keywords: Methodology, Netherlands, Reconstructions

Presentation Preference - Oral

Archaeological reconstructions of excavated buildings are becoming a common feature in many countries throughout Europe and beyond. The value of such structures for communicating ideas about past life can even a more sustainable modern lifestyle is born out by the fact that many have been built in open air museums or open (freely accessible) landscape settings. In professional archaeological reports too, reconstructions or reconstruction drawings to be precise, help to convey the archaeological message to a larger audience. But what exactly is this message? And how do we ascertain its academic quality?

This paper is not intended to simply repeat best practices in making reconstructions based on archaeologically excavated building remains; these points have been outlined and discussed on numerous occasions before. Instead, the question is raised why these reconstructions seem so often to be adhered to in practice. Perhaps museums prioritise different criteria than academic building research? Perhaps academic researchers lack sufficient knowledge and experience regarding ancient building techniques? And from this: should we not distinguish more clearly between different kinds of reconstructions, each aimed at different kinds of purposes? These are and may remain rhetorical questions; the concern of this paper is with demonstrating that 'playing by the rules' will indeed increase our understanding of past architecture.

Recent settlement research in the northern Netherlands has given a central role to a structural approach in studying previously excavated house-plans. The primary aim of the project was to establish how the region's early medieval turf-walled buildings were constructed and how their architectural development can inform us about greater societal changes. However, generally accepted ideas on the limitations of turf construction and quality requirements for structural timbers were at first found not to tally with the details of the often well-preserved turf house fragments. A more systematic approach of the data was deemed necessary for outlining and explaining the typology, use, technique, design and context of these buildings.

It will be demonstrated that early medieval turf and timber buildings in the north of the Netherlands were both of a fundamentally different design than previous, less encompassing investigations have suggested. A new series of reconstruction models was developed on the basis of in-depth preparatory research, different assumptions (e.g. on stability requirements), new ethnographic analogies, reasonable chronological depth and a greater geographical range. The resultant model for an 'average' early medieval farm building is now characterised, in short, by fully stable arch-shaped trusses rather than the well-known but instable (non-braced) rectangular trusses. In the treeless salt-marsh area along the coast, thick clay turf walls served as load-bearing elements, whereas common belief would generally not allow for such a structurally demanding use of turf blocks. It is hoped that this case study will help raise awareness of the possibility that our views on past architecture may still be subject to radical new interpretations, which is something to bear in mind for future visualisations and reconstructions, regardless of their purpose being educational, generally informative or academic.

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TH1-29 Abstract 04

Using Archaeological Reconstructions for Outreach and Community Engagement

Author: Dr. Thomas, Ben, Archaeological Institute of America, Boston, United States of America (Presenting author)

Keywords: Archaeological Reconstruction, Community Engagement, Outreach

Presentation Preference - Oral

It has become increasingly more common, when presenting the results of archaeological projects, to include some form of digital or physical reconstruction of the artifacts and features uncovered at the sites. These reconstructions range from three-dimensional replicas of objects and buildings to virtual museums and exhibits. In this presentation, using information drawn from site preservation projects supported by the Archaeological Institute of America (AIA) in Balboa, Cyprus, Guatemala, Jordan, Turkey, and the USA, the author will present six examples of how reconstructions, both digital and physical are being used to present archaeological information both to a local and global audience. The paper will also discuss how the projects are using archaeological reconstructions to inform and educate local communities about the significance of the sites and to engage them in the preservation and protection of the sites.

TH1-29 Abstract 05

The Reconstruction of three Roman Houses at the Archaeological Park at Xanten (Germany)

Author: Dr. Kienzle, Peter, LVR Archäologischer Park Xanten, Xanten, Germany (Presenting author)

Co-authors: Muggler, Mario, LVR Archäologischer Park Xanten, Xanten, Germany

Keywords: Experimental Archaeology, Presentation, Reconstruction

Presentation Preference - Oral

In Roman times the Colonia Ulpia Traiana (CUT) located in the lower Rhine area of Germany was second only to the provincial capital Colonia Claudia Ara Agrippinensium (Cologne) in Germany inferior. In the late 1960s the extent of the Roman city was known and large areas of the Roman city were used by agricultural means. However, some parts of the archaeological site were scheduled to become an industrial estate. To prevent further destruction the Archaeological Park at Xanten (APX) was founded in 1973 at the site of the Roman Colonia Ulpia Traiana to protect and to present the remains of this major Roman city.

The APX employed physical reconstructions as one of several methods to explain the importance of the site and the Roman past to a wider audience. From 2007 to 2014 three Roman houses were reconstructed in the eastern quarter of the Colonia at the original site of the excavations. Strong emphasis was put on a careful protection of the historic remains with elaborate foundation methods. The reconstructions were executed in rammed earth technology and timber framing particle walls reflecting the building methods of Roman times in the lower Rhine area. The roof was covered with replicated tiles produced in a wood-fired kiln. Many materials and building techniques from Roman times were studied and re-invented for its practical use. The aim of the reconstruction work was to get as close as possible to the Roman original building methods in order to understand the ancient construction processes and the time and knowledge necessary to execute the work.

The scholarly results of the building process will be published while the physical reconstructions will serve the visitors to learn more about the Roman past, the ancient building technologies and modern conservation methods and will serve the scholars to learn more about the long-term performance of the building materials and construction techniques from the Roman period.
The "Arty" Way - Dutch Approach to the Presentation of Archaeological Heritage

TH1-29 Abstract 06

Author: Dr. Kolen, Marc, MARC heritage consultants, Bemmel, Netherlands (Presenting author)

Keywords: Interpretation, reconstruction, visualization

Presentation Preference - Oral

Aim of the paper is to present a new approach in the Netherlands and discuss its pros and cons with the international community in order to contribute to the ICOMOS Debate on Permissibility and Standards for Reconstructions of Monuments and Sites and to answer some questions asked in the session proposal.

Early 2013 an online survey was presented by the ICOMOS ISC ICP to gather information within the ICOMOS community to start a debate on permissibility and standards for reconstructions of monuments and sites. This debate was called upon during the 17th ICOMOS General Assembly in Paris noting the increasing disregard of existing theoretical principles for the justification of reconstruction, and a move towards significant commercialization of reconstruction activities.

To contribute to the debate, I will present the Dutch approach on the subject of reconstruction with a specific focus on the archaeological heritage.

In contrast to most European countries, there is in the Netherlands no tradition in physically reconstructing archaeological sites due to the lack of visible archaeological substance.

In 1999 a National policy document examining the relationship between cultural history and spatial planning, was presented. Under the influence of this policy, progress was made to present the archeological heritage to the public. Due to the lack of visible substance a more artistic approach developed - with landscape, architects, designers and planners in the lead - that can be described as the "arty" way of reconstructing/presenting the archaeological heritage on site. In the context of this paper I will elaborate some examples of third dimensional outdoor presentations in combination with in situ conservation of archaeological remains, such as House Moerenburg in Tilburg.

These examples show an innovative design that makes the archaeological heritage both physically and mentally livable and adds to the identity, social significance and contemporary use of the place.

Two important lessons learned for success: there has to be a multi-disciplinary and participatory approach during the whole process in which heritage experts play a significant role, and Dilemmas - such as What past to present?, Where to put the emphasis, in the preservation of architectural values or in the development of a place? Whose interest is being done right and to what extent? How much authenticity may be lost?, should be discussed at the beginning of a project.

Illustrating 8,000 years of environmental change and human impact in the Areuse River Delta

TH1-29 Abstract 07

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Keywords: environmental change, human impact, reconstruction drawings

Presentation Preference - Oral

The delta of the Areuse River lies between the foot of the Jura Mountains and the north-western shore of Lake Neuchâtel in Switzerland. The crossing operations were carried out there between 1995 and 1998 prior to the construction of the A5 motorway. Before this, knowledge about human history and palaeohydrology in the delta was very limited. After preliminary soundings proved positive, a major research programme was set up that involved a team of some twenty archaeologists and specialists from the earth and life sciences. Test-pitting and trenching across two-thirds of the width (1.3 km) of the upstream part of the delta, followed by excavations and the detailed documentation and sampling of the complex stratigraphies, have revealed a remarkable history of alluvial change and human occupation that covers the last 11,000 years. Over forty palaeochannels have been identified, dating from the Preboreal (c. 9,000 BC) to the post-Medieval period, and since the Middle Neolithic most channels were found to contain archaeological remains.

Five reconstruction drawings representing the alluvial plain of the Areuse River during the Older Atlantic period, the Middle Neolithic, the Late Bronze Age, the Roman period and the Early Medieval period were created in order to illustrate the synthesis of the interdisciplinary study. The aim of these drawings is to visualize the evolution of environmental change and human impact in the study area over a period of 8,000 years. The presentation will focus on the criteria applied during the preparative phase of the drawings to select the archaeological periods to be portrayed and the choices made relating to the depiction of such features as angle of view, geographical scope, season, types of vegetation and human activities. In addition, the underlying environmental and archaeological data taken into account will be discussed as well as the issues of uncertainty and interpretation pertaining to these data, or absence of information. Finally, the composite drawing techniques used for the creation of the illustrations will be explained.

Virtual communication at the great medieval Castrum Tunsbergis

TH1-29 Abstract 08

Author: Archaeologist Gustavsen, Cecilia, Stottsfjellsmuseet, Tønsberg, Norway (Presenting author)

Co-author(s): Faire, Lena, Stottsfjellsmuseet, Tønsberg, Norway

Keywords: Digital communication, interpretation, Reconstruction

Presentation Preference - Oral

Støttsfjellsmuseet, a museum in the medieval town Tønsberg in Norway, is participating in a working group that will improve, renew and develop the well-known archaeological site "Castrum Tunsbergis". This year's runs have few information spots, and the audience often don't know what the place has been like. Støttsfjellsmuseet have made an agreement with sponsors about presenting the sight through virtual reconstructions and other sorts of digital presentations like AR (Augmented reality), role playing games and a museumApp using beacons technology connected to the site. In 2013 we made our first digital reconstruction of the castle of how it could have looked like in 1372 AD. New results from geophysical methods show new structures on the site, which is of interest for future reconstructions. In this paper, we will discuss the advantages and drawbacks by virtual presentations in the light of our archaeological site, Castrum Tunsbergis.

The Art of Perception in Archaeological Visualisations

TH1-29 Abstract 09

Author: Wilson, Kelvin, Kelvin Wilson, Ridderkerk, Netherlands (Presenting author)

Keywords: Illustration, interpretation, phenomenology

Presentation Preference - Oral

When in the year 79 violent tremors pointed to something big about to happen near his house on the Gulf of Naples, Pliny the Younger nevertheless continued reading his book - and in the heat of the day, dozed off. It is a rather mundane reminder that our view of history finds direction by what we think important, yet that even past lives were lived by individual - and to past people, very present - concerns.

Most of the smaller human experiences of the past seems lost to us, yet other sensations are thought tied to places, and are recreated in landscapes and architecture. Indeed, a building may successfully copy plenty of details of this past design. Yet an enthralling visitor could have only ever had one perspective: a building's interior scale determined by its walls, the appreciation of its exterior too often by the weather (and one person never under the spell of both at the same time). A fine Roman visiting hislocal bathhouse at the end of the day would need to know where to store his clothes, hope to find a seat in the crowded steam room, and be able to find a sponge - and not at all ponder the mechanics of the floors and drains as a present-day archaeologist might do first.

Phenomenology, or sensory interpretation, was suggested over twenty years ago by professor Christopher Tilley as a useful technique in helping understand ancient sites. Though understandably considered subjective, the same is now well understood to be undermining its very opposite: reconstructions made to the dictate of data. To bring the two opposites together - whether in full-scale architectural visualisations, as reconstruction art in the media, or in future multidimensional developments - the central issue is to ask a plain question: "what did one need to know?".

There are instances where the answer has altered the interpretation of the archaeology - bringing back the focus to what might have truly occupied the mind of a person in the past, or merely pointing out the best place he might have left that sponge.

The discrepancies between visualisations, with on one side multi-period sites being 'read like a plan' and reconstructed accordingly, and opposite the 'one moment at a time' view visual artists may help re-experience, were discussed in a series of English Heritage-funded workshops and conferences at the University of Southampton. This paper expands on statements and case studies made by the author there and in follow-up meetings.
Interpreting the Archaeological Record

TH1 Interpreting the Archaeological Record
TH1 di Padova, Padova, Italy

The present study reflects the results of a multi-level forensic analysis of archaeological written records, archaeological field data (pre-2000 and post-2000), and competing interpretive models (pre-digital and digital) relating to the colonial urban outpost of Ksar es-Seghir (Morocco). The primary written record baseline was extracted from a fresh critical paleographic reading (edition forthcoming) of the protocol of survey recorded in 1514 CE by a Crown-appointed team of Portuguese architects, administrative agents, and military engineers (Arquivo Nacional da Torre do Tombo (Lisbon). Nazario Antigo 769). This baseline material was then set in the context of all other relevant written records, structural proposals, funding appropriations, Crown instructions, and other documents (1458 - 1549) germane to spatial and structural modeling of the locality. For broader context, the results were correlated with an area-wide (Strait of Gibraltar) analysis of related sites (partly forthcoming as “Keys to the Strait: Fortifications in the Strait of Gibraltar from Abu Yaqub Yusuf to Abu al-Asan ‘Ali”, in Stéphane Pradines, ed., Architecture militaire du littoral, de la conquête Arabe à l’Empire Ottoman (Cairo: IFAO, 2016) and partly published as “Contours of Battle: Chronicles, GIS, and Topography-A Spatial Decoding of the Portuguese Siege of Tangier, September to October 1437”, Portuguese Studies Review 21 (2) (2013, rel. 2016): 1-135 (Portugal and its Empire, 1128-1809: A Volume of Papers in Honour of Francis Dutra J.). The resulting dataset was correlated, iteratively, in detail, and from a variety of critical perspectives, with data generated by past archaeological projects (1970s and 1980s) that had commenced with the 1974 field season, as well as with data resulting from the post-2010 resumption of work at the site under the auspices of CHAM / Escola de Arquitectura da Universidade do Minho and of the Direction of the long-run inter-disciplinary research covering Ksar es-Seghir. The goal was to shed light on the variety of processes possible omissions, likely flaws, or failures of coherence detectable in existing models of the locality (Ksar es-Seghir) as products of the long-run inter-disciplinary research covering Ksar es-Seghir. The goal was to shed light on the variety of processes through which diachronically cumulative errors of interpretation or modeling traps may arise. The conference presentation seeks to highlight issues of methodology and procedure, particularly with regard to interpretation, reconstruction, and resulting overall visualization.

TH1-29 Abstract 10
As Planned, as Built, as Found: Reconciling Written and Field Records at Ksar es-Seghir (Morocco)

Author - Elisi, Martin Malcolm, Portuguese Studies Review / Baywolf Press, Peterborough, Canada (Presenting author)

Keywords - Islamic, Portuguese, Morocco, Ksar es-Seghir, methodology, reverse mapping, GIS, validation of data

TH1-29 Abstract 11
Reconstructing the Form of Late Neolithic Rondels

Author - Dr. Řízek, Jaroslav, Institute of Archaeology CAS, Prague, Praha, Czech Republic (Presenting author)

Co-author - Vareška, Petr, Institute of Archaeology CAS, Prague, Praha, Czech Republic

Keywords - Enclosures, Neolithic, Virtual reality

TH1-29 Abstract 12
From archaeology to the restoration: the reconstruction of tile stoves in the New Jerusalem

Author - Glaunina, Olga, Institute of Archeology of RAS, Moscow, Russian Federation (Presenting author)

Keywords - 17th century, New Jerusalem Monastery, the reconstruction of tile stoves

TH1-29 Abstract 13
3D modeling, RTI: non invasive and non contact methods for documenting a stamped amphora from Padova

Author - Torei, Francesca, Università di Padova, Padova, Italy (Presenting author)

Co-author(s) - Ceres, Filippo, Università di Padova, Padova, Italy
Co-author(s) - Galeazzi, Gian, Università di Padova, Padova, Italy
Co-author(s) - Vielli, Danilo, Università di Padova, Padova, Italy

Keywords - 3D modeling, open-source, RTI

Presentation Preference - Poster

This work aimed to develop a non-invasive and non-contact approach for studying a stamped Dressel 6B amphora from an urban excavation in Padova (Italy). We created a 3D model of the amphora using two methods of acquisition, laser scanning and photography, and processed with an open source 3D modeling software (MeshLab) and an image-based 3D modeling software (Agisoft Photoscan). Then we focused on the stamp on the rim of the amphora, taking a number of vertical photos to be processed with the open source software RTI Builder. We got a PTM file viewed with the RTIViewer, which permits to observe the images using various rendering modes. The realistic and measured 3D model of the amphora let archaeologists to analyze diagnostical parts, i.e. handles, neck, rim, the position and dimension of the stamp, in typological and technological researches. Moreover, the RTI image permits us to get a clear image of the shape and the letters of the stamp, useful for who is carrying studies on stamps and amphora workshops, without handling the object.

Further applications for both 3D models of amphorae and RTI images of stamps might be the creation of open online databases of amphorae and stamps from the Mediterranean; measured and scaled reproductions of amphorae using 3D printers, to be used for archivological creation in museums or schools.
EVALUATING THE IMPORTANCE OF OSSEOUS TOOLS IN THE EARLY HOLOCENE: A EUROPEAN PERSPECTIVE

TH1-30 Abstract 01
Evaluating the importance of osseous tools in the Early Holocene
Author - Groß, Daniel, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany (Presenting author)
Co-author(s) - Colas, Nanterre Cedex, France
Keywords: Early Holocene, introduction, osseous tools
Presentation Preference - Oral

Organic tools are an important aspect of prehistoric societies, especially in the Stone Age. Therefore the analyses of these can give deep insight into people's typological and technological constraints such as behaviours. Being widely available in hunter-gatherer communities osseous materials have to be considered as one of the main resource for tool production in the past.

However, in a European scale, the discovery of objects made with bone, antler and tooth is very irregular. Obviously, these contrasts are related to taphonomic issues but also to economic and cultural aspects.

The session "Evaluating the importance of osseous tools in the Early Holocene: A European perspective" is meant to deal with a wide range of topics related to the analyses of osseous material. Apart from classical approaches, especially technology and typology, we would like to integrate the results from other disciplines and approaches to discuss from a European perspective. For instance, archeozoology or use-wear analyses on bone and lithic tools can also be considered as crucial to a better understanding of the role osseous industries played in Early Holocene communities. This session will also be the occasion to debate taphonomic issues and various contexts of discoveries which influence the archaeological visibility of this group of tools. Consequently we encourage researchers to address these and comparable questions from their own perspective and contribute to our session.

TH1-30 Abstract 02
Evolution in bone exploitation during the Late Mesolithic at Zamojszę 2 (Russia)
Author - Teulot, Julien, Panthéon Sorbonne University, Champagne au Mont d'Or, France (Presenting author)
Co-author(s) - Lozovskaya, O.V., Institute for the History of Material Culture RAS, St Petersburg, Russian Federation
Keywords: Bone technology, Central Russia, Mesolithic
Presentation Preference - Oral

In Central Russia, perhaps more than in other places in Europe, bone industries are one of the most important components of the last hunter and fisher communities. During the Late Mesolithic (7000-6000 B.C.), bone equipment holds an essential place in the everyday life of these societies (Lozovski, 1998, 1999; Xunne, 2001). Nonetheless, a more technological approach has to be undertaken, and the characteristics of the technical traditions linked to the bone equipment have to be detailed. The material connected to the elk (Alces alces) deblage at Zamojszę 2 offers the opportunity to do so (Lozovski et al., 2013; Lozovski et al., 2014). Throughout this period, communities mainly hunted elk (Chay, 2003, 2009). Their skeletons were then used to produce blanks. However, according to the way of life of these groups, they seem to gradually change their technical features by stopping to use breaking by direct percussion for the benefit of breaking by indirect percussion and grooving techniques. This aspect should be discussed interesting technical evolutions between the first and the second half of the Late Mesolithic, via a more important management of the osseous production. By comparing this data to other categories of material, it is possible to observe some fascinating technical and economical shifts around 6500 cal. B.C which in turn illustrate some conceivable social evolutions at this time.
TH1-30 Abstract 05

Time after time - First results of typochronological analyses at Hohen Viecheln, Germany

Author - Dr. Groß, Daniel, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany (Presenting author)
Co-author(s) - Lübke, Harald, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany
Keywords: bone tools, Early Holocene, radiocarbon dating
Presentation Preference - Oral

Excavated in the 1950s, Hohen Viecheln 1, Lkr. Nordwestmecklenburg, is one of the most striking sites of the early Mesolithic in the North Frisian Lowlands. The abundance of finds and good organic preservation characterise the site, which is located north of Lake Schwerin in eastern Germany. Among German scholars, Hohen Viecheln is ranked alongside Bedburg-Königshoven, Fraschek, Duvensee, Muerup, and Star Can, but internationally it usually is not accorded this significance. This relative obscurity seems even more surprising, given the abundance of finds made from different raw materials, but it is grounded in the site’s research history.

In this presentation we will present first results of an ongoing research project on Hohen Viecheln which aims at clarifying the position of the site within the Mesolithic and add valuable chronological and technological information to the understanding on osseous tool development in the Early Holocene. The re-evaluation also allows the accurate dating of the numerous bone points, for which the site is known.

The modern re-evaluation also renders possible to solve problems on the stratigraphic sequence. Due to the fact that the site represents a former shore area of the modern Lake Schwerin its stratigraphic sequence with different layers of peat, sand and gyttja is typical for overgrown lakes. The direct dating of several artefacts therefore allows us to understand when different areas were settling up.

TH1-30 Abstract 06

Not that simple! A debate about the apparent decrease of bone tools in the Paris Basin Mesolithic

Author - Post-doc, Guéret, Colas, Nanterre, France (Presenting author)
Keywords: Bone industry, Mesolithic of Paris Basin, use-wear analysis of lithic tools
Presentation Preference - Oral

In contrast to the Upper Palaeolithic period, it is widely admitted that bone industries have played a minor role in the economy of Mesolithic societies of Northern France. This fact is based on the scarcity of osseous tools and débitage waste discovered in the sediments and the spectacular decrease of lithic burins and borer generally associated with bone and antler working.

Nevertheless, for a long time, the archaeology of Mesolithic in Paris Basin has only excavated dry-land contexts where organic materials were not preserved. Since 30 years, rescue archaeology has allowed us to discover well-preserved sites in the valleys: evidence of bone industries are now increasingly numerous, even if the data still remain occasional. In addition, in the last few years, the development of use-wear analysis of lithic tools give us new informations about the place occupied by osseous materials in the economy of Mesolithic groups. This communication will be the occasion to make an assessment about the available data from bone technology, archaeozoology and use-wear analysis. When all the approaches are brought together, the place occupied by bone tools seems to be a more complicated question than previously thought. Taphonomic issues, as well as mobility patterns of Mesolithic tribes, have to be considered in order not to under-estimate the role of antler, bone and teeth in the daily life of hunter-gatherer communities. Finally, we will compare the situation of Northwestern Europe with neighboring regions, in particular to the Maglemosian techno-complex, well known for its abundant bone industry.

TH1-30 Abstract 07

The use of osseous raw material of Vlakošte cave (Croatia)

Author - Radovčić, Sinisa, Croatian Academy of Sciences and Arts, Zagreb, Croatia (Presenting author)
Co-author(s) - Vitezović, Selena, Institute of Archaeology, Belgrade, Serbia
Co-author(s) - Vujević, Dario, Department of Archaeology, University of Zadar, Zadar, Croatia
Presentation Preference - Oral

Vlakošte cave is located on Đugi Otok (Long Island), situated in the northern Dalmatia. Systematic archaeological excavations revealed rich stratigraphic sequence from the Late Upper Palaeolithic to Mesolithic. Excavated deposits yielded tens of thousands of vertebrate remains, mostly skeleton remains of large mammals. Considering the amount of available osseous materials it is natural to expect correspondingly high amount of tools made of bone, teeth and antler. Here we integrate results of archaeological analysis and the study of osseous tools. Raw material selection, technological and typological aspects were analysed. Availability of skeletal elements is compared with raw material choices. Recovered bone and antler tools show very little typological diversity between Epigravettian and Mesolithic layers. However there are some interesting small-scale temporal trends (e.g. retouchers and haubings are almost exclusively present in older deposits). Authors debate this pattern in tool production as the reflection of environmental and subsequently subsistence changes corresponding to availability of targeted animal taxa.

TH1-30 Abstract 08

Osseous tools in the Mesolithic and Neolithic in the Iron Gates

Author - Dr. Selena, Vitezovic, Institute of Archaeology, Belgrade, Serbia (Presenting author)
Keywords: bone technology, Iron Gates region, osseous raw materials
Presentation Preference - Oral

Osseous artefacts were very important in everyday lives of prehistoric communities, especially before the invention of metallurgy. However, they were long neglected area of study, particularly in some regions of Europe. For the Early Holocene period, the region of the Iron Gates is particularly interesting, because the presence of both Mesolithic and Early Neolithic sites enables analyses of traditions and innovations in raw material selection, technological choices, etc. Relatively rich finds were published in more detail for the sites in Romania. This paper will focus on the Mesolithic and Neolithic sites from Serbia (Kula, Veleusica, Križapâle, etc.). Technological and typological data will be discussed: raw material selection, manufacturing techniques, etc. Antlers were the dominant raw material in Mesolithic period and their importance continues into the Neolithic. The paper will be the occasion to make an assessment about the place occupied by bone tools in the Paris Basin Mesolithic

TH1-30 Abstract 09

Post-depositional alterations on the bone surfaces – experiments with different agents of abrasion

Author - Mgr Orłowska, Justyna, Nicolaus Copernicus University, Toruń, Poland (Presenting author)
Keywords: bone and antler, experimental archaeology, taphonomy
Presentation Preference - Poster

Taphonomic issues are one of the most important factors that must be concerned during study of every archaeological bones or osseous artefacts. Especially, if our analysis is subordinated to technological or use-wear traces. Identification of human or nonhuman modifications is then crucial. Weathering, trampling, tooth marks, root etching or sedimentary abrasion are just the examples of possible nonhuman destroying agents. The main goal of presented study was to understand and describe changes resulting from the different kind of sedimentary abrasion (among others bioturbation and movement in an aqueous setting) on the bone surface. The experiments related to the study have been divided into two main parts. One was connected with modifications observed on raw bone surfaces. The second one, with degradations raised on processed bone surfaces (among others scraped, polished) and their possible influence on the morphology of observed traces.

TH1-30 Abstract 10

A replication of Neolithic bone harpoon with engraved concentric circles from Šventoji, W Lithuania

Author - Gaižauskas, Lukas, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: bone working, experimental archaeology, Stone Age
Presentation Preference - Poster

This poster presents an experimental study which was designed to replicate the manufacture of a bone harpoon with a certain type of engravings using only the tools and materials available for the Subneolithic societies at the environmental setting of the eastern Baltic. The harpoon with a pattern of concentric circles engraved on it was found at the site Šventoji 6, which is a refuse/waste area in the bed of an ancient lagoonal lake and is dated to the end of 4th millennium BC. While concentric circles were widely used to decorate bone and antler tools and ornaments in different chronological and geographical contexts, there are no analogies for the find from Šventoji 6 from the same period even in the neighbouring regions. The problem is that this type of engraving is mostly associated with metal tools, which could have appeared in the region only in the Bronze Age, after 2000 BC. The foreign origin of the harpoon with concentric circles is confirmed by another find from the same site - a worked piece of bone, on which the manufacturer tried to imitate the same decoration of concentric circles, but instead produced polygons with a dot in the center, which look nothing like the engravings on the harpoon. However, a clue for the engraving of concentric circles before the appearance of metals comes from a certain type of Neolithic stone tools in North America, the single- and double-scribe compass groovers. It is my attempt to try to replicate the harpoon using similar stone tools and then compare it to the production of the same artefacts using metal tools.
**TH1-31 Abstract 01**

**On the nature of Baltic impact in elaboration of eastern European enamel style in Dniepr region**

**Author** - Dr. Khomiakova, Olga, IA RAS, Moscow, Russian Federation (Presenting author)

**Keywords** - Eastern European enamel style

**Presentation Preference** - Oral

Lecture reviewed a problem of Baltic impact in formation of eastern European enamel style in Dniepr region. It can be considered by the analysis of stylistic and jewelry tradition. Multiple elements inspired by artifacts made in Roman provinces. Central European cultures and Baltic lands can be seen in morphology and decoration of ornaments from Central Dniepr: s.a. strong profiling, openwork ornamentation, filigree. A variety of artifacts: laminar neck-rings (headbands), bracelets, fibulae have been decorated by ornament, made by punches, stamps, chisels. 

- Strong profiling elements are applied in production of fibulae of type I by G. Korzuhina and T-shaped crossbow fibulae. 
- In O. Olomskii’s and R. Terpilovskii’s view their origin is connected with forms of Almgen group IV fibulae. 
- The morphology of the body and tail narrow-width form of the comb most probably are close to fibulae of group IV of B2 period from Southwest Baltic, and forms relevant to Lithuanian territories in B2 and B2/C1 periods. Series of bracelets from Baltic lands dated to the same period are supplied with narrow-width formed combs. Drinking horns were furnished with strong profiling endings.

Openwork elements in decoration of enamel S-shaped fibulae, elements of pectoral ornaments, chains of drinking horns, lunula pendants from Central Dniepr associated by similar ornamental motifs close to opus interrasile stylistic. Closest analogues these elements with geometrical motifs find in contact zones of Baltic lands, in artifacts dated to the beginning and the mid-3rd century. Artifacts supplied with openwork ornamentation and strong profiling elements find sustained conjunctions in dress both in Dniepr region and Baltic lands.

In decoration of enamel artifacts from Dniepr jewelry technique with imitation of granulation and filigree has been used. Combs of drinking horns, lunula pendants, chains of drinking horns are ornamented with punches and stamps. It could be an inspiration of Baltic artisans, who elaborated a peculiar variation of “filigree”-style of 2nd century. A range of imitations of filigree ornaments are found in the Middle Dnieper region and on the Dniepr left bank. Perhaps, it is connected to the European culture influence. According to peculiarities of shape and ornament the array of “diadems” was divided into three main and two additional types. Their mapping shows that the main types are local. All copies of the type 1 come from the Baltic region, mainly from the territory of modern Lithuania. Most of the type 2 finds are connected with Upper Oka and the Desna region. The exceptions are a few items from the Upper Sula and the Lower Dnieper regions, which may mark the direction of cultural influences from the eastern part of the East European forest zone to southern forest-steppe and steppe territories. The majority of the type 3 ornaments are found in the Middle Dnieper region and on the Dnieper left bank. Perhaps, it is connected to the European culture influence. Among the type 3 items also, some motifs were also extended in the north, it may be indicated by specific finds in the upper reaches of Berezina and the middle reaches of Western Dvina. Recently artifacts from the circle of Eastern European enamelled ornaments, including fragmentary “diadems”, have also been found in the Upper Dnieper region, items with samples of the type 2 are known as a part of the only complex - Moschino hoard, so they don’t have local or chronological peculiarities.

The chronology of the “diadems” in general corresponds to the chronology of “barbarian” enamelled ornaments. The earliest is the type 1 “diadems” from Sandrashka (type I). Adornments of the type 2 perhaps were derived from samples of the type 1 and can be related to the second half of the II – III c. AD. Adornments of the type 2 perhaps were derived from samples of the type 1 and can be related to the second half of the II – III c. AD. Among the types 1 and 2 “diadems” there are no specimens that are correlated with the late period of the “enamal” style development. The type III, in contrast, includes items pertaining to the early and the final stage of the existence of enamelled ornaments in the
Interpreting the Archaeological Record

TH1-31 Abstract 04
East European champlévé enamels: production technology and possible origin

Author: Rumyantseva, Olga, Institute of archaeology, Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)

Keywords: Eastern Europe, enamelled ornaments, Roman time

Presentation Preference - Oral

East European enamelled objects appear in the Baltic, Upper and Middle Dnieper regions in the mid-2nd century AD. From this area they spread rapidly over a wide territory, reaching the Crimea and the Caucasus in the South and the Kama region at the East. They were usually considered to be influenced by provincial Roman enamels and made by local or possibly itinerant craftsmen using glass beads as raw materials. The ornaments made in this style have drawn scholars’ attention for more than a century. Nevertheless, technological studies of such objects are quite a new research area, recently introduced by A. Bilner-Witkiewska and T. Stawiarska. The technological investigation of enamelled objects of the Briantsk hoard aims to develop this line of inquiry.

The hoard discovered in the Briantsk region (south-western part of Central Russia), is dated to the late 2nd – 3rd c. AD. It contains 24 ornaments with enamelled decoration of red opaque or polychrome glass made in champlévé technique.

Techniques used for enamelling monochrome needles include the applying of wet glass powder or previously turned pieces of glass. Large fields were filled by powdered enamel in two stages: firstly the ground layer was heated, afterwards the upper layer was applied. Polychrome needles with combination of enamels of different colours without metal bars could be enamelled using juxtaposed blocks of glass, or, more likely, by a combination of blocks and powdered enamels of different colours. It cannot be also excluded that in some cases enamels were applied and heated successively with colour. Line- and wave-shaped elements were applied as wet enamel powder (possibly using stencils) and as pre-formed drawn rods. The choice of the technique seems to depend on the glass colour, special features of colour formation and different melting temperatures for enamels of diverse colours.

The following technological features of the studied objects should be highlighted: applying of glass working techniques (such as the use of drawn rods); complicated combination of different methods of enamelling, implying skills of a high degree; the use of cut blocks of glass demanding semi-finished products of a size exceeding one typical for beads. It enables to assume that the objects in question were not produced by local “Barbarian” craftsmen. It is likely that they were made by professional glass workers, possibly, of provincial Roman origin. Regarding the style wherein the ornaments were made it appears that the East European enamelled objects make part of articles, custom-made for Barbarian people by late antique craftsmen. Possible production centers for them have not been discovered so far. They were likely located in zones of the most active contacts between Barbarian and late antique population. It is very tempting to assume their location at the Barbarian settlements characterizing by the presence of late antique representatives, numerous imports and developed handicraft industry, interpreted as regional industrial, commercial and administrative centers, and also trading posts beyond the limes.

The funding for this project was provided by Russian Foundation of Humanities, Nr 14-01-00269a.

TH1-31 Abstract 05
Cultural and economic exchange in the Dnieper-Donets forest-steppe during late Roman Time

Author: - Dr. Schultz, Erdmute, DAI, Eurasia Department, Berlin, Germany (Presenting author)

Co-authors: - Lubtchew, Mikhail, Karazin University Kharkiv, Kharkiv, Ukraine

Keywords: Chernyakhov culture, cultural exchange, settlement activities

Presentation Preference - Oral

During the first centuries AD comprehensive settlement activities took place in the expanses of the watershed between the Dnieper and the Soversky-Donets rivers, processes in which the Chernyakhov and Kievan cultures as well as nomadic Sarmatian tribes were involved. The interactions between these groups are considered on the base of recent investigations in this area. Special attention will be paid to material of the Chernyakhov culture concerning indicators for influences of other groups on the burial rites, the geographical position and structure of the settlements. Furthermore imported objects from the sites like amphorae, glass beads and others will be discussed as evidences for the exchange between the “barbarians” and the ancient cities of the Black Sea coast.

TH1-31 Abstract 06
Glass vessels of the Chernyakhov culture – technology and origin

Author: Litner, Julia, Archaeological research in construction business, Moscow, Russian Federation (Presenting author)

Keywords: ancient glass, chemical composition, manufacturing technique

Presentation Preference - Oral

There are different kinds of glass vessels – the study of the manufacturing technique allowed to single out 13 schemes of making vessels which are connected with workshops of various types. It allows us to identify the places where the goods under investigation were manufactured. Glassmaking workshops where grind objects were produced were situated in big Empire towns. Vessels hot decoration were made in the common glass-house workshops which were situated somewhere in Empire.

TH1-31 Abstract 07
The commemorative gifts or immolating of items? (The New materials of Hun-Sarmatian time from the territory of Kazakhstan)

Author: Dr. Bogdanov, Evgeniy, Institute of archaeology and ethnography SB RAS, Novosibirsk, Russian Federation (Presenting author)

Keywords: ritual ceremonies, burial gifts, Mangyshlak Peninsula

Presentation Preference - Oral

A few stone constructions were investigated at the territory of Mangyshlak Peninsula (Republic of Kazakhstan) in 2014 – 2015. The space inside of stone fence contained the traces of varying ritual ceremonies: crushed cobbled area, vessels, embedded into the earth, and calciferous altars. In addition, the one small pit contained the breidle kit, another one – the belt kit consisted of incrustate items, and the third – the remains of saddle (silver margins and details of garniture). All components of material complex correlate with items of 5 – 6 centuries, found at the territory from Danube to Southern Urals. At the same time, the planigraphy and character of construction indicate the Sarmatian range of sites. An article considers the findings in association with theory of “burial gifts” among the Huns, offered by I. Bona, P. Tomka and supported by A.V. Koman. We made the case, which evidenced the appearance of developed cults, associated with sacrificial gifts of prestige items in Caspian Sea region.

The formation of these rider rituals are in account with nomads, who came to the new territory together with Hun invasions of West and South.

TH1-31 Abstract 08
Controversial problems of studying early medieval hoards in the Middle Dnieper region

Author: Doctor Shcheglova, Olga, Institute for the History of the Material Culture, St. Petersburg, Russian Federation (Presenting author)

Keywords: Hoards of metal ornaments, individual attire, interpretation of archaeological sources, Middle Dnieper region

Presentation Preference - Oral

Hoards of metal ornaments for a long time have been considered the sole archaeological source of the third quarter of the 1st millennium AD in the Middle Dnieper. After the discovery of settlements and cemeteries study hoards become secondary. Objective circumstances of the past 20 years, namely:

• The lack of systematic scientific field research as the settlements and cemeteries 7-8 centuries AD on the territory of the Middle Dnieper region
• Uncontested spread of exotic woods with metal detectors led to the facts that:
  1. The perception of saturation monuments of this time non-ferrous metal was radically changed- the number of findings has increased many times.
  2. The context of the finds of metal items is immediatly lost, they are removed from the complexes and the cultural layer.
  3. The only complexes in which can be credibly traced co-occurrence of artifacts are fixed treasures.
  4. The accuracy of the information about the origin of these findings is low, but in some cases verifiable. The accuracy of the information about their composition is low too, they can be falsified. The completeness could be different from disparate up to fully taken.

We have accounted for about 100 complexes treasures of various origins. The following conclusions can be drawn on the basis of their study:

• The amount non-ferrous metals, which were in use, are very large. However, gold is not represented at all, and silver is poor-quality. In the complexes deposited or an individual attire, male or female, or a number of them, belonging to a small group (maximum 5 -6 individuals). At the same time there are complexes with unpaired things and scrap. Deposition of these hoards was

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not “hiding treasures”. The “wealth” of these complexes is alleged. Unification of the composition of a set of ornaments reflects the overall homogeneity and “egalitarianism” of material culture in the third quarter of 1st Millennium in the region in question. On the basis of these materials, it is impossible to draw a conclusion neither an “elite” nor the “Potestarian structure”. The existence of such a usage (as a cultural norm), as a mass deposition of the elements of ceremonial costume in hoards, is a sign of the cultural unity of the ancient community. This community can not be correlated with “Arattes” described in written sources.

But the most important questions still remain unresolved: Were hoards complexes of prolonged accumulation? How can be characterized the deposition of hoards (gradual, one-time, deliberate, etc.)? What compelled to deposit the sets of elements of the traditional ceremonial dress in a plurality of treasures? What led to the evolution of the “treasures of artificers”, containing serial items, unique and heterogeneous objects?

The aim of our paper is to present the recent developments and achievements of our project about the study of ancient exploitation and production of salt in Poland, which implies both the study of salt production processes and its role in the organization and articulation of the territory during the Roman period. The geo-historical framework for this study is the north-western part of Poland (Kuyavian and Great Poland), during the period of the Roman influence (I-II AD). The essential underlining idea of our investigations is the role of salt as a structuring territorial resource and its importance to understand the complexity of social transformations of indigenous communities in the period of the contacts with Rome. Thus, this study involves both the examination of the archaeological evidence for salt resources and its historical interpretation within a regional context and the global perspective of the contacts between the barbaricum and Rome.

Further development of the existing line chronology of one of the most characteristic find categories - fibulae, remains an important task in the archaeological research of the Iron Age Sambian-Natangian culture (also known as the Doliokov/Krovo type) in the south-eastern part of the Baltic Sea basin. Actual investigation focuses primarily on the verification of the chronological frame of fibulae of Doliokov/Krovo type. For this purpose presumed mutual occurrence of several fibulae types as well as other characteristic artefacts (i.e. chronological markers) in the burial complexes are discussed in detail in art-historical data. The transition from the Late Roman period to the Early Migration period and the diachronic typological tendencies within the framework of the later period are demonstrated by means of the comparative analysis results of the so-called big crossbow fibulae, characteristic for the Late Roman period/the very beginning of the Migration period, the so-called star-shaped fibula, type Schönwarling/Skowarcz and Doliokov/Krovo, which are found in the cremation graves in the area of Sambian-Natangian Culture starting from the Early Migration period. Comparative analysis results of further chronological markers of the periods in question (knife-daggers, shoulder straps, jewelry, belt ends, buckles as well as specific pottery forms) apply to the investigation as well. Most of the discussed burial complexes were discovered during excavations performed in the historical East Prussian districts of Sambia and Natangia on the flat burial sites Bol’shoy Isakovo (former Lauft), Schossnajze-1 and Schossnajze-2 and are published for the first time.

Co-author(s) - Dr. Prassolov, Jaroslav Aleksei, ZBSA, Schleswig, Germany (Presenting author)
Keywords: early medieval archaeology, Imenkov culture, Middle Volga region
Presentation Preference - Oral

TH1-31 Abstract 9
Sites of the late stage and the end of the Imenkov culture in the Middle Volga region

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Keywords: early medieval archaeology, Imenkov culture, Middle Volga region
Presentation Preference - Oral

The issue of defining the time and circumstances when the one of the largest early medieval archaeological cultures of the Eastern Europe ceased to exist is the most debatable one for the archaeology of the Middle Volga region. For years of Imenkov culture studies, several completely opposite hypotheses on this issue were developed. The majority of the hypotheses are of historiographical interest, but the issue still remains debatable. According to various researchers, the cessation of existence of Imenkov culture is related either to the leaving of population from the region at the end of the 6th - the beginning of the 7th c. (Alexey Bogachev) or at the end of the 7th c. (Evgeniy Kazakov) or to the slow dissolution in the culture in the early Volga Bulgarian culture in the 8th-9th centuries (Galina Matveeva, Yuri Semykh).

As a result of the recent research, it became possible to determine at least two stages of the Imenkov culture: the early one in the 4th-5th c. and the late one dated 6-8 c. The chronological framework of the last stage was determined according to details of heroic-style belt-belts, Sasanid coins, several furniture and costume details. The analysis of the collections allowed to determine the late Imenkov materials from Komintern 2 burial ground and Mikhailnevka archaeological complex in trans-Volga area. ‘Osh-Pando’ hillfort in the Middle Sura region. These sites are very similar in culture and dated 6th - the first half of the 7th c. The common feature of this group is the mix of classic Imenkov cultural complexes with ‘western’ artefacts. The synchronous group of sites that is culturally distinct was researched in the Ulyanovsk region. Cremation burials of Komarovka burial ground contained relatively ‘rich’ materials of the 6th-the first half of the 7th c. The ceramics and artefacts found in the hillforts ‘Ashna-Panda’ and ‘Shom’ in the Middle Sura region are related to the ‘final’ stage of the Imenkov culture. The both of the sites are the second half of the 7th c. (the beginning of the 8th c. is also possible). These sites have a significant difference in ceramics and artefacts, therefore, the Imenkov population was homogenous at the ‘final’ stage.

The materials of the late Imenkov sites have a clear local specifics conditioned by different directions of cultural relations. It is possible to define stable local variations of culture only on the late stage of the Imenkov culture. The specific regional types of furniture and costume details and differences in ceramic complex appeared in the 6-7th centuries bear an evidence of this. The cessation of existence of Imenkov sites in the different regions was taken place in different periods, possibly, due to different reasons. In the majority of regions with Imenkov culture remains, the upper boundary does not exceed the first half of the 7th century. However, sites in the eastern part of Imenkov culture area remain later, probably even until the beginning of the 8th c.

TH1-31 Abstract 10
A new view on the chronology of fibulae of Doliokov/Krovo type in the light of new research data

Author - Dr. Prassolov, Jaroslav Aleksei, ZBSA, Schleswig, Germany (Presenting author)
Co-author(s) - Skvoroz, Konstantin, IA RAN, Kaliningrad, Russian Federation
Keywords: fibulae of Doliokov/Krovo type, Kaliningrad region, former East Prussia, Sambian-Natangian culture, chronological frame
Presentation Preference - Oral

Further development of the existing line chronology of one of the most characteristic find categories - fibulae, remains an important task in the archaeological research of the Iron Age Sambian-Natangian culture (also known as the Doliokov-Krovo culture) in the south-eastern part of the Baltic Sea basin. Actual investigation focuses primarily on the verification of the chronological frame of fibulae of Doliokov/Krovo type. For this purpose presumed mutual occurrence of several fibulae types as well as other characteristic artefacts (i.e. chronological markers) in the burial complexes are discussed in detail in art-historical data. The transition from the Late Roman period to the Early Migration period and the diachronic typological tendencies within the framework of the later period are demonstrated by means of the comparative analysis results of the so-called big crossbow fibulae, characteristic for the Late Roman period/the very beginning of the Migration period, the so-called star-shaped fibula, type Schönwarling/Skowarcz and Doliokov/Krovo, which are found in the cremation graves in the area of Sambian-Natangian Culture starting from the Early Migration period. Comparative analysis results of further chronological markers of the periods in question (knife-daggers, shoulder straps, jewelry, belt ends, buckles as well as specific pottery forms) apply to the investigation as well. Most of the discussed burial complexes were discovered during excavations performed in the historical East Prussian districts of Sambia and Natangia on the flat burial sites Bol’shoy Isakovo (former Lauft), Schossnajze-1 and Schossnajze-2 and are published for the first time.

Co-author(s) - Dr. Pavlovič, Daša, National Museum of Slovenia, Ljubljana, Slovenia (Presenting author)
Keywords: early medieval archaeology, Imenkov culture, Middle Volga region
Presentation Preference - Oral

TH1-31 Abstract 11
Salt production in the Landscape of the Polish Lowlands in the Roman period

Author - Dr. Ruiz Del Albor Moro, Maria, Institute of History, CSIC, Madrid, Spain (Presenting author)
Co-author(s) - Bednarczyk, Jozef, Institute of Prehistory Arnu, Poznan, Poland
Keywords: Poland, Roman period, Salt production
Presentation Preference - Oral

The aim of our paper is to present the recent developments and achievements of our project about the study of ancient exploitation and production of salt in Poland, which implies both the study of salt production processes and its role in the organization and articulation of the territory during the Roman period. The geo-historical framework for this study is the north-western part of Poland (Kuyavia and Great Poland), during the period of the Roman influences (I-II AD). The essential underlining idea of our investigations is the role of salt as a structuring territorial resource and its importance to understand the complexity of social transformations of indigenous communities in the period of the contacts with Rome. Thus, this study involves both the examination of the archaeological evidence for salt resources and its historical interpretation within a regional context and the global perspective of the contacts between the barbaricum and Rome.

TH1-31 Abstract 12
Langoards necropolis on the Danube: material culture and social identity

Author - Codromaz, Federica, Università degli Studi di Trieste, Gorizia, Italy (Presenting author)
Keywords: Migrations, necropolis, society
Presentation Preference - Oral

During their migration from Scandinaivia to Italy, the Lombards settled for about 40 years in Central Europe, in the Danube river area and Pannonia, between Vienna and Budapest, where a lot of burial areas have been found. Here, with Franks people west, Gepids and Slavs at east, and a lot of autochthonous people of roman tradition, the Lombards feel threatened in their political and cultural independence. Their society was still heterogeneous and various and, to keep their social and political unit, they developed a strongest material culture, that is the expression of different social meanings. This development has a great reflection in the funerary practices. Here, will be analysed few Austrian and Hungarian cemeteries; the study and the analysis of burial customs and material culture of these sites are essential to understand how they developed their identity, through the diffusion of different customs and the integration of people of different origins. These sites, as well as illustrating the more important methodological problems of this type of approach, present the starting point and the further developments of Lombards' culture, and allow to draw some important conclusions about the change of the society, and thus the construction of the ethnic identity of this people, that evolved in the middle of Europe during the migration age and that they took to Italy in 588.
Interpreting the Archaeological Record

A Barbarian, meaning who?

Author - Dr. Nalich, Krzysztof, University of Warsaw, Chojnice, Poland (Presenting author)
Keywords: Identification, Relationship and influence, Romans and Barbarians
Presentation Preference - Oral

In late antiquity, due to a change in social relations inside the barbarian societies, perception of Barbarians themselves changed as well. As a result of the intensification of contacts which less and less frequently took a form of a one-sided diatik, the late-antique community was by way of the different settlement, ethnogenesis and the spread of the allegedly contemporaneous Lombard settlement north of the Danube and in the Pannonian Plain. The main argument that supports the possibility of early Slavic settlement in the first half of the 6th century is the Lombard colonization of Pannonia and its archaeologically proven gradual pace to the line Szombathely-Keszthely-Pécz and later colonization of Central Slavia. Unexpectedly, the area between Pannonian settlement and Central Slavia, i.e. north-eastern Slavia, was left unsettled by Lombards. Since the lowland settlement of indigenous Romanized inhabitants in the 6th century was not discovered, it is strongly believed that Lombards encountered the early Slavic settlement west of the above-mentioned line. A further argument for the hypothesis is the archaeologically proven fact that both early Slavs and Lombards respected the borders between areas of their settlement north of the Danube, which is also supported by 14C dates.

Burials with weaponry of the upper Dnieper version of the Zarubintsi culture

Author - Voronivilskaya, Laisaa, The State Hermitage Museum, St. Petersburg, Russian Federation (Presenting author)
Keywords: upper Dnieper, weaponry, Zarubintsi culture
Presentation Preference - Oral

One of the specifics of the upper Dnieper version of the Zarubintsi culture making it different from the Polesye and middle Dnieper versions is a custom of placing weaponry in a grave. On the burial ground Chaplin 14 spear and dart heads (5%) were found in 282 burials, on Yurievsk 1 in 19 out of 19 (5.3%). On the burial ground Gorishtak spearheads have been found in six investigated burials out of 32. All the heads are of iron, socketed, with a leaf-like feather, and bear traces of having been in fire. On the inside of the socket of one of the heads of the Gorishtak burial ground (burial No.9) there are prints of fabric preserved. In Goroshkov the heads lay in different parts of the burial pit parallel to it. In most cases, the burials with weapons, apart from modeled bowls, contained horsehoe-like iron tibulas of sygroma type and (or) iron knives with hunched backs. What is more, the knives always lay with the point directed to the side opposite to that of the spearhead.

Barbarian Coins, Elite Identities and the Birth of Europe

Author - Dr. Wigg-Wolf, David, Römisch-Germanische Kommission des Deutschen Archäologischen Instituts, Frankfurt am Main, Germany (Presenting author)
Keywords: Coins, Goths, Imitations
Presentation Preference - Oral

A commonalty of the cultures of “Barbarian” northern and Eastern Europe was the production of coins imitating the issues of the Roman Empire. Analysis of die-linked coins (i.e. struck from the same die and thus produced in the same workshop) has long demonstrated that there were wide-ranging exchange networks across much of the northern “Barbaricum” during the Roman and Migration periods. Furthermore, both official Roman coins and imitations, as well as their imitations, played an important role in the self-presentation of the barbarian elites. However, the discovery of large quantities of new material, above all from the Ukraine, has radically changed and extended this picture: we now know that the phenomenon was much more widespread and intensive than had previously been appreciated, and that such networks in fact stretched from Moldova and the Ukraine to Scandinavia. The new material allows us to produce a narrative that can be closely linked with the rise of the Gothic Kingdom and its subsequent displacement in the face of the Hunnic invasion.

The numismatic material is the subject of a 3-year joint DFG/NCN Beethoven project “IMAGMA. imagines maiestatis” by the University of Warsaw and the Römisch-Germanische Kommission that aims to understand how these imitations of Roman coins were produced and used by the developing elites right across the northern and eastern “Barbaricum” to demonstrate their status. The picture that is emerging is one of disparate groupings linked together by common elements of material culture and of a wide-ranging exchange network, but above all of the crystallization of the Gothic power centre on the territory of the Chernihov/Sîlvaniei/Mures Culture.

The coins not only paint a diverse and deep-ranging picture of how such elites saw and expressed there identity, both with reference to Rome and to each other. They also provide new and revealing insights into the interaction and communication between the northern and eastern barbarians, in particular the Goths on the one hand, and the imperial administration and the population of the provinces of the Roman Empire in Late Antiquity on the other.
in order to link the deceased to the ground and prevent him from leaving the grave. Finally, this custom is viewed upon as a reflection of phallic cult symbolizing the re-fertilization of Mother Earth.

Also for the first time for the Zarubintsy culture an iron scabbard of a sica, a battle knife (burial No.28.) and the spiked head of a Scythian arrow (burial No.30) were found in Goroshkov.

The last years of the 20th and the first decade of the 21st century brought a number of significant discoveries for the archaeological researches, while in the territory of Ukraine, Russia and Belarus number of known finds has increased significantly. Vast majority of items was found due to the massive looting of archaeological sites. This process has been going more intensively since late 1990s—early 2000s. Nevertheless over the past 10 years hundreds of things in museum collections have replenished ranges of enamels. Regular work on fixing findings is carried out in a number of regional museums.

At present day we have information on more than 2,000 items. Such study full database (source corpuses by Korzukhina 1978, G.F. et al., Terechovskiy and Oblomsky 2007) included 142 findings mostly from the Middle Dnieper region. Thus, even on the example of existing source corpuses it is obvious that a significant part of findings is not related to the archaeological researches. At present the accumulation of sources is irregular. So in the Baltic region new finds are rare and are related to archaeological researches, while in the territory of Ukraine, Russia and Belarus number of known finds has increased significantly. Vast majority of items was found due to the massive looting of archaeological sites. This process has been going more intensively since late 1990s—early 2000s. Nevertheless over the past 10 years hundreds of things in museum collections have replenished ranges of enamels. Regular work on fixing findings is carried out in a number of regional museums.

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TH1-31 Abstract 22
The preparatory stage of pottery technology among the Russian forest-steppe cultures in IV-VII AD

Author - Nikiforova, Elaterina, Institute of Archaeology named after A.Kh.Khalikov, Kazan, Russian Federation (Presenting author)
Keywords: ancient pottery, Middle East, Kemennovo culture, Middle Volga region, imports, the Middle East

We believe the analysis of pottery technologies is the topical question of study of sedentary cultures of the Eastern-European forest-steppe. In recent years, some ceramic sets of Chernyakhov culture began to be exposed to petrographic and X-Ray studies. Thus researchers attention focused mainly on the vessels shapes. At the same time, about the pottery technology facts is bit. The research was identified the several traditions to varying degrees dominant in different territories. However, the general of most traditions are the selection skills potters of "low-fat" clays and adding a grogmade of splintered vessels in the composition. We suppose that the detected affinity of pottery traditions is reflecting the close connection within the studied population.

TH1-31 Abstract 23
Glass beads of Imenkov culture (on the materials from the Tetushskoe II settlement, Middle Volga)

Author - PHD Stolyarova, Elaterina, Institute of Archaeology RAS, Moscow, Russian Federation (Presenting author)
Keywords: glass, beads, Imenkov culture, Middle Volga region, imports, the Middle East

Impenkov culture pottery covered all stages of pottery production and gave a full presentation about the traditions of this population. In recent years, some ceramic sets of Chernyakhov culture began to be exposed to petrographic and X-Ray studies. We believe the analysis of pottery technologies is the topical question of study of sedentary cultures of the Eastern-European forest-steppe, and this stage of our research work is devoted to the characteristics of the raw materials and pottery pastes. Our observations were made on selected sherds using a stereoscopic microscope. The definition components of raw and paste composition was carried out by collation with a models collection, developed on the basis of Samara expedition to the Middle Volga region. Our investigations suggest that the glass beads which were found on the settlement are the imports from one region, the Middle East. The analogues to these beads within large geographical limits show their extremely long chronology. Nevertheless, we can say that on the sites of Upper Kama region, which is the closest territory to the Tetushskoe II settlement, such beads only appear by the 6th century A.D.
Interpreting the Archaeological Record

Friday, 2 September 2016, 14:00-16:00
Faculty of Philology, Room SFS

Author: Hagglund, Olof, University of Helsinki, Helsinki, Finland
Co-author(s): Magnusson, Gert, Jakobsson, Stockholm, Sweden
Co-author(s): Taraila, Elina, University of Helsinki, Helsinki, Finland

Keywords: Iron production, social organisation, skills, life course, techniques, furnaces, charcoal

Presentation Preference: Workshop

IRON MAKING TECHNIQUES AND SOCIAL CHANGE IN THE MEDIEVAL AND EARLY MODERN EUROPE

Having an iron production based on slag-tapping furnaces, the development of this metallurgical activity can be divided into two extensive periods. The first, running between 600-950 A.C., presents considerable differences between the sites. Thus, while some basically maintain the pattern of spatial and production organisation of the first phase, others develop rapidly towards fully urban forms. These transformations would bring with them a significant change in the iron production strategy, leaving behind the rural activities and only maintaining the forging activities.

Moreover, the archaeobotanical and metallographic studies undertaken have enabled archaeologists to identify the type of iron mineral used, the different models of exploiting woodland, diverse technological changes in production (obtaining iron or steel according to needs) and other aspects relating to the operation of slag-tapping furnaces and forges.

TH1-32 Abstract 02

The Iron and the Smartphone: ‘expensive’ technologies at the verge of the millennium

Author: Larreina-Garcia, David, UCL Institute of Archaeology, London, United Kingdom (Presenting author)
Co-author(s): Quirós-Castillo, J.A., Antonio, Universidad del País Vasco, Vitoria-Gasteiz, Spain
Keywords: farming iron implements, medieval peasantry, technology

Presentation Preference: Oral

It is widely accepted that the fall of the Roman Empire had a negative impact on the iron industry across Europe affecting its production, distribution and consumption (e.g. Tylecote 1980). The metal production centers became closely linked to political, military or religious powers (Hinton 2005) mainly focused on providing iron since ‘iron objects were expensive items’ (Jaritz 1995) not affordable for most of the poshers. Archaeological evidences contribute to this supposed scarcity of metals within the peasantry since agricultural implements of early medieval chronologies are infrequent: typically rather exiguous numbers of barely 1-2 items per site (e.g. Hamerow 2011).

In stark contrast with these arguments, recent archaeological excavations on rural settlements from Early to Late Medieval times (Quirós Castillo 2011) carried out on the Basque Country area (north of Spain) point out that even during the earlier period the inhabitants of the villages enjoyed relatively large amounts of iron implements—counts by hundreds—typically households or farming base tools. The metallographic analyses of thirteen iron implements reveal that these are very acceptable quality items made of low carbon steel by piling, employing occasionally sophisticated techniques such as carburisation and even the complex pattern-welding techniques as far as only seen in the decoration of high status weaponry (Pearce 2002).

This paper aims to investigate the engineering parameters behind the iron production and manufacture of iron utensils during Early Middle Ages as well as the accessibility of those by the peasantry: the concept of ‘expensive’ applied to technology is reviewed to point that medieval iron might be high-priced but still an affordable commodity same as the electronic technology nowadays. The conclusion is that ‘expensive’ is a very relative term depending not only on production and consumption parameters but also that geographical location, role within the society or political context had a considerable influence to access the iron and offer a perspective toMEDIEVAL iron implements manufacture and secondary distribution. It offers a tentative reconstruction of interplay between iron models of production and peasant communities during EMA in the Basque Country area.

References cited:

TH1-32 Abstract 03
Iron and Society in the Baltic 900 - 1350 AD

Author: Assoc. Prof. Magnusson, Gert, Stockholm University, Stockholm, Sweden (Presenting author)
Keywords: Iron production, trade, urbanization

Presentation Preference: Oral

Keywords:
- Iron production, social organisation, skills, life course, techniques, furnaces, charcoal

Presentation Preference: Workshop

Wrought iron has been produced with different techniques. The techniques have in diverse ways been adaptations to local raw materials such as the ore and the woodlands for charcoal production.

Various raw materials and furnaces required different social organisations. Collecting bog or lake one could fairly easily be done within a family, while operating a mine was a much more complicated process, which required a larger group of laborers and several specialists. Especially while introducing new techniques skilled experts were needed.

Our aim is to analyse how sites of different technical processes reflect the working groups and their skills. The social complexities differed when running a small bloomery furnace, a high bloomery or a blast furnace. The last two techniques demanded highly skilled workers, a complicated social organization and larger funding in order to run the operations. This resulted in a division between those who operated the furnaces and those who owned the land and the industrial plants like notables or monarchs.

There is also the question of the distribution of the products. Small scale production for household use is easy to explain. However, it is hard to understand why large scale production without knowing the demands or purposes behind. Reasons like export orientated trade or military preparations might explain the expansion of a technical development of the production. Analyzing the life course and use of iron objects helps us to understand the production as well.

Several methods can be used for studying these issues, like excavations, landscape archaeology and experimental archaeology.

We invite papers focusing on social organization and local techniques primarily related to iron production, but contributions on copper or silver production are also welcome. The main focus of the session is the Middle Ages and the early modern era, but papers dealing with earlier periods are welcome too.

Keywords:
- Iron production, social organisation, skills, life course, techniques, furnaces, charcoal

Presentation Preference: Workshop

In stark contrast with these arguments, recent archaeological excavations on rural settlements from Early to Late Medieval times (Quirós Castillo 2011) carried out on the Basque Country area (north of Spain) point out that even during the earlier period the inhabitants of the villages enjoyed relatively large amounts of iron implements—counts by hundreds—typically households or farming base tools. The metallographic analyses of thirteen iron implements reveals that these are very acceptable quality items made of low carbon steel by piling, employing occasionally sophisticated techniques such as carburisation and even the complex pattern-welding technique as far as only seen in the decoration of high status weaponry (Pearce 2002).
This paper is an attempt to describe the development in the Baltic during the period 900 to 1350 AD in a holistic perspective pointing out iron production as a force for changes in different societies around the sea.

Changes in consumption, production and economic thinking require innovative environments and networks. Which settings, systems and actors enable innovation that can change the conditions for a whole society? In Sweden, the rapid emergence of Bergslagen was vital. The blast furnace was developed, perhaps as early as 1000 AD, and around it extensive technical systems took shape, which then grew exponentially during the 11-1200’s. Metals were recovered from rock ore in a new way and on an unprecedented scale. In Bergslagen, Sweden’s economic base was built in a sparsely populated outland. This setting was characterized by diversity and flexibility which characterizes resilience. This paper will discuss Bergslagen as a system network focusing on innovation, expansion and resilience.

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-session title-

Interpreting the Archaeological Record

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This paper is an attempt to describe the development in the Baltic during the period 900 to 1350 AD in a holistic perspective pointing out iron production as a force for changes in different societies around the sea. During the Viking Age the societies around the Baltic underwent a remarkable development within agriculture, several towns were founded along the shores and in the river valleys and there was a change from pagan religions to different versions of Christianity. Supposedly there was an increase in a large scale trade with intensified contacts between the caliphate, Byzantium and the Carolingian empire, where the Baltic became a transit area. Iron might have been an important factor in the economy of the area, as the production increased significantly and was undertaken all around the Baltic. In the end of the period the island of Gotland became a center of smithing. Substantial iron production was initiated in the island of Saarema in Estonia and in the land of Novgorod on the Swedish east coast in the county of Småland. Here there was what has to be described as a mining area of lake and bog ore with over 1000 known bloomery sites with a minimum of 144 000 tons of produced iron. A production on such a scale during a period of 200 to 300 years evidently had a great impact on the whole Scandinavian and Baltic society, despite the fact a new more efficient technique, the blast furnace, was to be developed in the mining area of Bergslagen further north in Sweden around AD 1000.

The bloomery processes of iron production survived the whole period and a regional specialization and social differentiation developed. As a result peasants on the plains founded their economy on grain production and peasants of the transitory regions between plain and woodland produced a surplus of animal products, while woodland peasants often sold handicraft articles, but iron opened up a new need for labor and produce, where the forests, lakes and bogs contributed with raw materials. Under these conditions iron production was introduced and raised within the peasant society linked to the emerging states, for example through towns like Kalmar, Gotland, Kuresaare and other towns around the islands.

The role of the cities also grew in importance and urbanization became a vital part of these economic and social changes. Iron was traded from Kalmar during the 13th century under the name of Calmara iron. The iron production in Visby was recognized by the Pope in 1229 as a serious political problem. As the people of Gotland traded arms to the Baltic tribes thereby threatening the Christianization of the region. The letters from the Pope show that trade and production in the Baltic area were a European issue and a part of a European modernization.

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SESSION TITLE

Iron in the everyday life in the medieval rural sites of Western Nyland (Fi. Uusimaa) in Finland

Author: M.A. Teräsä, Elnia, University of Helsinki, Helsinki, Finland (Presenting author)

Keywords: Iron production and circulation, material culture, Medieval countryside

Presentation Preference - Oral

During the last decade several medieval rural sites has been under a research in the Western Nyland and from these excavations quite nice amount of objects telling about making, repairing and consuming iron objects has appeared. In this paper the aim is to consider recent finds from a couple well researched villages as well as the castle of Raseborg, which was the administrative center of Western Nyland from the end of the 14th century to the middle of the 16th century. The question is, can the iron production, the trade of iron and making objects be reached by analyzing these objects? Also the life course and use of iron objects found from these sites are considered, as it can give us access to the production as well. The castle of Raseborg had of course a very special need for iron products. For example, the historical sources tell about making firearms and other weapons in the castle at different occasions. The letters from the Pope show that trade and production in the Baltic area were a European issue and a part of a European modernization.

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SESSION TITLE

Deserted 17th century Iron Industries in Sweden

Author: PhD docent Haggrén, Georg, University of Helsinki, Espoo, Finland (Presenting author)

Keywords: Forge, Furnace, Cannon foundry, Iron industry, Thirty Years’ war

Presentation Preference - Oral

The development of the Swedish iron industry during the 1620s to 1640s is closely related to the Thirty Years’ War (1618-1648) which ranged across the continent. Although this is a thoroughly researched episode in European history there are lacunas in the knowledge. For example, there has not been much of archaeological research of the Swedish war industry and especially the iron industry of the period.

The rise of the iron industries during the war was particularly significant in the Middle Swedish province of Södermanland. However, immediately after the Peace of Westphalen many of the industrial plants were closed. In some of them, such Öllös bruk and the cannon foundries of Grytviken and Bröm-Ekby, there are well preserved archaeological remains left.

In 2015 archaeological field work was started on these sites. The idea is to make research on four levels, to set these case studies in a wider contact. The iron industries in the province of Södermanland make the regional context. The development of the iron production and the war industries in Sweden during the Thirty Years’ War offers a national context. A modern research should be placed on a wider European background, to the international context of the Thirty Years’ War.

The focus is on the entire life span of the iron produced for the army and the navy: from the furnace and forge to the arsenals and battle fields. On the other hand we shall not forget the rest of the iron production which was made for export – and its huge impact on the country’s economy. It was during the Thirty Years’ War when Swedish bar iron production was modernized and it made its successful entrance to the international iron markets.
Interpreting the Archaeological Record

Saturday, 3 September 2016, 16:30-18:30
Faculty of Philosophy, Room 207

Author(s): Trevisi, Valeria, University of Trieste, Trieste, Italy (Presenting author)
Co-author(s): Codroniz, Federica, Università degli studi di Trieste, Trieste, Italy (Presenting author)

Presentation Preference - Regular session

The “migration period” is characterized by movements of people coming from the fringes of the Roman Empire and settling on the Roman territories. Such period is poor of contemporary historical records, but rich of archaeological material. This has opened a long-lasting debate to have a view of the patterns of migrations, the impact of new peoples on the autochthonous populations, and the demographic processes occurred. The study of the early medieval period encourages a more direct comparison between different disciplines both in terms of methodology and result data. In recent years, archaeology has considerably improved its interdisciplinary approach, integrating scientific evidence to construct a nuanced view of patterns of migration and demographic models.

The session offers a forum for the discussion of archaeological and scientific approaches to the study of past migrations and the dynamics of human interactions. First, we invite papers dealing with the theme of migration in any period, not necessarily medieval, which work comparatively across regions. Aim is to discuss current methodologies and results in the study of human past migrations.

Second, we invite researches that use recent scientific data, such as isotopes and DNA analysis, to investigate patterns of human migrations, interaction between migrants and autochthons, and reconstruction of demographic scenarios.

Lastly, we want to open the floor to discussion of future disciplinary aims in terms of data collection, management and presentation. We invite presentations on the management of electronic and interregional data collected in datasets and maps, which possibly relates results from different disciplines and researchers.

TH1-33 Abstract 01
The Avellino Event: investigating the migration resulting from the Bronze Age eruption of Vesuvius

Author - Dr. Van Leussen, Martijn, University of Groningen, Groningen, Netherlands (Presenting author)
Co-author(s) - Attina, Peter, University of Groningen, Groningen, Netherlands
Co-author(s) - Sevrijn, Jan, University of Groningen, Groningen, Netherlands
Co-author(s) - Field, Mike, Leiden University, Leiden, Netherlands
Co-author(s) - Bakels, Corrie, Leiden University, Leiden, Netherlands
Co-author(s) - Dorenbosch, Marije, Leiden University, Leiden, Netherlands
Co-author(s) - Van der Vrugt, University of Groningen, Groningen, Netherlands
Co-author(s) - Alessandrini, Luca, University of Groningen, Groningen, Netherlands

Keywords: Bronze Age, Italy, disaster impacts, migration

Presentation Preference - Oral

Around 1950 BC, during the Early Bronze Age, a giant eruption of Mount Vesuvius buried a flourishing landscape of villages and fields in the plains of Campania under more than a meter of ash. Inhabitants of sites such as Nola ("the Bronze Age Pompeii") could barely escape with their lives. Italian archaeological research since the 1980s has conclusively shown that the population of the Campanian plain did not fully recover for several centuries after this so-called "Avellino Event." Oddly, no one has yet wondered what might have happened to the fleeing population of Campania. The authors present preliminary results of a new 5-year research program that pursues the hypothesis that they found refuge in the coastal wetlands of southern Lazio, the region immediately to the north of Campania. Long-standing Dutch geochronological research in this area has already shown the presence of a continuous sedimentary record for the period of interest, and the team recently identified, besides the Avellino volcanic ash itself, two more ash layers that will function as chronostratigraphic markers for any indigenous immigrant population. Using a combination of archaeological, geochronometric, and paleo-ecological approaches, the Groningen/Leiden team is using these indicators to document the significant demographic, environmental and cultural impacts that are likely to result from the presence of the postulated Early Bronze Age refugee population in South Lazio. By September 2016, the project will have ended its first year and will be able to report on the results of its extensive coring campaigns and laboratory analyses of the environmental samples taken.
Interpreting the Archaeological Record

**TH1-33 Abstract 05**

**Bone functional adaptation in the femur: a quantitative analysis in historical populations**

**Author** - Dr. Simonit, Francesco, Monfalcone, Italy (Presenting author)

**Keywords:** computed tomography, migration period, moments of inertia

**Presentation Preference** - Oral

Bone is responsive to mechanical stimulation. Working aspects and social conditions are able to bring out significant skeletal alterations, which can be revealed in postmortem. Quantitative evaluations of the markers of occupational stress (MOS), in particular in the lower limbs, have been provided through the analysis of the cross section geometry of the diaphysis.

Some historical populations of Friuli Venezia Giulia (North-Eastern Italy and Slovenia) have been studied with quantitative MOS methods. The activity patterns were already known for every group, especially about the loads to the lower limbs. Femoral cylindroids were obtained by Multidetector CT scan of midshaft femur. Average values of the cross section geometrical properties (areas and second moments of area) have been calculated to evaluate bone functional adaptation in each cylindroid. Furthermore, the evaluation of an arbitrary number of cylindroids has been assessed. This latter method has no evidence in current literature and its utility is object of study by our group. The analysis of the outcomes has shown that this methodology is able to give a good discrimination of the samples in respect of the different levels of mechanical advantage of the lower limbs. In particular, moments of inertia have been turned out highly sensitive. This working and cost-effective technique might represent a useful non-destructive and operator-independent method in bioarchaeology and could be useful to evaluate and compare the MOS of historical populations.

**TH1-33 Abstract 06**

**The investigation of Early Slavic sites in North-Eastern Germany in the last 25 years. A review**

**Author** - Dr. Schneeweiss, Jens, Institute for the History of Material Culture RAS, Saint Petersburg, Russian Federation (Presenting author)

**Keywords:** Historiography, Slavic archaeology, Western Slavs

**Presentation Preference** - Oral

The development of Slavic archaeology in Germany is closely connected to political history. Thus, with the political turn in 1990 began a new period in the archaeological investigation of the Slavic past as well. The advancement of a new generation of researchers went hand in hand with re-evaluations of old paradigms and reconceptualization of research. Dendrochronological data played a major role, especially in the discussions of two crucial issues: 1) the immigration of the Slavs between the rivers Elbe and Oder and 2) the dating and historical context of the numerous Slavic ringforts. Analyses of ceramics remained an important research topic. This period of intense investigations and acute debates came to a certain end at the turn of the millennium, when researchers went hand in hand with re-evaluations of old paradigms and reorganisation of research. Dendrochronological data were made, used and deposited at c.9000 cal. BC in North Eastern Britain.

### WHAT IF WE BUILD THIS HERE?

**TH1-34 Abstract 01**

**From Temples to Towns: The Role of Sanctuaries in Urbanization Processes**

**Author** - Dr. Fernández-Gótz, Manuel, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)

**Keywords:** Identity, Religion, Urbanization

**Presentation Preference** - Oral

From the Mesopotamian ziggurats to the urban sanctuaries of the Greek polis and the public spaces within the Late Iron Age oppida of temperate Europe, religion appears to be an essential element in most urbanization processes, being at the root of the fusion of previously scattered communities. In some cases it has even been determined that the existence of a place for cult activities preceded the concentration of a significant number of people or even the fortification of the area. Drawing upon different archaeological case-studies and historical comparisons, this paper will explore the crucial role of sanctuaries as focal points for social aggregation and collective identity construction.

**TH1-34 Abstract 02**

**Taxonomy, Archaeology, and Ethnology: Myths and Realities for Prehistoric and Modern Settlements**

**Author** - Prof. Zubrow, Ezra, University at Buffalo and Toronto, Buffalo, United States of America (Presenting author)

**Co-author(s)** - Dachemo, Aleksand, Institute of Archaeology of the NAS of Ukraine, Kiev, Ukraine

**Keywords:** Demography, settlement, archaeology, Ethnography, ethnology, international, Taxonomy, classification, ontology

**Presentation Preference** - Oral

This study examines ethnoarchaeological and archaeological settlements on a worldwide basis, and presents the results of testing various models against the available archaeological and ethnoarchaeological data. Generalized settlement taxonomies from several
How clustered were clustered settlements really?
A case study on the Gátahöyük West Mound

Author - Prof. Balf, Peter F., University at Buffalo, Buffalo NY, United States of America (Presenting author)
Co-author(s) - Bosch, Jak, Flinders University of South Australia, Adelaide, Australia
Keywords: Architecture, Chalcolithic, Neolithic
Presentation Preference - Oral

This paper will demonstrate how modern, small-scale approaches towards architecture analysis question traditional views on the inner workings of a clustered settlement. Using our recent excavations on the Gátahöyük West Mound as a case study, we will scrutinize whether a settlement that visually appears clustered to the archaeologists actually functioned like a house cluster in the past. After 6500 BC, the settlement of Gátahöyük experienced fundamental changes in its socio-economic makeup, which are expressed in alterations of the settlement layout and organization. In the uppermost building levels of the Neolithic East Mound, the settlement transformed from a tightly clustered and large agglomeration of houses into a series of individual houses or house clusters with open areas between them. At the same time, the tightly integrated social structure that characterized the site before 6500 BC loosened when households started to be economically more independent. During the following Early Chalcolithic period (ca. 6000-5500 BC), there seems to have been a return to dense clustering on the West Mound, suggesting another change in social structure. However, ongoing work on the formation processes of the built environment on the West Mound questions whether the buildings were actually all in use at the same time, which provides a new perspective on the use, function, and meaning of settlement space of Neolithic and Chalcolithic settlement mounds.

Spatial and social patterns in LBK Neolithic settlement

Author - Michalak, Katarzyna, University of Gdańsk, Gdynia, Poland
Co-author(s) - Polczyński, Łukasz, University of Gdańsk, Gdańsk, Poland (Presenting author)
Keywords: built environment, community organisation, spatial organisation
Presentation Preference - Oral

This paper focuses on the results of a study aimed at examining the relationships between neighbouring LBK houses based on analysis of location of activity zones related to the houses. The social and spatial organisation of LBK settlements is still under discussion. Usually the houses are perceived as independent, self-sufficient units within a village. Based on the research on 59 longhouses recorded at two large, multi-phase LBK settlements in southern Poland we would like to present more complex image of the settlement organisation.

Considering chronological relations between the houses, we analysed the spatial and functional diversity of features located around the longhouses and artefacts found there. This analysis allowed us to identify (1) ‘dirty zones’ interpreted as possible places of household activities and intense deposition of waste, and (2) ‘kitchen zones’ interpreted as places associated with processing and/or storing of food. The ‘dirty zones’ are associated with accumulation of artefacts (pottery and flints) recorded usually in lateral pits and rubbish pits, and situated on one side of the house. The ‘kitchen zones’ are characterised by the presence of features associated with direct use of fire, sunken-floored huts and grain remains.

The location of the zones around particular houses was varied. However in most cases we recorded a connection between the location of the zones and a neighbouring house of the same or earlier phase. The spatial analysis indicates that the activity zones have been probably used by inhabitants of more than one longhouse. This shared space can be indicative of close social relations (e.g. kinship) between them.

Activity Zones and Community Formation: The Role of Spatial Structure in Early Nucleated Villages

Author - Dr. Salisbury, Roderick B., University of Vienna, Vienna, Vienna, Austria (Presenting author)
Keywords: Neolithic Europe, social organization, spatial analysis
Presentation Preference - Oral

Spatial relationships are among the most important sources of archaeological evidence, and one of the most important aspects of social organization. Spatial structure, including the locations of task areas and activity zones, is an essential aspect of understanding craft specialization, cross-craft interactions, power structures, inclusion/exclusion, and a host of other social relationships. Along with non-invasive and diachronic approaches, comparative spatial analyses are an essential tool in understanding the inner workings of the processes of everyday life. Drawing on ethnographic and archaeological comparisons from the Near East, Europe and eastern North America, this contribution examines different use of space in different types of sites during the Late Neolithic on the Great Hungarian Plain. I argue that different types of sites, even if the differences are sometimes very subtle, show different spatial patterning of houses and activity zones. Furthermore, by increasing the social cohesion of identity while exposing people to a greater number of communities, these differences were instrumental in facilitating the socio-political changes that accompanied settlement and population aggregation.

Assemblages of material-social interaction and the creation of space at Polgár-Csószhalom

Author - Kuczky, Pál, Eötvös Loránd University, Budapest, Hungary (Presenting author)
Co-author(s) - Anda, A., Eötvös Loránd University, Budapest, Hungary
Keywords: built environment, Carpathian Basin, Neolithic
Presentation Preference - Oral

The case study focuses on materialities and interactions as related to the built environment at the Late Neolithic settlement complex of Polgár-Csószhalom in the Upper Tisza Region (Hungary). House constructions and associated attributes provide particularly interesting contributions to the study of the site. Previous archaeological investigations have been concerned with the macrostructures (tell and horizontal settlement) of the Csószhalom settlement complex. These studies were able to reconstruct two different reference systems of space-time that diverged regarding their basic characteristic features. In our interpretation, the tell and the enclosure system represented a higher level of integrative architectural principle: this unit was not simply a residential area, but an arena for events with a unique choreography, which was very distinct from the surrounding horizontal settlement, the physical setting of everyday activities. Both house construction and house burning on the tell were special actions, which were fundamental parts of the formerly reconstructed, complex feastings practices implemented in the enclosed section during its ca. 3500 years long life-span, in the first half of the 5th millennium BC.

Regarding settlement organization, fundamentally new data were provided by a large-scale magnetometer prospection in 2014. The preliminary analysis of the measurements identified another enclosure system, composed of two ditches, as well as burnt house structures west of the tell, in the context of the horizontal settlement. Altogether, the results infer that interactions between human groups and various features in the Csószhalom settlement complex may have been much more sophisticated than previously thought.

The presentation will provide a detailed contextual assessment of the currently available 109 AMS dates from the site, in order to move beyond the duality of the enclosed tell and the horizontal settlement. In addition, we will examine the internal dynamics of interactions between houses, pits, wells and burials that represent the various physical loci of human activities and events. Finally, the spatial and functional associations of these loci and their social implications will be discussed. The project was funded by the Hungarian National Research Fund (KTI Grant 11012).

What’s outside an Eneolithic tell settlement?
Case studies from the Balkans

Author - Craciunescu, Ionela, National History Museum of Romania, Bucharest, Romania (Presenting author)
Co-author(s) - Lazar, Catalin, National History Museum of Romania, Bucharest, Romania
Keywords: Eneolithic, spatial analysis, tell settlement
Presentation Preference - Oral

The aim of this paper is to investigate the surroundings of the Eneolithic tell settlements in the Balkans (Rumania and Bulgaria), from the 5th millennium BC. The traditional biases are that the prehistoric habitation was limited to the tell area and that the
deceased were buried in the nearby cemeteries (most of them discovered by chance) or, in few cases, inside the settlement. This situation is a consequence of the actual state of research, with systemic excavations performed mostly on the mounds. Recently new post-disruptive research made in Bulgaria (e.g. Podoštka) and Romania (e.g. Petrele, Sutană) led to discoveries that revealed archaeological structures outside the tells that attest intensive activities and habitation. This situation brings a whole new perspective on the relationship between the nucleated tell settlements and the various activity areas from their vicinity, including the funerary areas. Future research will focus on analysing these variables in searching for rules and exceptions, with the help of GIS analysis techniques. The main advantage of GIS approach is its ability to model and visualize spatial trends that would be hardly noticed and time consuming if only traditional methods were used.

This work was performed through the Partnerships in Priority Areas Program - PN II, developed with the support of MEN - UEFISCDI, project no. PN-II-PT-PCCA-2013-4-2302.

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**TH1-34 Abstract 09**

**Kernave Town in 13-14th Centuries:**

**Social and Cultural Pattern of Community**

**Author:** - Dr. Vengevicius, Rokas, Lithuanian History Institute, Vilnius, Lithuania (Presenting author)

**Co-author(s):** - Dr. Vilinskas, Gintautas, Administration of the State Cultural Reserve of Kernave, Kernave, Lithuania

**Keywords:** community organization, The Middle Ages, towns

**Presentation Preference:** Oral

The Eastern Baltic region in a European context is distinguished by its peculiar historical development. For a long time, there was no state, no Christianity and no towns here. Small, isolated, poorly stratified agricultural communities lived here till the 13th century. German Knights founded the first medieval towns in the margins of this region in the 13th century. Meanwhile, the Lithuanian state emerged on the basis of the pagan tribes (Lithuania was christened only in 1387) and the first political administrative centers, which eventually developed into towns, were created. One of the earliest towns in Lithuania was Kernave, the residence of the grand dukes of the 13th century, which is considered to be one of the most important economic and political centers. Therefore, in the context of European medieval history, Kernave is unique, because the town was shaped by the pagan community. Archaeological and interdisciplinary research allows the reconstruction of the socio-economic model of medieval Kernave. The most important archaeological objects of that period in Kernave are defensive systems of five hill-forts, the upper and lower towns, and interments and cremation burial sites. These structural parts of medieval Kernave are associated with the activities of different social groups. The central hill-fort was the residence of a duke. It was surrounded by three defensive structures of different function. Two of them were meant purely for defense. The third hill-fort had dual function, because it was populated by urban artisans and merchants, but it also held a defensive function. The function of the fifth hill-fort, which is situated furthest to the east, is not clear yet. The valley, which is situated between the hill-forts and the river, as well as the upper river terrace, was built up by the homesteads of craftsmen. The activity of certain social groups is clearly distinguished by the numerous artifacts and ecofacts. For example, the residence of a duke was identified by the abundance of especially luxurious imported goods. Meanwhile, the number of finds in defensive hill-forts is relatively small but they are distinguished by powerful fortifications. It should be noted that there were no artifacts connected with more intense agricultural activity found in any of the investigated locations, indicating the non-agrarian character of the community. Furthermore, these investigations illustrate the role of social stratification and geography of society – there are obvious cultural and confessional differences of Kernave residents in different town areas. The artifacts discovered in the lower town are clearly of local Baltic origin, whereas the majority of artifacts discovered in the upper terraces are continuations of the Scandinavian jewelry traditions. It may be that two different Hamar i love occupations (inhumation and cremation) could be related with the communities of different confessions. Therefore, the research shows that in Kernave there was a clearly socially stratified urban community, which is characterized by cultural and religious syncretism, unique material culture and combination of pagan and Christian worlds.
TH1-34 Abstract 12

Nucleated settlements in the Eneolithic of south-eastern Poland?

Author - Dr. Nowak, Marek, Institute of Archaeology, Jagiellonian University, Kraków, Poland (Presenting author)
Co-author(s) - Veres, Zsolt, Institute of History, Budapest University of Economic Sciences, Budapest; Dr. Pieroni, Katarzyna, Institute of Ethnography, Warsaw, Poland

Abstract: Eneolithic nucleated settlements are a distinct feature of the Eneolithic to the Bronze Age transition in south-eastern Europe. The aim of the research is to present the results of an analysis of nucleated settlements in south-eastern Poland. The presentation discusses the results of a long-term research project that began in the mid-1990s and continues today. The research involves the use of a wide range of methods, including archaeological excavation, aerial photography, and geophysical surveys. The research has focused on the study of nucleated settlements in the area of Lower Silesia in southern Poland, which is characterized by a series of large nucleated settlements. The presentation will discuss the results of the research, including the distribution of nucleated settlements, their size, and their relationship to the surrounding landscape. The presentation will also discuss the social and economic organization of these settlements, and their relationship to other contemporary cultural patterns.

Presentation Preference - Oral

TH1-34 Abstract 13

Organizational variability of Bronze Age nucleated settlements in Hungary: a long-term approach

Author - Szavay, Ágnes, Hungarian Academy of Sciences, Budapest, Hungary (Presenting author)
Co-author(s) - Kiss, Vittóriá, Hungarian Academy of Sciences, Budapest, Hungary

Abstract: This paper presents a long-term research project that began in the 1980s and continues today. The research involves the study of nucleated settlements in southern Hungary, which is characterized by a series of large nucleated settlements. The research uses a wide range of methods, including archaeological excavation, aerial photography, and geophysical surveys. The research has focused on the study of nucleated settlements in the area of Lower Silesia in southern Poland, which is characterized by a series of large nucleated settlements. The presentation will discuss the results of the research, including the distribution of nucleated settlements, their size, and their relationship to the surrounding landscape. The presentation will also discuss the social and economic organization of these settlements, and their relationship to other contemporary cultural patterns.

Presentation Preference - Oral

TH1-34 Abstract 14

Spatial patterns of Nuragic sanctuaries inside settlements and in the countryside of Sardinia

Author - Dr. Steuring, Ruth, Römisch-Germanische Kommission, Frankfurt, Germany (Presenting author)
Keywords: GIS analysis, landscape archaeology, Nuragic culture

Abstract: This paper presents a study of the spatial patterns of Nuragic sanctuaries in Sardinia. The study involves the use of GIS analysis and landscape archaeology. The research has focused on the study of the Nuragic sanctuaries in the countryside of Sardinia, and their relationship to the surrounding settlements. The presentation will discuss the results of the research, including the distribution of sanctuaries, their size, and their relationship to other contemporary cultural patterns.

Presentation Preference - Oral

TH1-34 Abstract 15

Cheiftains' farmsteads from the Hallstatt period - architecture and structure

Author - PhD Gralak, Tomasz, Wrocław University, Wrocław, Poland (Presenting author)
Keywords: Hallstatt period, metrological analysis, spatial organization

Abstract: This paper presents a study of the architecture and structure of cheiftains' farmsteads from the Hallstatt period in southern Poland. The study involves the use of metrological analysis and spatial organization. The research has focused on the study of the farmsteads in the area of Lower Silesia in southern Poland, which is characterized by a series of large nucleated settlements. The presentation will discuss the results of the research, including the size and shape of the farmsteads, their relationship to the surrounding landscape, and their relationship to other contemporary cultural patterns.

Presentation Preference - Oral

TH1-34 Abstract 16

The broader review of the whole settlement network might shed light on the temporal and spatial changes of the main events in the background, and in some cases can give a valuable interpretation for the landscapes of complexity.

TH1-34 Abstract 17

Sardinian Bronze Age and Early Iron Age Nuragic monuments are renowned as impressive examples of a community effort. Nevertheless, the motivations and social organisation of the communities behind the joint efforts in creating those enormous and sophisticated buildings are still debated and barely understood. The Nuragic civilization developed in the Middle Bronze Age and Early Iron Age, from about 1900 – 730 BC (MBA to EIA). Nuragic settlements were spread over the entire Island (more than 6000 are still visible in the landscape), and the Nuraghes can be subdivided into mono-tower and multi-tower. In later times (Final Bronze Age, MBA) the use of Nuraghes declined, while complex villages arose – most times nucleated villages distributed around Nuraghes, but also in new places in the landscape.

In contrast, sacred monuments or areas are less frequently identified. While for the earliest phase of the Nuragic civilization no more sacred places can be identified, they gradually become visible in the waves of giant tombs and in megaron temples. From the beginning of the LBA a preference for fonts and wells can be observed, furnishing in water sanctuaries of finest masonry in the MBA and EIA. The sanctuaries are of different characteristics, some of them being quite remote while others were integrated with nuraghes and Nuragic complexes. A few of them are rather large, consisting of different buildings, partly surrounded by huts, built for large groups of visitors (called ’federal sanctuaries’, e.g. Santa Christina-Paulistino or Santa Vittoria – Serri); others are more domestic, only suitable for smaller congregations. In the LBA the collective workforce seems to be shifted from the Nuraghes to the sanctuaries. Additionally, a change in the skills and preferences of masonry can be observed. Though the actual building of the Nuraghes ceased, they survive partly in conversion and also as sculptured mounds of stone that was treasured in many of the sacral and/or meeting places. The refined religious practices observed somehow display changes in collective understanding of their surroundings manifested in the exploitation of fonts and wells. The processes are not fully understood, and were probably influenced by intensified contacts with different cultures of the Eastern and Western Mediterranean.

The study researches the interaction of the sanctuaries with different natural and cultural aspects within a GIS. The reference to water, other resources and infrastructural aspects are investigated, as well as the clusters of settlements they relate to, but also to other cultural patterns such as votive deposits (differentiating local and imported materials). In case studies it also takes into account the patterns of sanctuaries located close to or within settlements, and the ways in which they were incorporated into new settlement foundations or added to existing settlements.

Attempts to interpret the Nuragic civilization and their features are numerous and manifold. Scholars claim models from elite structures to egalitarian systems. The study finally discusses the results in regard to different theories currently debated.

TH1-34 Abstract 18

The broader review of the whole settlement network might shed light on the temporal and spatial changes of the main events in the background, and in some cases can give a valuable interpretation for the landscapes of complexity.
TH1-34 Abstract 16
Settlement mounds: A long-term analysis of the settlement organization in the Iron Age
Author - PhD Haue, Niels, Historical Museum of Northern Jutland, Aalborg, Denmark (Presenting author)
Keywords: Iron Age, settlement mounds, socio-economically organization
Presentation Preference - Oral

The settlement mounds in Denmark date to the Pre-Roman Iron Age and the Roman Period, and the excavation of these complex villages offer detailed analysis of the long-term social organization of rural villages in South Scandinavia. The paper will present a case study from northern Jutland, Denmark to discuss how spatial divisions within nucleated settlement mounds could regulate the socio-economic patterns and dynamics of prehistoric villages. In particular, the paper focuses on the ways that the best "addresses" of the village could maintain their dominance for several centuries, and how architecture was used to express and manipulate identity within the village.

TH1-34 Abstract 17
Structured villages from the Early Roman Iron Age in central-southern Jutland, Denmark
Author - Dollar, Scott, Sønderkov Museum, Bregup, Denmark (Presenting author)
Keywords: Early Roman Iron Age, farmsteads, nucleated settlements
Presentation Preference - Oral

During the Danish Late Pre-Roman Iron Age in parts of western and southern Jutland there was a shift from a dispersed to a more nucleated settlement structure. This is best illustrated by a handful of villages that were enclosed by common fences. At the start of the Early Roman Iron Age there is a dramatic increase in the number of nucleated settlements, some of which seem to emerge rather suddenly, often where there has been little or no previous occupation.

Rescue excavations have brought to light a number of structured villages from the beginning for the Roman Iron Age that are composed of several individual enclosed contemporaneous farmsteads laid out in a linear plan. The layout of individual farmsteads and the buildings within them were themselves architecturally uniform giving these villages, as a whole, a relative uniformity. When comparing different villages to each other, there are variations in settlement and farmstead layout. These differences may indicate that there were underlying social-cultural norms or rules in how these village communities should structure their settlements and farmsteads which were maintained by these communities over several generations. In this paper, I will present several Early Roman Iron Age settlements excavated at Sønderkov Museum in a limited geographical area of central-southern Jutland.

TH1-34 Abstract 18
What does settlement layout tell about the community?
Author - PhD Yalman, Eminre Nurcan, Cultural Awareness Foundation Istanbul, CIE-Center for International Heritage Ac, Istanbul, Turkey (Presenting author)
Keywords: ethnoarchaeology, interpretation, settlement
Presentation Preference - Oral

The layout of a settlement reflects long-term processes and mutual interactions that occur among many variables. Sometimes the factors that shape a settlement are the result of various deliberate decisions, but indirect effects also play a role in these processes. In an archaeological site, we usually excavate and observe only parts of settlements, and thus we find that many of the components are missing. Therefore, especially in prehistoric sites where there is no predictable site plan, it is difficult to interpret the community by studying the site. This paper will discuss the relationship between the structure of a community and the settlement layout and the factors that make a settlement nucleated, dispersed or agglomerated, with an ethnoarchaeological study in Central Anatolia.

TH1-34 Abstract 19
The creation of powerful places in Etruria
Author - Dr. Stoddart, Simon, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: Etruria, Genealogy, Hierarchy
Presentation Preference - Oral

The paper will examine the processes underlying the construction of powerful places in Etruria. On the one hand, the landscape of much of Etruria was dominated by what have been defined as primate centres in studies of political geography. On the other hand, burial evidence indicates the retention of counterweighing political genealogies that apparently contrasted with the apparent centralisation of power in the large centres. The paper will examine the resolution of this tension by matching emerging evidence from the nucleation of settlement (layout and organisation) with evidence for succession amongst political elites and their individual participants (the sequence and content of graves). The variation of this pattern at an interregional level will be added to the complex, often heterarchical, pattern of Etruria.

TH1-34 Abstract 20
Communication network structure in Latium vetus and Etruria: Two faces of the same coin?
Author - Dr. Fulimante, Francesco, University Roma Tre, Roma, Italy (Presenting author)
Co-author(s) - Prof. Guidi, Alessandro, University Roma Tre, Roma, Italy
Co-author(s) - Dr. Lozano, Sergi, IMHE, Terragona, Spain
Co-author(s) - Dr. Prigiano, Luce, University of Barcelona, Barcelona, Spain
Co-author(s) - Moser, Ignacio, University of Barcelona, Barcelona, Spain
Keywords: central Italy, communication networks, urbanism
Presentation Preference - Oral

Communication infrastructures are emerging complex structures: they are not completely random, neither are they entirely planned according to a predefined project especially when there is no unified political framework. Transportation networks can be regarded as an epiphenomenon of social interactions and interactions between societies and environments. At the same time, they influence the development of past societies (they enhance trade dynamics affecting the prosperity of a civilization) and their complexification (e.g. emergence of urbanism). There is a feedback loop. By analyzing and comparing fluvial and terrestial communication networks in Etruria and Latium vetus between the Final Bronze Age and the Archaeic Era with a newly developed Network approach this paper shows the similarities and differences between the two regions and contributes to explain why in the course of the Latium vetus prevailed over the rival. Moreover, this analysis suggests a relationship between the hierarchical dynamics of city-states organization (and its corresponding influence on infrastructural decision-making) and the structure of terrestrial routes networks.

TH1-34 Abstract 21
The Analysis of Changes in Post-Chalcolithic Settlement at Čatalhöyük
Author - MA Hordecki, Jędrzej, Adam Mickiewicz University, Kocian, Poland (Presenting author)
Keywords: Çatalhöyük, Hellenistic settlement
Presentation Preference - Oral

Çatalhöyük is one of the most well-known archaeological sites. This fame is largely the result of Neolithic strata excavated there. However, this place was occupied in other periods as well. Evidence for this are registered both as on-site finds and, more importantly, remains of buildings from post-Chalcolithic periods. Because of its particular position, both at the regional scale of the Konya Plain and within Anatolia, Çatalhöyük played a specific role. Excavations at the site revealed strata and remains of settlement from Bronze Age, Phrygian, Hellenistic and Muslim Periods. Evidence for the first and the last periods were relatively scarce. However, finds and strata from the Phrygian and Hellenistic Periods indicate interrupted settlement from the 6th to 2nd century. Because of this, Çatalhöyük is a very good example of settlement characterized by diachronically visible social and economic complexity and cultural heterogeneity. The theme of my paper is to present the results of an analysis of late archaeological strata registered in the TP Area. Phases of settlement presented in the first part will become a base for further interpretations. From this...
it will be possible to show organizational variability of space, which will be a starting point for interpretations focused on changes in perception of this space. In the result in my paper, I will indicate the most important economic and social changes that took place in Câştişyl. That will be the answer not only for the question about the role of changes on site or in the region but also at the wider scale of Anatolia.

TH1-34 Abstract 22
Comparative Study of Settlement Systems in the Bronze Age and the Medieval Age

Author: Dr. Pusztainé Fischl, Klára, University of Miskolc, Miskolc, Hungary (Presenting author)
Co-author(s): Pusztai, Tamás, Herman Ottó Museum, Miskolc, Hungary

Keywords: Bronze Age, Middle Age, comparative study, settlement structure and using of space

Presentation Preference - Oral

Comparative studies on built environments between prehistoric and historic times at different geographical scales have yielded important results in various parts of the world. In particular, analyses of complementary datasets contributed to a better knowledge of similarities and differences in socio-economic developments at the local scale. However, less effort has been devoted to the matter concerning how abundant historic datasets can facilitate in understanding prehistoric settlement dynamics.

The aim of our paper is to examine settlement nucleation processes at the regional scale during two periods in Northeast Hungary. Two geographically distinctive, neighbouring regions, the Borsod Plain and the foothills of the Bükk mountains, will be included in this study, with particular focus given to the settlement patterns for the specific periods of the Bronze Age (between 2200 and 1600 BC) and the Middle Ages (14-15th centuries AD). We will explore the topography, settlement networks, space and land use, as well as house construction methods in a comparative regional and temporal framework. The economy of these two periods is based on agriculture and the exploitation of the immediate environment. The historical and cartographical sources, landmark inspections, and the well-known road-networks make possible to determine central sites contra villages in the 14-15th century AD in the micro-region. Based on the analysis of building methods, communal spaces, spatial organisation of the homes and the villages, and economic activities in these two periods, we propose a model that will determine critical factors about the Bronze Age settlement pattern (roads, central places, distribute places and activities between settlement).

TH1-34 Abstract 23
An exemplification of the socio-political make-up of the Late Bronze Age polities from Hungary

Author: Czukor, Péter, Móra Ferenc Mázeum, Szeged, Hungary (Presenting author)
Co-author(s): Pusztai, Tamás, Herman Ottó Museum, Miskolc, Hungary

Keywords: Bronze Age Hungary, Fortified settlement, Landscape, hierarchy

Presentation Preference - Poster

In the area of the Békés-Csanád loess table and the Banatín, SE Hungary and W Romania, a series of large fortifications enclosed by ramparts and ditches emerged in the period of 1300–1100 BC (Rei. BrD–HaA1). These huge structures, often hundreds of hectares large, got into the focus of Hungarian and Romanian research only in the past decade (have got into the focus of Hungarian and Romanian research only from the past decade). The fortifications are surrounded by a series of smaller rural settlements, forming a three-tiered settlement hierarchy, indicating a fairly complex society. The function of these settlements is debated to some degree, as they have not yet yielded substantial domestic remains, and their interpretation as refugia or ritual centres is also possible. This new type of settlement indicates significant although, up till now hardly known social and economic transformations in the last centuries of the 2nd millennia BC, in the Late Bronze Age. In my poster I will summarise the results of the research focusing on one of these fortifications, Makó-Róka-Csajszvár and its hinterland. This small, 42 hectare large fortified site is investigated within the framework of a wider, microregional settlement study and will be interpreted in terms of the socio-political make-up of the Late Bronze Age polities.

TH1-34 Abstract 24
More than meets the eye: burial monuments and “landscapes of power” in late Iron Age Britain

Author: Minkevičius, Karolis, Vilnius University, Vilnius, Lithuania (Presenting author)
Co-author(s): Šemeta, Agne, Vilnius University, Vilnius, Lithuania

Keywords: GIS, Iron Age, Landscape Archaeology

Presentation Preference - Poster

As human beings, the desire and necessity to “change” landscape has been with us from the beginning of our existence. From the basic acts such as hunting or setting a campfire, to a more complex ones like constructing a transcontinental canal, our actions have been constantly changing the landscapes we inhabit. In prehistoric Europe these changes usually were an unintentional by-product of other activities. However, it is becoming increasingly evident that this was not always the case. Landscapes play an active part in societies, rather than being a passive reflection of (some of) their actions. They influence and are influenced by social interaction and social structure. Throughout the history numerous societies have used this phenomenon to their advantage. Here it is being suggested that such landscape control strategies can also be observed in the later Iron Age in eastern Britain. During this period the re-emerging cremation burial monuments of social elites were used in the creation of “Landscapes of Power”. Some of them were used to visually dominate the social and political landscapes of the late Iron Age oppida. This hypothesis has been explored using GIS-based visibility analysis. By presenting case studies of Folly Lane, Lexden and Stannaway it is argued that the role these burial monuments was not only to pay tribute to the deceased, but also to assist in establishing, developing and maintaining social and political power at the oppida.
BUILD WITH MUD IN THE NEOLITHIC: TECHNICAL CONSTRAINTS AND CULTURAL CHOICES

At the beginning of the Neolithic in the Middle East, the hand modeled mud was a structural material involved in the houses building. In various parts of Europe this material is gradually used, in the Balkans but also in the Neolithic of the Western Europe, in Italy, France or Spain for example. Earthen materials are used for multiple functions: as cob or mudbrick to realize upstanding load bearing masonry, as daub to cover wooden walls, as plaster for walls or constructed floors and shape containers, furniture or grain silos as well. This session aims to present the developments of the archaeological research on this subject, focusing on rural settlements and villages, in particular during the Neolithic. Contributions about Mesolithic/Neolithic transition and Bronze age are welcomed as well. We propose to raise the question of the function of these various earthen constructions and to raise the question of determinism governing its use in competition or in complementarity with stone and wood, through models involving technical constraints and cultural choices. Papers can be also focused on the relationship between raw materials (selection and exploitation), technical choices and dwelling function. Spatial analysis, ethnoarchaeological, theoretical and experimental studies are encouraged.

Some remarks about the role of environment and society in building technology

Most often, the archaeologist underline the role played by environmental constraints in the elaboration of architectural models, in particular for the employed raw materials. This paper wants to explore the complex relationship between environment, cultural choices, building traditions, socio-economical context and technical constraints, presenting ethnoarchaeological and archaeological examples of earthen constructions in different European contexts. First of all, the observation of modern wattle and daub in northern France allows some remarks about the relation between employed raw materials and techniques. The results of the Neolithic wattle and daub analysis from different sites in Piemont (Northwest of Italy) stress the role played by tradition in building practices. Some case-studies from the Italian Bronze age, focused on earthen walls and floors building techniques, could be useful to understand some cultural choices, guided especially by socioeconomical needs.

In prehistoric contexts, as in vernacular architecture, the employed building materials are often local and show a good adaptation to the ecological environment. That’s a sort of redundancy, but the identification of raw materials is just a first analytical level for the archaeologist. We need to make an effort and explore in deep the relationship between raw materials, technical choices and social context. In fact, each peculiar technical solution is often a solution among various other possibilities. The aim is to turn the archaeological reasoning and stress the technical variability in our approaches, to show the limits of the environment and context as the main and enhance the role played by cultural choices in the formation of ancient communities.

The building shows traces of fire. A technological analysis has been carried out, using a geoarchaeological approach, in order to understand the different choices in raw material selection and the employed building techniques. After an accurate characterization of the stratigraphy on the field, several micromorphological samples has been collected on both preserved to similar conditions as they were during their initial habitation phase in the past. It is therefore crucial to understand the post-depositional processes involved in mud structure degradation and how they form the contemporary archaeological setting. This paper presents an ethnoarchaeological study, conducted in recently abandoned mud structures in two distinctive environmental regions: arid South Israel and temperate Northern Greece. The taphonomy of earth floors, mud brick walls, thatched roofs and microscopic activity remains was studied. Field observations and excavations were carried with various microscopic laboratory-based analyses. The paper supplies guidelines to the identification and interpretation of the microfeatures of the remains, occupation deposits, thatched roofs and degraded mud brick material. The results of this study presents the importance of combining macroscopic and microscopic analytical methods to distinguish between various infill sediments in order to enable better interpretation of archaeological mud structures.

The Nebelivka house-building and -burning experiment is the latest in a long line of experiments that supports the notion of the Neolithic way of building. During the summer of 2014, two 2/3rd-sized timber-framed wattle-and-daub houses similar to those constructed on Cucuteni-Trypillia settlements, including the Trypillia mega-sites, were built in Nebelivka, Kirovograd Oblast, Ukraine by a joint British and Ukrainian team of archaeologists and craftpeople. One of the houses was deliberately destroyed by fire in May 2015 to study the process of its collapse and the potential formation of the ceramic-like burnt daub remains so often found during archaeological excavation of Cucuteni-Trypillia sites from the Balkan Chalcolithic period.

Observations of the collapse of the two-storey house have given new insights into the processes forming the archaeological record and cast doubt on accepted theories of the formation of clay building remains which are as large as 320 ha. The most surprising result concerned the very large quantities of firewood needed to burn the house completely. Coupled with experimental work carried out in the United Kingdom using the same materials, this experiment has presented evidence which challenges existing theories of house construction. By adapting test methods used to study the strength of concrete, masonry, and rammed earth construction materials, the effect of heating on the material strength of daub construction material was investigated in a series of compression and shear tests. The results challenge the theory that controlled burning of wattle and daub structures was used deliberately as a construction technique in Tripolye-Cucuteni houses.

The Neolithic house-building and -burning experiment is the latest in a long line of experiments that supports the notion of deliberate house-burning at the end of a house’s use-life.

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archaeological features and layers relating to deterioration processes of built features. Burned daub fragments were entirely collected during the excavation as well. These materials are first analyzed from a macroscopic point of view. Technological analysis can be linked to the functional aspect of each structure and activity areas, to highlight both technical choices and socio-economical behaviors.

**Abstract 05**

**Hearth structures and plasters from the Bronze Age settlement of Oratino: the dark side of the mud**

**Author:** Dott. D’Oronzo, Cosimo, Università Sapienza, Roma, Italy (Presenting author)  
**Co-author(s):** Copal, Valentina, Dipartimento di Scienze dell’Antichità, Roma, Italy  
**Co-author(s):** Mirom, Vittorio, Dipartimento di Scienze dell’Antichità, Roma, Italy  
**Co-author(s):** Danesi, Michela, Dipartimento di Scienze dell’Antichità, Roma, Italy  
**Co-author(s):** Forte, Vanessa, Dipartimento di Scienze dell’Antichità, Roma, Italy  
**Co-author(s):** Medignini, Laura, Dipartimento di Scienze della Terra, Roma, Italy  
**Keywords:** Bronze Age, cooking platform, plaster  
**Presentation Preference:** Oral

The Bronze Age site of Oratino – La Rocca is located on a small terrace beside the southern slope of a rocky hill that dominates the eastern side of the high Bilerno river valley, along an important route that penetrates the inland region of central-southern Italy from the Adriatic coast. The research conducted so far on the site allows us to recognize different moments of occupation mainly from 15th and 12th century B.C. During the final phase of occupation a series of six layers, characterized by the presence of hearths and cooking structures is attested. They can be related, mostly, to food preparation/treatment and consumption activities, repeated in a short lapse of time. Moreover, these activities were performed in an open area and are not linked to specific domestic structures, but probably in a collective sphere, by a restricted number of people. Several plaster fragments, related both to the cooking platforms and with other accessory structures, were found in these layers of occupation. A broad use of mud for coatings or covers of huts and an exploitation of raw materials macroscopically different for the manufacture of small structures, as cooking platforms, is observable from the macroscopic analysis of morphometrical and technological features of archaeological materials. The application of compositional analyses, as petrographic analyses on thin sections will allowed to characterize composition and firing temperatures allowed to identify potential sourcing areas of clays that have been compared with archaeological material composition to establish the provenance of raw materials.

**Abstract 06**

**Technical evolution of adobe building materials and work specialisation at Ra’s al-Hadd HD-6 (Oman)**

**Author:** Dr. Azzur, Valentina, UMR 7041 ArScAn - Vepmo, Nanterre Cedex, France (Presenting author)  
**Keywords:** Adobe composition, Grain size distribution, Work specialisation, Early Bronze Age, Oman  
**Presentation Preference:** Oral

Earthen materials are introduced in Oman at the end of the 4th millennium BCE, when a series of technological evolutions mark the transition to the Early Bronze Age. The very beginning of such transformation, however, remains scarcely understood from the point of view of settlement life and activities, as the Haft period is mostly represented by thousands of graves, while very few settlements are known throughout the area. The site of HD-6 has been the object of a detailed large-scale excavation, showing both the emergence of solid architecture and a diachronic evolution in adobe building materials. Aiming at a better understanding of such evolution, chemical-mineralogical and granulometric analyses of earthen building materials related to the different occupations of HD-6 have been performed on a series of samples. The results suggest that the differences in mud-brick fabrics were a result of mixing and tempering and are not indicative of different raw material sources. Together with the technical characteristics of building, such differences show the evolution of building materials and methods of construction used on site, hinting at increasing specialisation of work and of the workforce.

**Abstract 07**

**Clay, wood and stone - Neolithic architectures on the channel sea shore, at Lillemer**

**Author:** Laporte, Luc, CNRS, Rennes, France (Presenting author)  
**Co-author(s):** Bizien-Jaglin, Catherine, CIfRAA, Saint-Malo, France  

For the most part of the researchers the house is the main important social, ideological and economic entity of the society in Copper Age in S-E Europe. The materials used to built, the form, the inner space structuring, were seen like being representative
for different archaeological cultures. The moment of building, the utilization and the abandonment are the most important markers of the final chapters of a building life time.

The excavations from Hîrova and Bordeanu, both tells in S-E Romania, provided important information concerning the Copper Age lifestyle, more precisely the history of the Gumelnita housing.

The most frequent construction technique though consists of a trench in the bottom of which are driven a number of wooden stakes, fairly close together, supporting a lattice of branches to receive the clay. The walls and the floors are plastered with layers of different clay preparation. Usually having two rooms, each has its own rectangular oven. During their lifetime the houses have often been repaired and sometimes, modified. Disposed in rows, the buildings are separated by passageways.

Generally, the final period of their evolution started with the moment when the dwelling ceased to be used by its inhabitants on that purpose. The archaeological information demonstrates that the end of their evolution is not the same for all dwellings. Some of them were abandoned and decayed in time, others were intentionally destroyed and others were intentionally fired. The diversity of all these situations can be interpreted like the result of different causes, and suggest a more complex spiritual life of the communities of the Gumelnita culture in Vth mil. BC.

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**TH1-35 Abstract 10**

**The uses of architectural mud in karstic area at Neolithic: environments techniques and cultures**

**Author** - PhD student Di Pascale, Ambre, University Paul Valéry - Montpellier III, Montpellier, France (Presenting author)

**Presentation Preference** - Poster

In the Languedoc region, we distinguish two main landscape settings: plain zones and karstic environments (called Garrigue). Plains are composed of lagoon areas, layers of gravel, alluvial aquifers. Karst wetlands presents typical cavital shapes, such as sinkholes or avens. The soil there is stony and composed of numerous limestone outcrops, while the sedimentation is low (Guthner, 1975). Both plains and karst wetlands were inhabited territories ever since the Neolithic era. However, the raw material resources that are directly available do modify the builders' choices and highly affect the housing types. In the garrigues areas, one can find a large number of houses that have walls made of dry stones. Conversely, on the coastal plain, unbaked clay architecture was proven on several sites, such as La Capoulière (Mauguio, Hérault) or Mitra (Garons, Gard). Though, this kind of geographical determinism ought to be further qualified: Indeed, cases were seen where environment constraints have certainly been overcome by technical and cultural traditions and had a direct impact on the builders' choices. In the Rhône plain, several dry stone houses were found. Yet these structures are established on soft substratum (Jallot, 2011). Likewise, in karst areas, the discoveries of the use of a combination of stone and mud are numerous. It is true that until recently, and particularly in karst environments, the excavation of settlements was essentially based on the recognition of remains from long-lasting materials – which often precluded mud remains. But new problematics are emerging thanks to the improvement and the adjustment of excavation methods specifically relevant for the study of mud construction materials. Boussargues (Argelliers, Hérault), located in the core of Hérault’s garrigues, contained wattle and daub vestiges directly associated to dry stone wall remains. They actually are roof elements (Chazelles, 2008). Fortbousse (Villefavre, Gard department) is characterized by its dry stone constructions; although, the excavations revealed the presence of cob elements in the settlement, interpreted at that time as wall elements, with its wattle inserted in the stone walls used as foundation (Louis et al., 1947). Mud is also certified and used as a coating on dry stone walls at Jas Del Biau (Millau, Aveyron), and earth pads were identified on the spot (Jallot, 2000). On the La Vayrède site (La Baïse-Pradine, Aveyron), unbaked clay may have been used as a binding agent between the rubble stones. And the walls have seemingly been raised with mud on the foundations (Fourré, Convertini, 2000).

Thus, the use of mud associated with stone constructions in karst environments can be seen in roofs, coatings, as binding agent, on foundation or in various layouts. The currently available data is not numerous enough to establish significant recurrences, yet new prospects are emerging. Does the use of mud in construction satisfy technical and/or cultural needs? What is the real impact of environmental constraints on the communities’ choices in the Neolithic era? These questions highlight too little explored problematics, particularly regarding the complexity of building systems and to the involvement of the societies in its making.
Archaeological practice reveals a remarkable diversity of approaches to the management of archaeological heritage. Starting with increasingly complex methods of field research and survey, management approaches use laboratory-based analytical approaches and integrate interpretative models. These define the nature of archaeological sites, the natural decay and human processes that influence their survival, the evidence used for reconstruction and for methods of interpretation and display. From single case studies to more general, developed concepts of heritage management, an increasing spectrum of meanings and values engage and inform academic, managerial and social concerns. Financial restrictions and archaeological project limitations create new challenges for all, sometimes frustrating the development of archaeological heritage management practice. Archaeological agency is now faced with old and new constraints together with requirements and pressure to ‘perform’. This suggests an increasing and important role for the profession in cultural heritage management.

The theme invites discussion on issues regarding heritage management: defining cultural value, conservation methods, rationale for restoration, risk management, illicit trade, preventive and rescue archaeology, museum presentation and virtual museums. There is room for discussion on issues related to cultural-heritage regulation, management approaches, legislative and institutional aspects, interpretation, presentation and tourism development, etc.
Managing the archaeological heritage

In order to protect the rural archaeological heritage in Germany various strategies have been developed since 2010. The paper presents best-practice models of managing monuments in intensively used agricultural landscapes. Especially the conversion of ploughed sites into grassland as well as the application of precision farming systems are different approaches to a better conservation of archaeological remains at risk.

Managing rural landscapes in southern England - two case studies

The successful management of rural landscapes depends on good partnership working. This contribution to the Round Table will discuss two case studies from Southern England both of which contain some highly significant archaeological remains - the Salisbury Plain Military Training Area, and the Stonehenge and Avebury World Heritage Site, both of which have many varied stakeholders and needs.

Integrated Cultural Landscape Planning at Ancient Corinth, Greece

An integrated collaborative master plan has been developed between 2014 and 2016 to protect, preserve and present the 6 square kilometer area that encompasses all the natural and cultural components of the landscape of Ancient Corinth, Greece. It comprises the ancient harbor at Lachain, the ancient city, and the citadel of Acrocorinth. These include mixed nature and heritage zones including the (a) wetlands and ancient harbor facilities of Lachain and the mixed industrial and agricultural region of the plain, (b) the village of Ancient Corinth and its agricultural outskirts in which are situated the remains of the ancient city, and (c) the agricultural and uncolltivated nature zone of the slopes of the great fortified citadel of Acrocorinth. These remain over 8,000 years of human occupation with some 270 monuments from the 6th c. BCE through the 19th c. CE still viable for visitors. The planning group is an official committee of the Ministry of Culture, Hellenic Republic, consisting of staff from the Inspectorate of Antiquities of Corinth, the American School of Classical Studies at Athens, and the Ministry of Culture. Essential partners of the team are the consulting firm of TPA and Med-INA (the Mediterranean Institute for Nature and Anthropos). The goal of the integrated plan is to provide a sustainable infrastructure and administrative organization for improving visitor appreciation of the various elements of the designated nature and heritage park by improving access to it and within it for a variety of uses including such things as bird watching, wild and cultivated plant appreciation, and guided paths through the historic monuments and the museum that display the multi-layered History of the famous city of Ancient Corinth. An essential part of the master planning process has been involvement of members of the local population represented by all sectors (citizens, civic groups, civic officials, regional officials). Planning has been aimed at producing proposals for major funding to improve infrastructure and rationalize access, add proper signage and displays, and to consolidate and conserve standing remains. The proposals are oriented to a long-term strategic plan that will seek public (Greek and EU government) and private (foundation and individual) funding. As a part of this endeavor the committee intends to submit proposals for Ancient Corinth to be listed as a UNESCO World Heritage Site.

Heritage Crime: Definition, Development and Duty-Based Ethics

While crimes against heritage are no new thing, the focus within academic debate and policy development has taken something of a centre stage recently. The concept of 'heritage crime', or 'cultural heritage crime' has come to the fore in literature that draws on input from archaeologists, museologists cultural heritage managers, criminologists, law and policing specialists and others (e.g. Korsell et al 2006, Grove and Thomas 2014). Furthermore, national heritage agencies such as Historic England have prioritised ‘heritage crime’ prevention and prosecution of offenders. This is encouraging on the one hand, since it serves to raise awareness of the impact of crimes that affect cultural heritage both with the wider public and – importantly – with decision-makers.

In this session we invite contributors from different jurisdictions and different disciplines to debate the definition(s) of heritage crime, document how the concept has been developed and applied in different contexts, and ultimately approach this area of research and policy in a way that neither compromises the safety and integrity of cultural heritage nor presumes to define what kinds of cultural heritage matters to different communities.

Keywords:
- Heritage Crime
- Heritage Protection
- Interdisciplinarity
- Prevention
- Information and Publication.

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Abstract

TH2-02 Abstract 01

Who commits ‘heritage crimes’?

Archaeology, the law, and civil rights in Austria

Archaeologists frequently accuse others (that is, non-professionals) of committing ‘heritage crimes’. But is it a ‘heritage crime’ if no law is broken? Is it not a ‘heritage crime’ if a heritage law is broken by professional archaeologists? And would it be a ‘heritage crime’ if, say, a heritage agency were to excessively apply a heritage legislation to prevent entirely legal activities, and thus unconstitutionally restrict fundamental civil liberties? This paper examines who actually commits ‘heritage crimes’ in Austria; and whether it is truly those who archaeologists normally suspect, or whether the worst serial offenders are to be found much closer to home.

Keywords:
- Austrian law
- Civil rights
- Heritage crime

Presentation Preference: Oral
Managing the archaeological heritage

Museums are an integral part of the cultural life of societies. Many house archaeological material, functioning as repositories for heritage crimes and organized crime networks. Using new evidence and focusing on recent events that took place in the city of Vibo Valentia (Calabria), where an entire archeological area with Roman temples has been recently looted, we present, relying on criminological and archeological backgrounds, the paradoxical Italian situation; in spite of the extension and the importance of its extraordinary cultural heritage - Italy counts 50 UNESCO World Heritage Sites the most of any country on the World Heritage List- the legislative instruments are still unsuitable because they are distant from the correct interpretation of the entire problem and so related with an anachronistic vision. Specifically, there isn’t in fact a specific type of offence against the cultural heritage, while at least 16 types of criminal enterprises are recognized in the Italian legislation. Finally, we discuss the problems arising from this lack in the law related with the difficulty of punishing the culprits.

References:

TH2-02 Abstract 03

Good Intentions and Bad Practice; conflicting values in heritage protection

Author - Campbell, Stuart, National Museums Scotland, Edinburgh, United Kingdom (Presenting author)

Keywords: Heritage Crime, Heritage Management, Portable Antiquities

Presentation Preference - Oral

The concept of heritage crime is often summed up by the image of the experienced and professional looter, motivated by financial gain and with some level of technical knowledge. While this model may apply to high profile cases of looting this paper will concentrate on less obvious sources of harm to the historic environment, in particular that grey area where bad practice or carelessness on the part of an individual can cross the line into criminal behaviour. This paper will focus on cultural attitudes, or different cultural perceptions of harm and importance which can lead to damage being downplayed or not seen as serious on the part of the perpetrator. This paper draws on experience of working directly with members of the public who find objects, not least metal detector users, and will draw on experiences which are often not discussed or considered at policy level. This will challenge the assumed role of the market in driving looting, arguing instead that much behaviour is driven by ‘single actors’, the finder or looter also being a collector, and the desire being to keep rather than to sell an object. Individual motivations include a complex mix of culture and preconceptions which might mean a site is damaged or an object not reported, often by individuals who act with good intentions. The cultural considerations which make an individual consider the law of little importance (while not considering themselves a criminal) will also be discussed. Running through all these issues are divergent and competing perspectives of why the past is important, and how legislation that seeks to protect the past may be perceived by third parties in a wholly different light.

TH2-02 Abstract 04

Museum Security: How big a threat is crime?

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Keywords: Europe, Heritage crime, Museum security

Presentation Preference - Oral

Museums are an integral part of the cultural life of societies. Many house archaeological material, functioning as repositories for the archaeological record, as well as sites of public education and dissemination. In addition to their intangible value, many collections may also have considerable financial value, and pose a temptation to thieves. In recent years, high profile art thefts have become headline news, with works of art of immense value being stolen and subsequently recovered. However, the threat of museum security remains less well publicized. In this paper we present the results from a study of a sample of museums in Finland and England, describing our research methods, key findings, and theoretical context. I position crime and crime prevention within the context of the larger spectrum of museum security considerations. I conclude by looking forward, and identifying future research avenues that would strengthen our understanding of museum security issues.

TH2-02 Abstract 05

The impact of anthropological looting in Spain. One research and development project

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Keywords: Anthropological looting, Punitive power

Presentation Preference - Oral

In 2014, a group of archaeologists and lawyers began to work together in a research and development project, funded by the Spanish Ministry of Economy and Competitiveness. This research project was primarily aimed at improving the basis for an effective legal response against archaelogical plundering. Anthropological looting represents a serious threat to the survival of fragile and vulnerable special heritage. This threat is deployed both in sites on land and underwater wrecks. In Western societies, this iniquitous property loss creates social alarm because of the common interest in this property. Therefore, public authorities are constitutionally obliged to prevent it, or at least, to try to do so.

However, in Spain the response provided by the State and the Autonomous Communities in the fighting against archaeological looting seems to lack the sense of unity required. The inadequacy of many legal instruments, such as the Spanish Historical Heritage Act, other cultural legislation, and the Penal Code is very well known, as there are claims to reform this legislation. However to achieve this and to improve the State’s response to this issue, the analysis of new data on real archaeological looting is required.

Archaeological looting, as with any other illegal activity, is difficult to quantify precisely. Therefore, in order to improve the State’s response to it, the Project that we presented seeks to collect, sort and analyze data that should be known but that in fact are not: the filing of complaints about archaeological spoils. At present, in Spain there is a tragic ignorance about what happens to these complaints in each region, how many are concluded, how many are not, and what the causes of each complaint are. From the collection and analysis of this data, the Project proposes improvement measures.

The project’s main objectives are:
A) To improve the response to archaeological looting, both on land and underwater, through the adoption of minimum standards by the agencies involved in the fighting against this wide spread social problem, made as a result of the research project.
B) To make public, a structured body of data from different geographical areas referring to the handling of complaints about archaeological looting from what, for the moment, are only available in administrative, judicial, police files that are difficult to access.
C) To provide tools to facilitate the fight against underwater and land archaeological looting, such as training the staff involved (members of the Security Forces of the State, judges, officials, managers, etc.), and social awareness. Improving the public response to archaeological looting involves ensuring access to these goods for future generations.

In this communication the most important research results conducted in recent years will be presented.

TH2-02 Abstract 06

Greater awareness as prevention measure against illegal turnover of archaeological artifacts

Author - Kairiss, Latvia, Academy of Culture, Riga, Latvia (Presenting author)

Keywords: archaeological artifacts at risk, crimes against cultural heritage, looting of archaeological sites

Presentation Preference - Oral

Although Latvian official criminal statistics does not contain data on illegal obtainment of archaeological artifacts, significant amount of illegal excavations (especially in the ancient burial places) and publicly available information regarding Internet trade of protected artifacts implies that national archaeological heritage is endangered. According to data provided by State Inspection for Heritage Protection every year about 20-25 criminal proceedings are started regarding looting of archaeological sites.
Different methods are being used in order to prevent and combat illegal obtainment and trade of archaeological artifacts – from explaining the significance of cultural heritage until improvement of legislative acts and introducing more severe punishment for correspondent offences. Proper implementation of any method could lead to positive results, however it is usually hard to find relatively efficient and at the same time speedy solution.

One of practical solutions of the problem has to do with enhancing awareness regarding protected archaeological artifacts and related issues because it would not be correct to assume that legislative acts already contain all the information needed for different audiences (e.g. buyers and traders of artifacts, persons who are interested in history, law enforcement officers etc.). Thus in December 2015 several cultural, law enforcement institutions and other institutions controlling turnover of cultural objects, under the guidance of Latvian Academy of Culture, started the development of “Digital catalog of Latvian archaeological artifacts at risk”.

The “Digital catalog of Latvian archaeological artifacts at risk” contains graphic and textual information regarding the most endangered national archaeological artifacts, as well as other information deemed to be useful for different audiences which could come into contact with archaeological artifacts. The presentation will give insight into aspects of illegal obtainment of Latvian archaeological artifacts, characterize the “Digital catalog of Latvian archaeological artifacts at risk” and opportunities of its usage.

The presentation will insight into aspects of illegal obtainment of Latvian archaeological artifacts, characterize the “Digital catalog of Latvian archaeological artifacts at risk” and opportunities of its usage.
Managing the archaeological heritage

Local and Global Educational Enrichment from Corinth Excavations

Object-based (Distance) Learning:

and museums.

Medieval culture with future generations. In the meantime, it is a project that is changing the role of archaeological excavations

was and continues to be a crossroads of cultural, religious, and economic activities for thousands of years. Outreach in Ancient

Greek, Roman and Medieval culture. There have been successes and failures in the process of creating educational outreach as it

interpreting Frankish skeletal material, and taking a digital field trip.

achieved achievements of the Roman Empire, pottery designs and styles of the Byzantine Empire, the development of Christianity,

-covered include water management, healing practices, mysterious rituals, analyzing evidence from the Classical period, cultural

however, suggestions for educators are provided in the lessons for adaptations for younger or older learners.

In this way, Corinth Excavations can reach learners locally and globally to tell stories about the past. The lesson plans are designed

to facilitate occasional educational programs in the museum and on the site of Ancient Corinth for Greek schoolchildren

and teachers on a variety of subjects. For example, a program held at the Asklepieion included a dramatic interpretation of

Epidaurian healing inscriptions.

Over the last 120 years, research at Corinth Excavations in Ancient Corinth, Greece, conducted by the American School of

Classical Studies at Athens (ASCAS), has produced a wealth of academic publications. Part of the mission of the ASCAS, however,
in order to producing research, is to disseminate the results to wider audiences. Just nine years ago, Corinth Excavations began

facilitating occasional educational programs in the museum and on the site of Ancient Corinth for Greek schoolchildren

and teachers on a variety of subjects. For example, a program held at the Asklepieion included a dramatic interpretation of

Epidaurian healing inscriptions.

Corinth Excavations now has a dedicated staff member for educational outreach thanks to the generous support of the

Steinmetz Family Foundation Fellowship; the Museum Fellow is creating enriching lesson plans for Greek and American curricula. In

this way, Corinth Excavations can reach learners locally and globally to tell stories about the past. The lesson plans are designed

to fit American learning standards for the sixth grade, when students spend one year learning about the entire Eastern Hemisphere;

however, suggestions for educators are provided in the lessons for adaptations for younger or older learners.

The lesson plans are based on objects from Corinth Excavations representing periods from antiquity to the present. Themes

include water management, healing practices, mysterious rituals, analyzing evidence from the Classical period, cultural

achievements of the Roman Empire, pottery designs and styles of the Byzantine Empire, the development of Christianity,

interpreting Frankish skeletal material, and taking a digital field trip.

The purpose of the outreach effort is twofold: to create communication between archaeologists and historians who produce

new and exciting results with the general public; and to inspire outside audiences to continue to learn about the legacy of Ancient

Greek, Roman and Medieval culture. There have been successes and failures in the process of creating educational outreach as it

is something new, innovative, and unparalleled for an excavation in Greece. But the successes have shown the power of objects;

they tell stories, they inspire curiosity, and they extend learning beyond the classroom and into museum and archaeological site.

Corinth Excavations is offering educators something they literally cannot get anywhere else: access to hundreds of thousands of images, videos, notebooks, drawings, plans, maps, artifacts, publications — that tell the story of our collective past.

In order to highlight over a century of research, the uniting message of our educational enrichment efforts is that Corinth

was and continues to be a crossroads of cultural, religious, and economic activities for thousands of years. Outreach in Ancient

Corinth aims to communicate these interactions among peoples through time and share the legacy of Ancient Greek, Roman and

Medieval culture with future generations. In the mean time, it is a project that is changing the role of archaeological excavations

and museums.
TH2-03 Abstract 07

Future Perspectives of Greek Archaeological Museums. The Archaeological Museum of Olympia

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Keywords: Archaeological Museum of Olympia, Greece, future perspectives, museological practices

Presentation Preference - Oral

The Greek archaeological museums of the 19th century, as well as their European counterparts are related to the development of the national states, constituting one of the key institutions as places where the nation could “weave” its history and cultivate the archetypal nation. The museum reform, that is to say, the archaeological museum in the last decades of the 19th and early 20th century becomes public, by giving the possibility of access to others than the managers and collectors. Thus, the current museum concept is defined as a creation of modernism as this was shaped during the Renaissance and survives until, approximately, the mid-20th century. On the other hand, along with trying to establish through collections and exhibitions an empirically documented truth, the museum seeks to elevate the past to an introduction of the present and the future. This intention is characterized by a holistic approach that will not examine the archaeological museum individually as a tool of the upper class, or an educational mechanism, a storage of precious artifacts, a space of national pride and individually, a field of developing a specific professional and scientific activity, exhibiting technique or local development lever. Instead, it will endeavor to highlight the field where all the above engage and collaborate through reciprocal support or even conflict. The future museum will be an integral part of a uniform process that starts by identifying an archaeological trail and ends in the exhibit cabinet or in storage. In this context, archaeologists should meet with a number of other specialists in direct roles in order to promote the composite knowledge of the past. This process should be guided by professional ethics and respect. Our proposal concerns the application of such a project in one of the most important museums in the world, the Museum of Olympia, as a vehicle of sophisticated museological practices that will contribute to the creation of the future museum.

TH2-03 Abstract 08

Open up again: a local museum by the lake and the strategies to connect it back to its community

Author - Dr. Cella, Elisa, Museo Civico Etrusco Romano di Trevignano Romano, Trevignano Romano, Italy (Presenting author)

Keywords: Community, Diversity, Local Museum

Presentation Preference - Oral

More than others, local museums are deeply connected both to their territories and their communities: their role in education and the high potential in reflecting and influencing cultural practices is a well-known issue, offering guidelines for any strategy aiming at turning any museum into an example or a good practice. It has been recently said that Museums should be “involved not simply in presenting or preserving but opening up a space for dialogue – about art, about culture, about humanity” (T. Golden 2016). In other words, the challenge seems to be the one related to the creation of a new asset, mainly based on the social and educational role of these institutions.

For those archaeological Italian museums traditionally created and intended as defences of their collections, the need of a Copernican revolution, the shift from a point of view mainly focused on the multiple ways of fruition, rather than those of mere protection, seems to be the only successful guideline today. If, on one hand, this seems to be the main issue of recent Cultural Heritage management on both national and local level, on the other hand the pattern seems to be less consistent at a regional and local level, where different political, economic and cultural strategies create a multifaceted and changeable reality. Is it possible to turn this element of weakness into a strength, considering differences as the chance for plural narrations?

The management of the Etruscan and Roman Museum of Trevignano Romano, located by the touristic shore of the Bracciano lake, North of Rome, recently changed its strategic assets in the name of diversity and inclusion. That is a challenge for a local museum that just a few years ago has been defined as a ‘silent’ institution, not contact with its people and its territory. Is it possible to change the narrative, turning it into one of the voices of its community, and at the same time into a bridge, the trigger for a wider inclusive and equal process to access the local archaeological heritage? Trevignano Romano has 10% of its population made of Eastern Europe citizens, and is the birthplace of the Abbot Tommaso Silvestri, the founder in the late 18th century of the first Italian school for the deaf: inclusion and accessibility seem to be the natural keywords of its mission. The paper aims at presenting and analysing the needs, the goals, the risks, the achievements and the failures of the renovation project of a local museum with the ambition of playing an active role at both social and identitarian level, intending the process of audience engagement not just as a mere economic tool.

TH2-03 Abstract 09

Curation of the Vilnius Museum of Antiquities

Author - Prof. McReynolds, Louise, University of North Carolina, Chapel Hill, USA (Presenting author)

Keywords: medieval identities, nationalism vs. imperialism, Prabáltika

Presentation Preference - Oral

In this presentation, I seek to historicize the curation of the Vilnius Museum of Antiquities (today’s National Museum of Lithuania) in order to highlight the role museums played in the challenge between nationalism and imperialism in the nineteenth-century Russian empire. Debates about display and curation were central to the rise of archaeology in that epoch, and in Russia, they were also closely associated with the fifteen archaeological congresses, meeting every three years from 1869, were the singular academic and professional forums held in Tsarist Russia; the 9th was held in Vilnius in 1893.

In the 1840s, when archaeology was first beginning to blossom, beginning as more of a vocation than a science, Count Eustachy Tyszkiewicz and his brother Konstantin moved from simply collecting Italian art to excavating approximately 200 barrows around their native Lodzynka, in present-day Belorussia. The Russian word for what we call “amateurs” translates literally as “lovers,” and this better captures the sense of this first generation of essentially noblemen who combined a passion for archaeology with similar fascination with ethnography and history. In 1842 the Tyszkiewich brothers opened three rooms in one of their palazzos into the first local Museum of Antiquities, more than a curiosity shop. It was visited by the Russian imperial family in its first year. In 1856, in concert with the anticipated liberalizing policies of new Tsar Alexander II, the collection was transferred to more space in the Library of the former University, which had been closed in 1832 following the Polish rebellion. Unfortunately for them, the second Polish rebellion of 1863 prompted the closing of this Commission, thereafter designated as only intended to be “temporary” and the redistribution of much of the museum to others, primarily Mosco’s Rumantsa Museum, a critical repository of historical artifacts.

One of the first orders of business following the rebellion was to re-curate the museum. Count M. N. Miuraev, who would receive an honorary “Vilenskii” added to his surname in recognition of the fervor with which he instigated the de-Polonization of the Northwestern Region (Lithuania and Belarus) organized a commission for the inspection of the objects on display in the Museum of Antiquities. The clash between Tyszkiewich and the Commission, and the subsequent congress, illustrate the use of archaeological artifacts to dispute an identity during the Age of Empire.
Community archaeology as empowerment for a struggling society

Author - Grahn Danielson, Benjamin, Picea kulturarv, Fors, Sweden (Presenting author)
Keywords: Community archaeology, Empowerment, Heritage as heritage

The initiative to create a new community archaeology project, JASA – the road from ‘irrelevant luxury’ to ‘archaeological jewel’, is an example of how archaeologists employed by the Archaeological museum in Zagreb, Croatia, have been involved in the local community's cultural heritage. In this presentation, we will discuss the potential and challenges of community archaeology in the local community. The project involved about 20 archaeologists and the impact of raising awareness on the area’s rich cultural heritage, along with financial benefits experienced by everyone included in this complex process. We will show how archaeological research can be used to revive history and support the local community's cultural heritage.

In 2013, "Dagens samhälle", a magazine for decision makers in the public sector wrote: "The trend is hopeless. 19 Swedish municipalities have shrank every year for two decades. Twelve of them may have died out before the turn of the century. In 2010, Ljusnarsberg and Strömstad will be the first in line for the precipice, if the population continues to decline at the same rate as now." Imagine being a citizen in Kopparberg, the small town in the municipality of Ljusnarsberg, and waking up to that announcement! Well, you probably wasn't surprised, but still. My municipality has a sentence, a death sentence and a given date when it’s all good by, time to pack the things and leave.

Several of the inhabitants in Kopparberg weren't asked at all when national media called out the message. And the inhabitants in the other small municipalities in the former so mine districting of Sweden is not asked for any opinion either. Meanwhile, a group of eleven artists that bought an old mine in the area thought "Hey, what about the locals, asylum seekers, art, music, heritage and the future of this place?" And suddenly, one year afterwards I was standing on an ice cold day with a director, journalist, artist, biker, a 25 year old dentist from Syria, an old man from Iraq, the local drunk, councillor and a bunch others, making an archaeological excavation of a public pinboard, with the overall theme: excavating the future of Kopparberg...

In this presentation I will give two examples of empowering the local community using heritage. The first example above is in great contrast to the other, where local school children excavates an old cottage where the flemmy once lived. But both are examples of how heritage and archaeology can be used to revives history and let the locals be proud of their cultural heritage, weather or not they have lived there for generations or came there last week.

Archaeological research most often includes the influx of experts into a new community where research is conducted, inevitably leading to new relations. In 2014 and 2015, a similar situation occurred in Croatian Baranja, where archaeologists worked on the future A5 motorway, discovering new and reviving old data on the region's cultural heritage. The region under study has been under tremendous amounts of financial, political and social stress, especially in the last 20-30 years due to its position next to two Croatian borders and its role in the Croatian War on Independence. Departr of all possible sort can, to this day, be noted in the area where jobs are scarce, where most entrepreneurs get swallowed up by larger companies and where culture is seen as an irrelevant luxury, no longer enjoyed even by the experts who work to preserve it.

From an archaeological point of view, Baranja is an extremely rich and valuable region. However, as with all other aspects of society, certain well-known and systematically excavated sites always cast a shadow on the smaller ones which rarely get a chance to be properly excavated and/or presented to the public. The aim of this contribution is to show how all of this can be changed by applying the ‘where there’s a will, there’s a way’ approach in a situation where the local community never saw culture as something important and potentially lucrative, both financially and socially.

The site of Jauhov salaš (JASA) is an example of how archaeologists employed by the Archaeological museum in Zagreb, Croatia, have been involved in the local community's cultural heritage. In 2013, "Dagens samhälle", a magazine for decision makers in the public sector wrote: "The trend is hopeless. 19 Swedish municipalities have shrank every year for two decades. Twelve of them may have died out before the turn of the century. In 2010, Ljusnarsberg and Strömstad will be the first in line for the precipice, if the population continues to decline at the same rate as now." Imagine being a citizen in Kopparberg, the small town in the municipality of Ljusnarsberg, and waking up to that announcement! Well, you probably wasn't surprised, but still. My municipality has a sentence, a death sentence and a given date when it’s all good by, time to pack the things and leave.

Several of the inhabitants in Kopparberg weren't asked at all when national media called out the message. And the inhabitants in the other small municipalities in the former so mine districting of Sweden is not asked for any opinion either. Meanwhile, a group of eleven artists that bought an old mine in the area thought "Hey, what about the locals, asylum seekers, art, music, heritage and the future of this place?" And suddenly, one year afterwards I was standing on an ice cold day with a director, journalist, artist, biker, a 25 year old dentist from Syria, an old man from Iraq, the local drunk, councillor and a bunch others, making an archaeological excavation of a public pinboard, with the overall theme: excavating the future of Kopparberg...

In this presentation I will give two examples of empowering the local community using heritage. The first example above is in great contrast to the other, where local school children excavates an old cottage where the flemmy once lived. But both are examples of how heritage and archaeology can be used to revives history and let the locals be proud of their cultural heritage, weather or not they have lived there for generations or came there last week.

Archaeological research most often includes the influx of experts into a new community where research is conducted, inevitably leading to new relations. In 2014 and 2015, a similar situation occurred in Croatian Baranja, where archaeologists worked on the future A5 motorway, discovering new and reviving old data on the region's cultural heritage. The region under study has been under tremendous amounts of financial, political and social stress, especially in the last 20-30 years due to its position next to two Croatian borders and its role in the Croatian War on Independence. Departr of all possible sort can, to this day, be noted in the area where jobs are scarce, where most entrepreneurs get swallowed up by larger companies and where culture is seen as an irrelevant luxury, no longer enjoyed even by the experts who work to preserve it.

From an archaeological point of view, Baranja is an extremely rich and valuable region. However, as with all other aspects of society, certain well-known and systematically excavated sites always cast a shadow on the smaller ones which rarely get a chance to be properly excavated and/or presented to the public. The aim of this contribution is to show how all of this can be changed by applying the ‘where there’s a will, there’s a way’ approach in a situation where the local community never saw culture as something important and potentially lucrative, both financially and socially.

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Managing the archaeological heritage

TH2-04 Abstract 02
The impact of local archaeology societies in England

Author: Roberts, Hayley, Bournemouth University, Poole, United Kingdom (Presenting author)
Keywords: Amateur Archaeology, Community Archaeology, Professional Archaeology
Presentation Preference - Oral

Non-professional archaeology was an integral component in the development of the archaeological profession in England. As the profession developed it distanced itself from the amateur sector and, on occasion, the relationship became fractious. However, now both sides have matured and harmony is reining more widely, although the relationship is still complex. Local archaeology societies played, and still play, a key role in the historic mediation process, bringing these two parties back together, but what are local archaeology societies, what do they do and why do they do it? They are rarely discussed or credited in archaeological literature but in order to bring total harmony it will be crucial to understand them and the impact that they have. Local archaeology societies in England range from county societies, who produce journals and manage museums to small ‘hobby’ groups with a primary interest in excavation and from metal detector clubs to groups that focus purely on archival research. Often they use elements of professional practice but sometimes components are missing. This can have a crucial effect on their impact. Using case studies gathered from the perspective of both amateurs and professionals in the south of England, this presentation will discuss archaeological discoveries made by and the research processes used by local archaeology societies. It will also consider the impact of their communication within the profession as well as the wider public.

This will demonstrate that not only do local archaeology societies have significant impact on archaeological understanding and on the archaeological profession but that they have even greater potential. By bringing clarity of understanding about local societies, this presentation will also demonstrate that the distinction between amateur and professional archaeologists is a little blurred in ways that professional archaeologists might not expect.

TH2-04 Abstract 03
Issues of metal detecting in Finland

Author: Dr. Weesman, Anna, University of Helsinki, University of Helsinki, Finland (Presenting author)
Keywords: communication, metal detecting, public engagement
Presentation Preference - Oral

In Finland, the use of a metal detector is usually allowed without a separate permit, even though it is regulated by such laws as the Antiquities Act (1963). The Antiquities Act protects ancient monuments, including a protected area around monuments of 2 meters. According to this same Act, finds over 100 years must be delivered immediately to the National Board of Antiquities (NBA) or a Provincial Museum. The finder must also provide information regarding the location of the find. The NBA can then decide if the find is valuable and if it should be delivered to a museum. The Antiquities Act (1963) also regulates the use of metal detectors and other tools used for detecting archaeological finds.

Even though there have been reports in the media of “nighthauling” in Finland I argue that most hobbyists want to detect responsibly. However, it’s clear that the legislation is out of date. The law and regulations are also difficult to interpret, creating frustration on both sides.

At the Espoo City Museum the growing interest in archaeology and metal detecting was understood in the beginning of 2012 when a series of projects were launched in order to engage the public in learning more about cultural heritage. During 2012-2015 many finders also report their finds to the media themselves. Thus the archaeological community needs to be engaged with the public in a way that is meaningful and relevant to the public.

This presentation will discuss the role of professional archaeologists in the development of metal detecting and the importance of public engagement. It will also consider the impact of their communication within the profession as well as the wider public.

It’s also important to note that engaging with the public needs to go both ways and that it is an ongoing process. Mutual trust is a key issue when collaborating with different groups and individuals, especially metal detectorists.

TH2-04 Abstract 04
Aspects of metal detecting in Finland

Author - Niikkanen, Marianna, National Board of Antiquities, Helsinki, Finland (Presenting author)
Co-author(s) - Kuitunen, Jutta, National Board of Antiquities, Helsinki, Finland
Keywords: Finland, metal detecting, stray finds
Presentation Preference - Oral

Metal detecting has become a popular hobby in Finland. No permission is needed to use a detector, and there is a lot of material easily available on the Web that can lead to new archaeological findings. The amount of archaeological artefacts and sites found every year by detectorists is significant, and now also foreign “treasure hunters” have shown interest in detecting in Finland. The presentation deals with metal detecting against the Finnish legal background, the questions of heritage management and depositing stray finds in archaeological collections as well as the challenges in communication between the authorities and detectorists.

TH2-04 Abstract 05
Stone shaft-hole axes: between professional and non-professional archaeology

Author - Linievich, Siarhei, Institute of history NAS Belarus, Minsk, Belarus, Republic of (Presenting author)
Keywords: archaeological collections, museum, stone shaft-hole axes
Presentation Preference - Oral

The role of non-professional involvement in the development of archaeology and the importance of public participation in the creation of the data base for archaeological researches will be considered by the example of such category of archaeological finds as a stone shaft-hole axes. The study is based on the history of creation collections and researching of stone-shaft-hole axes at the territory of Belarus.

The first collections of the stone drilled artifacts in Belarus dates back to the middle of the X VI century. But they had a little connection with scientific approach and they explain the influence of the ideas of the Renaissance era to the magnate clans. The main way of replenishment of these collections was reformation or confiscation. Another relationships with stone shaft-hole axes formed in the rural environment. Peasants have seen their pragmatic and magic sense in this category of artifacts. Since the XVIII-XXI centuries ethnographers noted the existence of different popular legends about the origin of the stone axes, described their used by peasants.

There was a surge of interest in archaeological finds in the 19 th century and as result an increase of a private archaeological collections in Belarus. It should be noted that the archaeological studies were rare and sporadic. But the number of stone-shaft-hole axes in private collections was more than 2 thousands.

After the fall of the Russian Empire and the creation of the USSR the system of museums was founded. The main function of them was accumulation of all sorts of antiquities. The private collections became the basis of the museum collections of stone axes was. The additional source of replenishment of museum collections was the work of professional archaeologists. Simultaneously the private collections continue to exist.

After the WWI the additional source of accumulation of archaeological artifacts became school museums. Today, the school museums sometimes has better collection of stone axes then the state than the public museums.

TH2-04 Abstract 06
Blunt instruments or intelligent solutions?

Author - Moeller, Katharina, Bangor University, Bangor, United Kingdom (Presenting author)
Co-author(s) - Karl, Raimund, Przygospo Bangor University, Bangor, United Kingdom
Keywords: heritage laws, metal detecting
Presentation Preference - Oral

Compared to the UK the heritage laws in Germany and Austria are much more restrictive when it comes to metal detecting. But are these strict laws really an effective deterrent? If so, the number of metal detectorists should be higher in the UK than it is in Austria and Germany. However, due to the stricter laws, the actual number of metal detectorists in the latter two countries is unknown.

To compare numbers of metal detectorists in the countries mentioned above, this case study looks at metal detecting online fora, especially their membership numbers. These indicate that there are more metal detectorists in Germany than there are in the UK. This suggests that laws alone do not prevent people from locking for archaeological material. Laws do, however, influence other patterns of behaviour, particularly the reporting of finds to the authorities by their finders. Stricter laws do not seem to deter metal detecting, they deter finds reporting.
Managing the archaeological heritage

Sight from the East Europe

information could help to understand better archaeological work to the non-professionals and to involve more people in
archeologists introduce new information and last discoveries and try to do this using ‘nonprofessional language’. These
Presentation Preference - Oral

Fieldwalking and the surface collection of lithic material on the Ayrshire and Wigtownshire coasts of Scotland has a long
tradition dating back to the 1880s. This was in no small part due the efforts of a number avocational archaeologists, and their
participation with Ayrshire and Wigtownshire Archaeological Association founded in 1877. The 1970s witnessed the last in this
line of avocational archaeologists who undertook such tasks in Ayrshire and Wigtownshire. There was no tradition of fieldwalking
in South Lanarkshire, inland and adjacent to East Ayrshire. Coincidentally, the 1970s heralded the advent of this activity in South
Lanarkshire. Hugh McFadzean (1919-2008) commenced fieldwalking in the Avondale District, which continued unabated until
1981. His work as an avocational archaeologist also involved fieldwalking forays in East Ayrshire, Isle of Bute, Fife, Stirlingshire
and Wigtownshire. Hugh’s fieldwork in these other locations continued until the 1990s. As a case study, this paper will look at
his motivations to undertake avocational archaeology in Avondale, and consider his contribution to the archaeological record.
It will also critically reflect upon personal curation and his research into the lithic surface collections, and the contradiction to the
legal position in Scotland under Treasure Trove and the concept of bona vacantia. Finally, drawing upon my own research the
importance of the surface collections of lithic material to academic enquiry will be highlighted.

Presentation Preference - Poster

The purpose of this paper is to introduce to archaeologists the social network vk.com, which is widely spread in Eastern Europe.
There are a lot of communities and events, which present their information and materials in the Internet. Thanks to them non-
archaeologists, users, could learn a lot about archaeology. In the VK there are many communities and pages, where professional
archaeologists introduce new information and last discoveries and try to do this using ‘nonprofessional language’. These
information could help to understand better archaeological work to the non-professionals and to involve more people in
science. In my poster I want to present some examples of these communities.

Presentation Preference - Poster

The Environmental Impact Directive is the only piece of EU legislation which is directly and substantially concerned with the
archaeological heritage. It has wide implications for the practice of archaeology in Europe, and is thus of particular importance
to the EAA. Much development-led archaeology in Europe takes place on projects which are subject to EIA. The Directive is
therefore responsible for the discovery and investigation of large amounts of new archaeological sites and material. The Directive
is an important EU-wide legal instrument, that prompts comparison of approaches in methods and practice. The manner of its
implementation in the different EU member states reflects a key issue for the EAA: how to achieve the common societal goal of
archaeological heritage protection and management against a background of widely varying local situations, approaches and
pressures. The Directive therefore has potential implications for the archaeological profession that extend beyond the body of
individual development projects that require EIA. The Round Table will aim to establish the future scope and work programme
to examine specific EIA issues, with a view to setting up an EAA Working Party (see TEA 46). At this stage, the following activities
are proposed: To review the Directive in relation to archaeology and cultural heritage, and to make recommendations on how
the Directive itself, its implementation, or both could be improved; to identify whether the Directive would benefit from future
amendment to reflect the provisions of the Faro Convention; to see how far EIA regulations can be used to improve the integration
of the needs of spatial planning and heritage research; to contact other heritage organisations and projects to discuss possible
cooperation on this issue; to establish a network of EAA members to report on the application of EIA to spatial planning and
heritage protection in their countries.

Presentation Preference - Oral

The road to a working party is paved with good intentions

The EIA Directive and Archaeology: the example of England

The paper will also consider whether there is scope for future improvements of the Directive itself, or of the ways in which it
is implemented.

It is hoped that this paper, focusing on one country, will stimulate discussion of how the Directive is being implemented
across Europe, and of what improvements might be sought in the future.
TH2-06 Abstract 03
Environmental Impact Assessment and Heritage Impact Assessment: improving the relationship
Author: Dr. Young, Christopher, Christopher Young Heritage Consultancy, Bicester, United Kingdom (Presenting author)
Keywords: cooperation, Environmental Impact Assessment, Heritage Impact Assessment
Presentation Preference: Oral

In values-based approaches to heritage management, some form of assessment of significance of the heritage asset, and of the impact on that significance of any proposals for development or change is essential. If it is not understood why something is important, it is not possible to judge what will harm it or enhance it, and to take appropriate decisions to protect heritage or mitigate damage. Environmental Impact Assessment (EIA) is one methodology for doing this and one that is mandatory for some types of development within the EU. Its scope includes heritage alongside other environmental aspects and many other things. The extent to which this works for heritage in various parts of Europe is sometimes debated and there are concerns that inclusion of heritage within a wider assessment system does not do justice to all. It has been argued that, in the EIA system, the overall heritage significance of a place is disaggregated, for example into archaeology, protected buildings and landscape, and that impact on it is not assessed holistically. EIA is also applied very selectively and many smaller development proposals will not require formal evaluation.

Alongside EIA, therefore, the practice of Heritage Impact Assessment has developed with its own published guidance. It is now recommended for all developments affecting World Heritage properties and Habitats are frequently requested by the UNESCO World Heritage Committee. At the other end of the scale, national systems (for example in the English National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPG)) often now ask for assessments of impact on heritage for many cases which will never require EIA. They can recommend use of existing HIA guidelines or request simpler heritage statements.

The de facto existence of two parallel systems which can apply to the same site can be counterproductive to good decision-taking as well as wasteful of resources. There is currently considerable research interest in Europe on the use and effectiveness of HIA. One clear avenue for research is the interaction between HIA and EIA and at how lessons from HIA might improve the effectiveness of EIA in assessing and giving due weight to impacts on the heritage. Any proposal to improve treatment of archaeology in EIA needs also to look more widely at developing a more holistic approach to heritage as a whole. Working with existing initiatives on HIA could be a fruitful way to proceed.

TH2-06 Abstract 04
Assessing the Impact: Spatial Planning, Cultural Heritage and EIA in England
Author: Victoria Donnelly, University of Oxford, Oxford, United Kingdom (Presenting author)
Keywords: EIA, Environmental Impact Directive, Spatial Planning
Presentation Preference: Oral

Our understanding of English cultural heritage is significantly influenced by the Environmental Impact Directive and EIA requirements; for example, the undertaking of archaeological fieldwork and the spatial distribution of the resultant archaeological record is strongly determined by projects which are subject to EIA. This can be illustrated through the comparative examination of data held within Historic England’s Excavation Index, the Archaeological Investigations Project dataset and the Grey Literature Library held by the Archaeology Data Service in York.

Interestingly, EIA regulations also frame archaeological investigative work that is not undertaken under the direct influence of the Environmental Impact Directive, such as cultural heritage investigation and archaeological fieldwork undertaken within the context of a DCO application or a Hybrid Bill. Although these types of planning applications and regulations fall outside of the Environmental Impact Directive, these are heavily indebted to the process of EIA which shapes the resultant approach, project design and method.

Through a discussion of projects subject to the Environmental Impact Directive as well as projects undertaken within the context of a DCO application or Hybrid Bill, this paper intends to explore the influence of EIA requirements on spatial planning and cultural heritage in England and how they shape our understanding of the English archaeological record.

TH2-06 Abstract 05
Preventive archaeological excavations & motorway construction projects in Romania
Author: PhD Oros, Corina Ioana, National History Museum of Romania, Bucharest, Romania (Presenting author)
Keywords: archaeoological heritage management, EIA, motorway construction projects
Presentation Preference: Oral

Since year 2000 the management of the archaeological heritage in Romania had to face a new and challenging reality: the large-scale rescue/preventive archaeological excavations occasioned by the construction of the motorway networks developed along the Pan-European corridors. The National History Museum of Romania was involved since the beginning in coordinating a series of major archaeological projects developed in such situations. The presentation will briefly address a series of key aspects related to the round table’s topic, namely an overview of the most important archaeological projects undertaken in connection with motorway construction projects, the operational framework for preventive archaeology in such cases according to the national legislation and the correlation with the EU regulations, as well as a series of necessary improvements still required for drafting and implementing a valid archaeological management strategy in order to mitigate the impact on the archaeological heritage in the context of road infrastructure projects.
25 YEARS LATER: CHANGES AND CONJUNCTURES IN PREVENTIVE (DEVELOPMENT-LED) ARCHAEOLOGY IN FORMER ‘EASTERN’ EUROPE

TH2-07

Archaeology in former ‘Eastern’ Europe.

Thursday, 1 September 2016, 14:00-18:30
Faculty of Philology, Room SP2

Author - Novaković, Predrag, University of Ljubljana, Faculty of Arts, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Hrčko, Milan, VIA MAGNA Ltd., Vrščak, Slovakia

Presentation Preference - Regular session

Due to the previously uncompetitive economies and outdated technological infrastructure, a great deal of former ‘eastern’ countries still remained largely underdeveloped. Compared to the average of the EU 15 in 1990 and 2014, only a few CE countries improved their GDPs from 40% to 60%, while others (Balkan countries, countries which stemmed from the former USSR) did not reduce the relative distance at all, their GDP on average remained less than 15%. This should not be ignored when reflecting on preventive archaeology in the countries in question. Prior to 1990s all heritage services were the domain of public state institutions and the overall disciplinary structure and practice was greatly dominated by the academic institutions with institutes at national academies at the top (the Soviet-based model). In most cases this structure has survived until the present day, and is still exercising influence (formal and informal) on preventive archaeology. One of the consequences is the view that preventive archaeology to a certain degree still needs to acquire academic degrees (on the other hand, in some countries, though they kept to the Soviet-based model of national institutes, preventive archaeology achieved a much greater level of autonomy, with its own priorities and new practices and forms of organization, and some countries made even more radical changes. While, in general, all former ‘eastern’ countries ratified the La Valetta convention, the status and practice of preventive archaeology varies so greatly that it can hardly be observed through a single theoretical framework. The session is aimed at exploring and reflecting the conceptual trajectories and practices developed in preventive archaeology the last 25 years. Papers presenting major changes in legislation, economic status of preventive archaeology, changes in its social role, labour markets, level of technology and expertise, and about the profession of archaeology in general, are invited.

TH2-07 Abstract 01
Introduction. From rescue to preventive archaeology: 25 years of difficult journeys

Author - Prof. Novaković, Predrag, University of Ljubljana, Faculty of Arts, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Hrčko, Milan PhD, VIA MAGNA a.s., Vrščak, Slovakia

Keywords: Eastern Europe, preventive archaeology, rescue archaeology

Presentation Preference – Oral

Until 1990s and the abolishment of socialist/communist regimes in ‘eastern’ European countries, archaeological service (institutions and practice) in protection of cultural heritage was fully in the hands of state bodies which had to plan funds in their state budgets for preventive archaeology. These funds were normally coming from taxes, and then redistributed. The principle politician-payer was rare, only occasionally used, and normally not aimed at complete cover of the costs of archaeological protection. There were no clear and stable stable preventive strategies since the role of archaeological protection service was mostly seen as ‘reactive’ on newly discovered heritage, and not in the initial phases of spatial planning and development. The reasons for this were many, and not only associated with the fact that the ruling socialist regimes were highly centralized and bureaucratized. There were also reasons in prevailing cultural attitudes – culture or tradition of state ruling itself and cultural attitude towards the past and heritage. The situation in many cases was public life subject to control and planning not only in ideological terms but in terms of pronounced atheism as well, while the latter saw culture and heritage as special value of state (and public) which could not be let autonomous in its development.

Political and economic changes after 1989 had very different consequences in different countries in the field of preventive archaeology, and even the countries which shared similar or even equal systems of organization and practice of heritage protection (e.g. in former Yugoslavia or in the USSR) soon developed quite different systems which ranged from very ‘liberal’ to very ‘autocratic’. In this respect it is interesting to note that ‘liberal’ systems of heritage protection which adopted more concepts of preventive archaeology and coupled them with the emergence of private market of archaeological services, while countries with ‘conservative’ systems openly (or in disguised form) expressed opposition to preventive strategies. The two conjunctures – ‘liberal’ and preventive association with heritage and development of private market of heritage services are not necessarily directly correlated (e.g. case of preventive archaeology in France), but this correlation seems higher in the case of former ‘eastern’ countries. However, looking at different experiences in the last two decades, another set of questions should be asked here – in what status, and to which degree, participates in the market of preventive archaeology as private entrepreneur? Do we speak of real entrepreneurs or ‘disguised’ public institutions? Is open participation of public actors (e.g. model of NRAP in France) securing better control? And, what are, in the end of the day, the benefits for heritage, and benefits for actors, and public?

TH2-07 Abstract 02
Archaeology-management in the heart of Europe. Legislation and institutional basis in Slovakia

Author - Dr. Michalík, Tomas, Cultural Heritage Consulting Ltd. / Slovak Association of Archaeologists, Trencin, Slovakia (Presenting author)

Keywords: archaeological heritage, law, Slovakia

Presentation Preference - Oral

There is no doubt that Slovak republic belongs to examples of dynamic legal, economic and social changes since the Velvet Revolution in 1989, which were reflected also in the archaeology and archaeological heritage management. Formerly fully governed, managed and covered by the state, this field became much more heterogeneous during last decades. Although necessary changes were needed and therefore expected, their quickness caused a lot of important consequences. From the point of view of legislation, all important laws were adopted after 2000, although there were previous laws, of course. First of all, adopting of new Novum and Historic Sites Act No. N: 49/2002 Coll. is definitely the most relevant change. Under this act, major responsibility for the archaeology was transferred from Archaeological Institute of Slovak Academy of Sciences (which is in fact scientific body, without decisive competences) to state administration. Monuments Board of the Slovak Republic was established, with its 8 regional branches, which are most relevant actors in the archaeological heritage management, due to their strong position and deep and detailed competences. Regional Monuments Boards are the first-contact institutions not only for field archaeologists, but also for landowners, developers or other persons conducting activities with a potential to influence archaeological heritage. They decide on necessity of conducting of research, its conditions and time frame as well as on offences or other illegal activities. Monitoring and supervision bases on these acts.

This hierarchy of state administration is covered by the central state body for cultural heritage – the Ministry of Culture of the Slovak Republic, which has 2 important advisory bodies: Archaeological Council (where all sectors from Slovak archaeology are represented) and Licence Commission (preparing opinion for the Ministry in the field of research licences).

The Monuments and Historic Sites Act also deals with archaeological cultural monuments, protection of archaeological sites in spatial decision-making process, individual finds and other relevant archaeological issues. Legal regime of archaeological finds in museums is regulated in Museum Act N: 206/2009 Coll. Malta Convention was ratified by the president of the Slovak Republic in 2000 and published in Collection of Laws in 2001.

In order to fight against treasure hunters and their illegal activities, a lot of legislative work was done since 2011, when amendment of Penal Code with its strict ban of unauthorized use of metal detectors came into force. On the other hand, institutional support for this legislation is still not satisfactory as it’s built mainly on individuals. However, there is a number of persons who were solved by the police.

TH2-07 Abstract 03
25 years of Preventive archaeology in the Czech Republic

Author - Mgr. Kucharik, Milan, Labry s.o.p., Praha 9, Czech Republic (Presenting author)
Co-author(s) - Smrky, Radek, ZIP o.p.s., Pizov, Czech Republic

Keywords: Czech Republic; Preventive archaeology, private sector

Presentation Preference - Oral

The situation in the Czech Republic is characterized by the beginning of the economic crisis in year 2008 boom in the number and financial volume of archaeological researches and the development of private companies in the archaeology. In the years 2008 – 2015 passes through the whole archaeology crisis, which is characterized by strengthening the influence of the central institutions, especially the Czech Academy of Sciences (CAS), based on Soviet-type research organizations. Development of the private sector in archaeology is limited by inadequate and outdated legislative framework. The last law regulating the archaeology is from 1987. This law has been amended several times. The law does not give sufficient legal framework for preventive archaeology and in practice frequently updated customary legal principles. It is to try to interpret the present framework as a system of dual authorization, which represents one step permits the Ministry of Culture and a kind of questions should also be posed here – in what status, and to which degree, participates in the market of preventive archaeology as private entrepreneur? Do we speak of real entrepreneurs or ‘disguised’ public institutions? Is open participation of public actors (e.g. model of NRAP in France) securing better control? And, what are, in the end of the day, the benefits for heritage, and benefits for actors, and public?

Maltese convention is in the Czech Republic interpreted by the authorities as a binding international treaty and by archaeologists as support for strictly archaeological preservation. Typical is the small proportion of archaeologists on the
TH2-07 Abstract 04
Archaeological Heritage in Lithuania after 1990s: Defining, Protecting, Interpreting
Author - Dr. Poškienė, Justina, Vilnius University, Faculty of History, Vilnius, Lithuania (Presenting author)
Keywords: archaeological heritage, assessment, protection
Presentation Preference - Oral
Legislative decisions facilitated notable changes in the field of cultural and archaeological heritage protection in Lithuania after 1990s. National legislation was essentially modified twice: in 1995 and in 2005. Significant changes can be observed in the field of defining accounting, assessment and listing, protecting (regulations on excavations’ procedures or “protection through documentation”, preservation of archaeological remains in situ ), as well as interpreting (by state bodies and public) of the archaeological heritage. There are approx. 3000 archaeological heritage objects listed in the state Register of Cultural Property. The procedure of listing has been changed several times after 1990s. Since 2005, a heritage object is listed in the state Register of Cultural Property after an assessment council decides that a property is in the need of legal protection. The significance, the valuable properties of objects or sites of cultural heritage are assessed, and the boundaries of territories are defined by the immovable cultural heritage assessment councils as well. The specialized assessment council for archaeological heritage was established in 2012. State administrative and technical resources were concentrated mainly on preparation of new documentation type for already listed heritage objects, and thus led to a certain stagnation of inventorying of new archaeological objects. Nevertheless, data exchange between the state Register of Cultural Property and the Real Estate Register should be mentioned as an important achievement in many respects, for instance restrictions of land use availability for archaeological heritage managers and users.
Archaeological excavations, or “protection through documentation”, can be identified as the main strategy of archaeological heritage protection. Development-led archaeology became the main form of scientific enquiry. As the contract archaeology system was developed, great attention is paid for excavations’ quality control procedures. Formalized requirements for archaeological excavations (where and how archaeological excavations should be conducted) became a legal norm since 2011. These requirements also demand to protect archaeological heritage constructs in situ. Formalized requirements have to adjust conditions for contract archaeologists’ competition as well. Nevertheless, objectification of criteria of archaeological research is modeling a situation of “typical archaeological excavations”, and thus in the professional community raises discussions concerning the scope of scientific information obtained during the archaeological research. Interpreting of archaeological heritage can be seen as means of constructing of local and national identity by various social and cultural groups. Nevertheless, interpreting of archaeological heritage by state bodies and its reorientation of management perspective from “archaeological object” towards its “user” is still needs to be developed.

TH2-07 Abstract 05
Implementation of La Valette Convention: the Croatian perspective
Author - PhD Širovica, Filomena, Archaeological Museum In Zagreb, Zagreb, Croatia (Presenting author)
Keywords: Croatia, in-situ preservation, preventive archaeology
Presentation Preference - Oral
European Convention on the Protection of the Archaeological Heritage, released by the Council of Europe in 1992, had a significant influence on the practice of development-led archaeology in Croatia. Ratification of the Convention in 2004 and its implementation in legislation brought drastic changes by which archaeology became a part of public private planning and infrastructural development. But the changes did not induce the full range of requirements needed for the successful practice of preventive archaeology.
Considering this problem it becomes observable that the attitude expressed in the Convention considers prevention as a prerequisite for the preservation of cultural heritage and, rather than through salvage archaeological excavations, acts through active participation in the early stages of planning procedures. This process requires a developed set of tools which enables informed decision-making on the treatment of archaeological remains. As a part of the same process, concept of care and protection of archaeological monuments is being replaced with an approach directed towards the management of archaelogical heritage where the main focus is placed on the issue of long-term sustainability and thereby the issue of in-situ preservation of archaeological heritage. As Croatian archaeology is still not turning in that direction, this paper will be focused on consideration of factors which can fulfill the requirements for implementation of efficient preventive archaeology, but also the ones which are currently preventing Croatian archaeology in changing attitude towards sustainable heritage management.

TH2-07 Abstract 06
Commission for archaeological research (CAR) in Slovenia
Author - Brbinik, Danijela, Zavod za varstvo kulturne dediščine Slovenije, Celje & Maribor, Slovenia
Co-author(s) - Kajzer Cafnik, Mihela, Zavod za varstvo kulturne dediščine Slovenije, Celje & Maribor, Slovenia
Co-author(s) - Dr. Novakovic, Predrag, University of Ljubljana, Ljubljana, Slovenia (Presenting author)
Presentation Preference - Oral
The role and significance of the Commission for archaeological research (CAR) in the system of preventive archaeology in Slovenia is investigated. The changes in the legislation brought drastic changes by which archaeology became a direct participant in planning of spatial cultural heritage protection. Development-led archaeology became the main form of scientific enquiry. As the contractual archaeology became a part of public private planning and infrastructural development. But the changes did not induce the full range of requirements needed for the successful practice of preventive archaeology, but also the ones which are currently preventing Croatian archaeology in changing attitude towards sustainable heritage management.

TH2-07 Abstract 07
Perspectives of development-led archaeology in Serbia
Author - Rajačovac, Tonko, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Presentation Preference - Oral
Depending on the political discourse, archaeological tradition, history and the perception of heritage, different countries adopted the La Valette Convention in different ways. Especially remarkable was the introduction of development-led archaeology (DLA) in countries with former communist/socialist regimes. Serbia is a country with an archaeological history stemming from the 19th century; with conventionally good archaeological practice, and an exceptional regional academic tradition. The modern state of Serbia has maintained its good archaeological practice despite a significant decrease in the state funded projects. However, despite having a reliable network of institutions and a strong academia, the major recent motorway projects demonstrated the range of problems which could arise from development-led excavations. It has proven that the transformation of archaeology from an academic discipline into an effective (public and/or commercial) in preventive strategies does not represent a small step. Deeply entrenched habits from Serbia’s rich and long archaeological tradition could not have been transformed at such a short time.

TH2-07 Abstract 08
Preventive Archaeology at the Reserve Bench
Author - Petrićević, Milos, Center for Conservation and Archaeology of Montenegro, Kotor, Montenegro (Presenting author)
Keywords: Cultural Heritage Protection, Montenegro, Preventive Archaeology
Presentation Preference - Oral
Montenegro, an independent state since 2006, and one of the smallest countries in Europe with 625 000 inhabitants, was able to develop archaeology as a discipline and its own heritage protection service rather late, after the WII, in the context of former socialistic Yugoslavia, when it also developed the necessary institutional infrastructure (museums, heritage protection institutes, but not university studies in archaeology or their heritage related disciplines).
It is not easy to say, where exactly Montenegrin archaeology is today. The old (‘Yugoslav’) concept in heritage protection remained in use until 2011 when Montenegro attempted for the first time to establish its own system and reform the institutional structure towards a more professionally centralized and ‘nationalized’ organization. Unfortunately, this had a rather negative impact on the development of archaeology, especially its service in the field of preventive strategies, which were never properly reflected and attempted in archaeological circles since they were established ‘from above’. It is still common practice, that most of the larges projects in spatial development (e.g. highway constructions) almost completely exclude preventive archaeology, while the situation regarding the booming tourist and construction industry in the coastal areas is even more difficult than it used to be 25 years ago.

TH2-07 Abstract 09
Bosnia and Herzegovina: preventive archaeology still recovering
Author - Hadižašanović, Jenesko, Faculty of Philosophy of University of Sarajevo, Sarajevo, Bosnia-Herzegovina (Presenting author)
Co-author(s) - Kaljanac, Adnan, Faculty of Philosophy of University of Sarajevo, Sarajevo, Bosnia-Herzegovina
Keywords: Bosnia and Herzegovina, recovery, preventive archaeology, heritage protection
Presentation Preference - Oral
Organization of archaeological heritage services, museums and education in Bosnia and Herzegovina, after the end of Yugoslavia, and especially after the establishment of the post-Dayton peace agreement (1996) radically changed to the situation until 25 years ago. Four major determinants can be seen today, all closely connected with the general state of the country itself are:

- Highly fragmentary territorial and administrative organization: One organization on state level, two on lower, entity level, as well as one on level of BiH district. Entity of Federation of BH is further divided in 10 cantons, of which 5 have cantonal institutions responsible for protection of heritage, while the other 5 have these responsibilities entrusted to the cantonal ministries. Because of disharmonized laws on state, entity and cantonal levels, there are possibilities for overlap of jurisdictions during protection of certain monuments, and potential for mismanagement. Entity of Republika Srpska is divided on municipalities, and has a centralized institution responsible for heritage protection.

- General economic situation (BH is among the lowest ranked countries in Europe regarding the GDP) preventing any substantial investment, employment in services in public sector (heritage services included). Most of museum institutions on local level have barely sufficient financing for basic operation.

- Inadequate (outsourced) infrastructure: lack of trained people, equipment, unfinished institutional development.

- Political situation. Because of the political deadlock over financing of 7 cultural institutions on state level. National Museum of Bosnia and Herzegovina was closed for almost 3 years, and other institutions that previously enjoyed state sponsorship in former state of Yugoslavia, have lost most of funds necessary to function properly.

TH2-07 Abstract 10
Practice of Archaeological Heritage Management in the Motorway Constructing Programme in Poland
Author - Prof. Dr. hab. Rospecki, Seweryn, Instytut Archeologii Uniwersytetu Łódzkiego, Łódź, Poland (Presenting author)
Keywords: Poland, rescue archaeology
Presentation Preference - Oral
One of the effects of political transformations in Poland of the last 25 years was a necessity of confrontation with huge infrastructural problems. One of them was, and still is, a poor state of motorways development. An aim of the speech is an analysis of this problem in reference to last ten years.

The above time limit is not a matter of chance. Till 2005 a system of selection of archaeological excavations on the motorway lines contractors was based on non-economic criteria – connected with scientific experience of contractors. Universities and archaeological museums were preferred.

From a scientific point of view this system was effective and enabled realization of research at a high level. Unfortunately, it also brought temptations. In 2006 a Polish nationwide archaeology corruption scandal broke out, in which both archaeologists and people responsible for granting concessions for research were accused. It was a real turning point in the history of Polish rescue archaeology. Over the next years a radical ‘marketization’ of contractor selection took place. This launched mechanisms of competition, irresponsibility was, as a matter of fact, the only criterion of evaluation.

The mentioned change admittely ensured transparency of the procedures but it however turned out to be killing for archaeology. In this new situation archaeological research became an object of a market game. Sometimes, a victim of this game is social interest, and research are conducted at the lowest acceptable level.
activity. It is therefore necessary to prepare the archaeological community for the transformation of its activity towards targeted scientific and research activities.

Our paper will show how the Slovak professional community responded to this status.

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TH2-07 Abstract 14
The settlement of Krahë
From a chance find to an archaeological protected site
Author - MA Pojc, Enina, Archaeological Service Agency, Tirana, Albania
Co-author(s) - Klepli, Zgro, Archaeological Service Agency, Tirana, Albania, (Presenting author)
Co-author(s) - Meier; Monir; Ariy, Archaeological Service Agency, Tirana, Albania
Co-author(s) - Porja, Ajeti, Archaeological Service Agency, Tirana, Albania
Co-author(s) - Zoto, Rudina, Archaeological Service Agency, Tirana, Albania
Co-author(s) - qela Ilira, Archaeological Service Agency, Tirana, Albania
Keywords: Preventive archaeology
Presentation Preference - Poster

The archaeological resource management as elsewhere in Europe after the review of the European Convention for the Protection of the Archaeological Heritage (1992), has drastically changed the whole system of the archaeological heritage management in Albania. The cultural heritage law of 2003 was amended further in 2006, 2008, 2009, and is currently under full revision.

The amendments of 2008 led to the creation of the ASA and National Council of Archaeology. ASA is assigned with a highly complex task that includes both the supervision of the archaeological projects and the undertaking of rescue excavations across the country.

ASA is also responsible for any chance find, that possibly appear during agricultural, construction or engineering projects around Albania. Their appearance sometimes may only represent the beginning of a long evaluation process to be finalized with the establishment of a new archaeological site that requires protection according to the priorities of the law articles. During the last year, ASA has dealt with a particular case as it will be explained below. At other scenarios, the chance finds can be particularly rare and isolated and further exploration may not yield additional information.

Prior to the foundation of ASA, these tasks were undertaken by the Archaeological Institute of Tirana and in cooperation with the Albanian Rescue Archaeology Unit (a non-governmental organisation) and by the Rescue Archaeology Section (abolished with the establishment of ASA) affiliated with the Institute of Cultural Monuments. Since 2008, ASA have followed the procedure for 9 archaeological chance finds.

The village of Krahë is situated in the district of Teplotena (Albania). Two graves were discovered occasionally during agricultural works by a farmer who informed the local authorities (Regional Division of National Culture, Gjirokastra).

The archaeological excavation results. The preliminary study of the archaeological material and method of construction, dates both graves around cent. 3 – 2 B.C. During the excavation process the team (ASA and RDNC Gjirokastra) conducted a survey around the area measuring approximately 3.5 hectares. A high intensity of finds (tiles, bricks, pottery sherds and some rubble walls) was encountered on surface. Taking into serious consideration this potential, the NCA agreed to give to this area the special status of the protected zone. More precisely, its borders were established by another fieldwork campaign. This new status will indeed prevent possible damages by construction projects or agricultural works.

The archaeological survey covered an area of 7 hectares divided in 12 tracks. Within it, 6 hectares yielded high intensity of data and was given the status of the protected zone.

The archaeological material found during the survey consists of fragments of tiles, pithoi, transportcontainer, utensils and pottery coated with bitumen. The relative chronology based on the above material indicates three periods of occupation for Krahë: Hellenistic, Roman and Late Antiquity.

Since 1990 major social, economic, conceptual, and technological changes greatly affected heritage sector in former 'Eastern Europe', and heritage labour market in particular. In this sector, previously fully dominated by public institutions, gradually emerged many new forms of private enterprises, SMEs and similar, which increasingly provided services needed for protection and management of heritage. Here, among heritage related discipline, it was archaeology which took the leading role in developing new forms of entrepreneurial practices. The major boost for this process and transformation of the roles came from intensive development which generated large quantities of development driven archaeological research in the framework of heritage protection and management. New, non-invasive archaeology, and other digital technologies, have recently been benefitted from the development of ICT and other digital technologies. These technologies (combined with new concepts of preventive archaeology) have made it possible to develop new forms of works to be documented. We decided to use a 3D scanner, with system based on digital cameras and structured light. From the completed 3D models, we provided horizontal cross-sections (profile-lines) for documentation, as it would be done by manual drawing. The advantages of working with 3D models are high accuracy and speed, as for a 3D model and cross section. This process also provides photos of the artifacts.

Advantages of this way of documenting will be presented, as well as wide use of its results. Not only that the technical documentation from excavation can benefit, but also the presentation of artifacts.

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TH2-07 Abstract 16
From 3D models to 2D documentation:
Implementation of 3D models in archaeological documentation
Author - Jovicic, Nenad, Faculty of Philosophy – University of Belgrade, Belgrade, Serbia (Presenting author)
Keywords: 3D scanner, Archaeological documentation, Preventive archeology
Presentation Preference - Poster

Despite the fact that the law has not been changed for years, the workload in preventive archeology is constantly growing. More investment leads to a growing number of excavations, and consequently to the growing number of small finds to be documented. Motivated by the needs for fast and accurate documentation, we developed a new system for documenting finds from preventive archaeology excavations.

In comparison to the traditional way of documenting architectural artefacts that is represented by technical drawing and photographing that require a certain skill and are time-consuming to a certain degree, we are using a new approach. We decided to use a 3D scanner, with system based on digital cameras and structured light. From the completed 3D models, we provided horizontal cross-sections (profile-lines) for documentation, as it would be done by manual drawing. The advantages of working with 3D models are high accuracy and speed, as for a 3D model and cross section. This process also provides photos of the artifacts.

Advantages of this way of documenting will be presented, as well as wide use of its results. Not only that the technical documentation from excavation can benefit, but also the presentation of artifacts.
MANAGEMENT OF ARCHAEOLOGICAL SITES IN TURKEY: PROSPECTS AND FUTURE

TH2-09

Friday, 2 September 2016, 14:00-16:00
Faculty of History, Room 221

Author: Bouchaik-Chah, Dziluz, Metu/Outu Yerel Yönlendirme Arkeoloji Anabilim Dalı, University College London, London, Unifrad Kingdom (Presenting author)
Co-author(s): Prof. Ergüzyes, Deniz Burcu, Metu/Outu Yerel Yönlendirme Arkeoloji Anabilim Dalı, Ankara, Turkey

Presentation Preference - Regular session

Which sites to manage and why managing them? • How to manage an archaeological site and what to manage? • Community involvement and public archaeology in Turkey • Participatory management • Impact assessment of archaeological projects • Rural development • Local/regional development.

In this session it is proposed to ask participants to consider the shortcomings in the management of archaeological sites by archaeologists involved in Turkish archaeology: we hope to argue for a greater need for structured organisation and involvement in the management process. The session envisage to place a special focus on archaeologists and sites directors involved in field archaeology in Turkey: their involvement not only as stake holder on the management of archaeological site during the field seasons but also pre- and post-excavations and survey. The aim of this session would be to create awareness for the needs for site management for archaeologists in association with local authorities. It is also hoped that cross-fertilisation between archaeologists and heritage managers would lead to fruitful exchanges on the variety of processes and methods for managing archaeological sites. The session organisers hope to attract participation to the session from Turkish and international archaeologists and practitioners concretely involved in archaeological field work in Turkey. The ambition is to select the best papers to be published in a specially edited volume of CMAS Journal (Conservation and Management of Archaeological Sites).

The call for paper proposal for the session shall target work conducted at key sites such as Sagalassos, Aspendos, Nemrut Dağ and Pergamon, but shall not be limited to it. Junior and up-coming archaeologists as well as more established scholars shall be given the opportunity to confront their ideas and experiences, from a national and international perspective.

TH2-09 Abstract 01

Archaeology for Management: New Cycle of Archaeological Research at Ani

Author: Assoc. Prof. Dr. Aktüre, Zeynep, Izmir Institute of Technology, Izmir, Turkey (Presenting author)
Co-author(s): Bayram, Fahriye, Pamukkale University, Denizli, Turkey

Keywords: Ani, archaeological research, site management

Presentation Preference - Oral

Among numerous archaeological research projects in Anatolia since the nineteenth century by foreign institutions, the one at Ani is exceptional in having started under the auspices of the Russian Imperial Academy of Sciences when northeast Anatolia was under control of the Russian Empire in 1878-1918. Excavations by an international team resulted in careful documentation of numerous well-preserved churches that provide unique evidence of an “Ani school” of medieval Armenian architecture. While part of the excavated material has been preserved in the Museum of Antiquities of Ani and later in the History Museum of Armenia in Yerevan, several of the documented monuments were later devastated in wars, earthquakes and by vandalism.

After the establishment of the Republic of Turkey, sporadic excavations in the oldest-dating settlement layers and ramparts were followed by a new cycle of research under Turkish excavation directors, revealing the later Islamic layers of the city, while parallel efforts of foreign experts expanded knowledge on rock-cut architecture beneath Ani plateau and in the surrounding hills. Devoid of later settlement, Ani currently stands as an exemplary relic historic city of the medieval period that consist almost all the building types of its region, including rock-cut caves and passages, however in an active seismic zone and a harsh continental climate.

This proposal aims to share the efforts, in the past two decades, towards the protection of this highly vulnerable heritage property, since the inclusion of Ani’s Cathedral in the inaugural watch list of the World Heritage Fund in 1996. International restoration and conservation activities undertaken at the site since then have involved several nongovernmental organizations that provided expert and funding support. Urgency interventions have followed the recommendations of an advisory committee of experts from the Middle East Technical University (METU) of Ankara, established in 2006 by Turkey’s Ministry of Culture and Tourism. The third cycle of archaeological research that has started in 2011 follows these priorities, in context excavations around the archaeological mound of Arslantepe, in the outskirts of the city of Malatya, has been included in the UNESCO tentative list of World Heritage in 2011. Since then, the site is officially open to the public and local awareness has increased significantly; in 2015 a sustainable development of the Ocaklı village at the entrance to the site. This vision recently officialised by the approval of the plan in view of Ani’s nomination for the UNESCO World Heritage List. These priorities extend responsibilities of the excavation director beyond the archaeological site, requiring additional management skills to train archaeologists normally acquire during their professional education and career, involving active collaboration with international bodies such as the Armenian institutions in Yerevan, international NGOs and researchers who have contributed in the on-going urgency interventions, local and central administrations as well as local communities.

The proposed paper aims to offer a working ground to exchange of experience on these and complementary topics around the case of Ani.

TH2-09 Abstract 02

Elaiussa Sebaste: safeguarding & valorization of a south-eastern Anatolia archaeological site

Author: Prof. Equini, Eugenia, Sapienza Università di Roma, Rome, Italy (Presenting author)

Keywords: Elaiussa Sebaste, safeguarding, valorization
Presentation Preference - Oral

During the archaeological research that has been carried on a continued basis since 1995 at Elaiussa Sebaste in the South Eastern coastal part of Turkey, extensive restoration activities were realised on all of the structures brought to light to assure the conservation and safeguarding of the site’s archaeological heritage. These interventions have achieved in arresting the deterioration of the site and the impounding real estate speculation while allowing to open three monumental complexes to the public (theater, agora and proto-byzantine palace) with the setting out of visitor’s paths with view points offering more complete visibility, with panels located at the entrance of the archaeological area and inside, displaying plans, reconstructions and drawings that help understand the stratification of the complexes and the visible structures.

However safeguarding and valorization are necessarily linked to the creation of an Archaeological Park with different itineraries, to be realised in collaboration with the Local and Regional Administrations that will allow to enhance in a sustainable way the extraordinary cultural heritage of this area of Turkey. This project must impose the indispensable town planning for in order to protect the precious archaeological and physical landscape of Elaiussa from new building constructions in sensitive areas and from illegal dumping. At present 4 different itineraries have been designed – on the basis also of interviews to visitors of various nationalities - of which the 1st concerns the necropolis, one of the most spectacular burial complexes in Turkey due to the good state of conservation, the monumentality and the richness of the funerary buildings.

The valorisation project of the Necropolis road between Elaiussa and the near ancient city of Korykos (modern Kızılağaç) was started during the 2015 campaign with bush clearing and careful cleaning carried out by the Mesin and Erdeni Belediyeler. The results that have been obtained so far are very promising for the pursuing of the program to extend the visitor’s itineraries and areas.

2nd itinerary is to be in the Public Quarter; the 3rd will concern the structures investigated on the promontory which is the most difficult to implement due to the morphology and extension of the terrain, the 4th will be related to the Temple area on the hill creating the site of Elaiussa Sebaste.

The complete implementation of this program with the realization of the infrastructure necessary for the valorisation of this archaeological area will favour the development of sustainable tourism that will become an important part of the community cultural heritage and economic growth.

TH2-09 Abstract 03

Protecting and communicating Arslantepe: work in progress to save and narrate an early state centre

Author: Dr. Balosbi Restelli, Francesco, Sapienza University of Rome, Rome, Italy (Presenting author)
Co-author(s): Frangipane, Marcello, Sapienza University of Rome, Rome, Italy

Keywords: conservation, site management, Turkey
Presentation Preference - Oral

The archaeological mound of Arslantepe, in the outskirts of the city of Malatya, has been included in the UNESCO tentative list of world heritage sites in April 2014. The site is under regular archaeological excavation since 1981 and has yielded unprecedented data and finds concerning various periods of its history, but mostly that of primary state formation (end of the IV millennium BCE). An early palatial structure still standing and in excellent state of preservation is the main testament left by this system and is today unique in its kind worldwide. For this reason an open air museum has been designed by the Italian Archaeological Expedition and inaugurated in 2011. Since then the site is officially open to the public and local awareness has increased significantly; in 2015 a
Conservation management at urban and rural archaeological sites in Turkey is usually spearheaded by accredited architects and planners. As in other countries, archaeologists have often tended to work in isolation, away from the responsibilities of the longer-term management and conservation of their sites. It is becoming more common, however, for archaeologists, architects and other conservation professionals to work more collaboratively in the name of site management/conservation. But what are the driving forces behind these initiatives? Is it the interests of a specific director or a team member? Or is it triggered by the local authority or a funding body? Or perhaps a new national discourse? The Ministry of Culture and Tourism's recent requirements that all archaeological excavations increase their conservation measures, and their quest to have more sites inscribed on to the World Heritage List, have certainly had influence.

Another issue is the significant differences in the way conservation is viewed and practiced in sites across Turkey. While some concentrate on building conservation and site presentation, others may go beyond and look for ways to engage local communities in conservation processes. This paper will discuss the changing approaches and practices in the conservation and management of archaeological sites in Turkey by focusing on inter-disciplinarity, collaboration and participation in archaeological conservation through past and current foreign-ruled projects at several sites across the country including Aphrodisias, Çatalhöyük, and Kaman-Kalehöyük among others.

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**TH2-09 Abstract 04**

**Multiple layers and multiple players: management layers and archaeological conservation in Turkey**

**Author:** Öz, B. Nilgün, Istanbul, Turkey (Presenting author)

**Keywords:** archaeological conservation, collaboration and inter-disciplinarity, management

**Presentation Preference:** Oral

Conservation management at urban and rural archaeological sites in Turkey is usually spearheaded by accredited architects and planners. As in other countries, archaeologists have often tended to work in isolation, away from the responsibilities of the longer-term management and conservation of their sites. It is becoming more common, however, for archaeologists, architects and other conservation professionals to work more collaboratively in the name of site management/conservation. But what are the driving forces behind these initiatives? Is it the interests of a specific director or a team member? Or is it triggered by the local authority or a funding body? Or perhaps a new national discourse? The Ministry of Culture and Tourism’s recent requirements that all archaeological excavations increase their conservation measures, and their quest to have more sites inscribed on to the World Heritage List, have certainly had influence.

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TH2-10 Abstract 01
Who pays? The developer or the owner? A fundamental and unforeseen change in Malta archaeology
Author - Vannoverkeren, Jan. Ministry of culture, Chalons-en-Champagne, France. (Presenting author)
Keywords: developer, financing, owner
PresentationPreference - Oral
Since 1990, most European countries have introduced the ‘polluter pays’ principle in preventive archaeology. According to the Valetta (Malta) convention, the financing of the archaeology should be integrated in the (big) public and private works and in practice, developers are funding all, or most of, the archaeology.

However, recent evolutions are completely undermining one of the basic principles of the Valetta convention. As big public and private works are getting rare in North-Western Europe, preventive archaeology is more and more about small and medium projects. Developers, and their banks which are providing money for the projects, negotiate contracts with the owners, stipulating that the presence of archaeological sites modifies these contracts. In France, these types of contracts are now very common. They indicate that the costs of excavation should be deducted from the cost of the plot of land.

In this way, the polluter pays principle is in fact replaced by the ‘owner pays’ principle. This is not just a theoretical change but has important consequences. One of these concerns rural areas where excavations are getting rare as the cost of land is less than the price of excavations. More generally, excavations tend to concentrate where the land cost is the highest.

TH2-10 Abstract 02
Managing the archaeological heritage
Author - Institute of Archaeology of CAS, Prague, v.v.i., Prague, Czech Republic (Presenting author)
Keywords: managing the archaeological heritage, Rescue archaeology, scientific research
Presentation Preference - Oral
The aim of this presentation is to discuss the changes in management of the medieval towns in Norway, and its impact on archaeological excavations and scientific research.

Norway has a strong legislation regarding archaeology and cultural heritage. The Cultural Heritage Act states that all remains older than the Reformation (1537) are automatically protected. The medieval towns, with their large areas of thick occupation deposits and building remains, are being regarded as a single monument. Norwegian Directorate for Cultural Heritage is the agent responsible for giving permission to remove archaeological remains. The costs involved in investigating automatically protected monuments or sites are paid by the initiator of the project.

Until 1990 the Norwegian Directorate for Cultural Heritage had permanent excavation offices established in the most important medieval towns. Norwegian Institute for Cultural Heritage Research (NIKU) was created in 1994 as a split from the Directorate. One aim was to separate the research from the legislation unit. NIKU is an independent non-profit institution dedicated to preservation and sustainable management of cultural heritage. NIKU is responsible for excavations in medieval towns, churches, monasteries and fortified sites in Norway. Since 1994, more than 1,000 archaeological investigations of various sizes since have been carried out.

Archaeological excavations normally take place in connection with infrastructural development such as house building, road construction, laying cables and pipes, and installing tanks.

I suggest that the changes in the management of the medieval towns has had an impact on both the way the rescue excavations has been carried out and the scientific research. Until 1990 the research was focused on the medieval objects and the development of the towns, with the remains of houses, property boundaries and roads. Since 1990s the Norwegian Directorate for Cultural Heritage has had a policy to preserve medieval archaeological remains in situ and allowing piling through the layers as a fundamentation for houses and roads. This has encouraged research on monitoring culture layers in situ and the development of research related to non-intrusive methods. Since 2013 a new railroad project in Oslo has resulted in a huge rescue excavation across the medieval town. New methods are applied in the field. How will this impact a new generation of researchers and the future management of the medieval towns?

TH2-10 Abstract 03
Excavating England: Development and developments in archaeological fieldwork since 1990
Author - Victoria Donnelly, University of Oxford, Oxford, United Kingdom. (Presenting author)
Keywords: big data, development-led archaeology, modern fieldwork practice
Presentation Preference - Oral
Excavating England: Development and developments in archaeological fieldwork since 1990 Archaeological fieldwork in England has changed significantly since the introduction of Planning Policy Guidance (PPG) 16: Archaeology and Planning which introduced the principles of the Valetta Convention into the English planning system. There has been an explosion of data sets produced from development-led archaeology which initially overwhelmed the traditional systems of analysing and disseminating the results of archaeological investigations and which required an evolution in the systems and methods relating to archaeological research design and fieldwork investigation. But are these new modern systems really as different as we think they are? How does the nature of development-led archaeology impact the results of archaeological fieldwork investigations; results that form the basis of our interpretation and understanding of the archaeological record?

The European Research Council funded English Landscapes and Identities Project based at the University of Oxford is a ‘big data’ project that combines local, regional and national datasets to illuminate continuity and change in settlement and use of the English landscape across the medieval town. New methods are applied in the field. How will this impact a new generation of researchers and the future management of the medieval towns?

TH2-10 Abstract 04
Archaeology and the Medieval Towns of Norway - before and after 1990
Author - Johansen, Lisa-Marie Bye, Norwegian Institute for Cultural Heritage Research (NIKU), Oslo, Norway. (Presenting author)
Keywords: managing cultural heritage, Rescue archaeology, scientific research
Presentation Preference - Oral
The aim of this presentation is to discuss the changes in management of the medieval towns in Norway, and its impact on archaeological excavations and scientific research.

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TH2-10 Abstract 05
Problems and solutions in large scale rescue excavations as seen from Saxony, former East- Germany
Author - Dr. Stauble, Harald, Heritage Office Saxony, Germany, Dresden, Germany. (Presenting author)
Keywords: large scale rescue archaeology, scientific outcome
Presentation Preference - Oral
Authors and Co-author(s)

According to its federal organisation and different heritage laws in Germany there are different heritage laws and also different practices in handling large scale rescue excavations. This regards all aspects of the topics to be discussed in the session, beginning with its organisation and financing, the methodological tools, the way to cope with the exponential increase of the archaeological material as well as with its presentation to the public in academia. There is even a different acceptance of these ‘hyperactivities’ as dictated by economic development and financing possibilities. But not all controversial debates are to be explained by different laws, traditions or by former socio-political borders.

Some of the differences and similarities will be presented from the point of view of Saxony, where regarding large scale rescue excavations big changes indeed took place during the early 1990s.

TH2-10 Abstract 06
Changing concept of large-scale excavations in the Czech Republic
Author - Dr. Šumberová, Institute of Archaeology of CAS, Prague, v.v.i., Kutná Hora, Czech Republic
Co-author(s) - Pardil, I., Institute of Archaeology of CAS, Prague, v.v.i., Prague, Czech Republic
Co-author(s) - Kugta, P., Institute of Archaeology of CAS, Prague, v.v.i., Prague, Czech Republic (Presenting author)
Keywords: large-scale excavation, NeoBlick
Presentation Preference - Oral
This paper will explore how modern development has created and influenced development-led archaeology in England and how this influence has an underlying structuring effect upon the resultant English archaeological record.

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This paper assesses issues related to the implementation of large-scale archaeological excavations, emphasizing in particular the importance of research non-rescue excavations in progressing archaeological research. In the European archaeology perspective, these issues are complex and the problem will therefore be discussed within the context of the Czech archaeological discourse concerning the earlier prehistory. Two types of large-scale excavations will be compared: 1) Non-rescue excavation of the Neolithic site at Byliny, which started in the late 1950s and lasted nearly fifty years; 2) Rescue excavations of the Kolín city road bypass which was completed in 2008. Results of both types of excavations will be presented exemplifying changes in archaeological research management.

TH2-10 Abstract 07
Modern technologies in Polish Archaeology – A Case Study of Central Masovia 2009 – 2014
Author - MA Wiśniewski, Maruiz, Wojewódzki Urząd Ochrony Zabytków w Warszawie, Warszawa, Poland
Co-author(s) - Jelech-Stil, Agnieszka, Institute of Archaeology, University of Warsaw, Warsaw, Poland (Presenting author)
Keywords: LIDAR, Photogrammetry, technology
Presentation Preference - Oral
The aim of this paper is to enrich academic discussion about broadly understood “modern” or “new” technologies in Archaeology by assigning actual facts and statistical information to various claims and propositions circulating in Academia. Further, to inform exactly how many research of what kind took place in the 2009-2014 period and in each year of this period, which method is most popular, and if there are any general tendencies to be noticed in usage of particular methods. Authors use a base as a case study a certain area of nine counties in central Masovia region (Poland), which is moderately enriched by objects of archaeological importance, yet where a consistently high number of private and public investments causes steady, high number of archaeological projects to be carried out in recent years. These are conducted on different scale from one day watching briefs up to road scheme projects covering large previously underdeveloped areas around the city of Warsaw, and are carried out by both local archaeological teams and units from other parts of the country. A common factor is almost exclusively commercial character of work, also an important background is created by the EU funds inspired boom in infrastructural investments, that will most likely be the largest event of such scale for many years to come. Data presented here is collected from all field reports and documentation collected on a base of art. 31.3 of Polish Monument Care and Protection Act by Małgorzata Voschod, Heritage Officer Office for the period of 6 years (2009 – 2014). Article does not aim to discuss quality of such work or validity of chosen methods for the projects they have been used in – this is a matter for another study. Neither it is the authors aim to qualify, which method is more suitable for future use in the field archaeology in this region. This report should be treated as factual base for future discussion and an attempt to present the condition of Polish Archaeology in its certain aspect.

TH2-10 Abstract 08
Rescue Archaeology in Romania. Past and perspectives
Author - Magureanu, Andrei Mircea, Institute of Archaeology Vasile Parvan, Bucharest, Romania (Presenting author)
Co-author(s) - Dr. Magureanu, Andrei Mirea, Institute of Archaeology Vasile Parvan, Bucharest, Romania
Keywords: academic research, cultural management, rescue archaeology
Presentation Preference - Oral
1989 represented a turning point for Romania not only from political point of view, but from cultural management also. Romania, willing to be integrated into the European structures, adopted a brand new strategy regarding historical patrimony in concordance with European legislation and not only. From this point of view this was a dramatic change, suggesting that all is going into one dramatic change. But one is theory and other is practice. Did the practice evolve into the same direction and with the same speed? Preventive archaeology or rescue archaeology was part of archaeological practice before 1989, also. Today, both represent a more and more important way to produce historical knowledge. So, there are differences? What those differences are? Importance into cultural strategy of governance? Technology applied in the field? Interpreting the data? Is it the reflection of the legislation or just to be just a pale reflection of it? Can this way of research be done in order to provide information for an academic arch? To this kind of questions and to many others we intend to respond and to presents the state of link between the preventive/ rescue archaeology and the academic scientific research.

TH2-10 Abstract 09
Rescue Archaeology in Russia: the radical shift of the 1990s, and its consequences
Author - Dr. Enguvatova, Aya, Institute of Archaeology of Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)
Keywords: change in legislation, rescue archaeology, Russia
Presentation Preference - Oral
In Russia, the beginning of the 1990s was a turning point in the history of the nation. Massive changes took place in the political, social and legal spheres over an area which made up one-fifth of the world’s landmass, with a population of over 170 million people (including the USSR, Bulgaria, Hungary, Poland, Czechoslovakia and other nations). The resulting shift to a market-based approach in the cultural sphere (including archaeology) was both significant and controversial. During the period of the economic and political crisis in the early and mid-1990s, the amount of archaeological research being conducted fell overall, including rescue archaeology – primarily due to the situation which had gripped the entire country. In late 1992 the Federal Law 72-FZ came into force: “Concerning sites of cultural heritage (historical and cultural monuments) of the peoples of the Russian Federation”. In 2011 Russia adopted the European Convention on the Preservation of Archaeological Heritage. In the 2000s, the situation changed rapidly, due to the fast pace of economic growth. These changes were clearly demonstrated by the pace of issue of permits for carrying out archaeological works. This inevitably raised questions about revising the methodology with which such rescue archaeology was conducted, and ways of optimising it. A system of regulation had evolved over many years, in which scientific regulation underpinned the methods employed when researching archaeological sites – identification on-site, and a method for presenting the scientific documentation which applied across the entire country. These norms apply to rescue archaeology too. There are no ‘short cuts’ available in these methods. Attempts to bring in systems of “observation” as a subset of “rescue” archaeology methods can be considered successful only in the case of research into later, mixed-up deposits. Alongside this, the system by which the state funds scientific research has also changed. The proportion of rescue archaeology work conducted in the 2000s rose to above 80%, whereas it had only accounted for 20% in the 1990s. The development of private, including small business accounted for a considerable rise in the proportion of research being conducted by non-state firms involved in rescue archaeology from 1% in the early 1990s, to 40% in 2012. This pace of change is intrinsically connected with the way in which the tax system operates in Russia. For state organisations (departments of the Russian Academy of Sciences, museums, universities) the system of taxation remains in place, in which there are no tax-breaks. However, in 2004 the Russian Federation brought in a tender scheme for a wide range of different services – including archaeological services. The primary consideration under which such tenders were won or lost, was the price quoted for their compilation. Non-state organisations were placed at a significant financial disadvantage under these arrangements. During the period of the Russian economic crises of the 1990s and especially arising from “black holes” in legislation) a significant Black Market developed for archaeological artefacts. In 2013 a new Federal Law came into force, No 245 “Concerning amendments to Particular Legislative Measures of the Russian Federation which prevent illegal activity in the field of archaeology”. This new law was founded with the aim to control the processes of archeological monuments protection (archeologists, historians, architects, lawyers, and managers work in the department). The State Department controls the execution of the federal law, which states
that the preventive archeological excavations are obligatory on the sites where construction works are planned. The investors are ready to fund archeological works. But how does the Law operate? It obviously operates through an archeologist. A rapid development of the construction business led to a great amount of preventive excavations. Tver State University solved a problem of the necessity of young archeologists training. About 10 state and commercial organizations dealing with the preservation of the archeological heritage work in the Tver Region nowadays. To summarize, there are two components of the archeological heritage protection system in Tver Region. Department on State Protection of the Cultural Heritage and archeological organizations. This system is effective. In the territory of the historical centre of Tver there were rescue excavations carried out on the territory of more than 400000 m². Archeological works were also carried out during the construction of the new roads, oil and gas pipelines. However, legal acts are still prospects for further development - a collaboration with society and civil society organizations on the protection of the cultural heritage is necessary. It is crucial to realize the value of the archeological heritage as well as the importance of improving the scientific relevance of the preventive archeological works.

TH2-10 Abstract 11

“Amateur” archeology, legal or not?
The experience of a legislative practice in Russia

Author - Sapyrina, Irina, Institute of archeology RAS, Moscow, Russian Federation
Co-author(s) - Zelenikova, Olga, Institute of archeology RAS, Moscow, Russian Federation (Presenting author)

Presentation Preference - Oral

Hoard hunting has been actively developed since 1990s in Russia and all over the world. It is connected with dramatic changes in social and economic life of the country and availability of metal locators. It took 20 years of a purposeful activity of the specialists in archaeological heritage conservation for a society to realize the value of the losses of the pillage of archaeological sites. In 2014 in Russia the federal act N315 was adopted, directed to the heritage rescue and consisted of the assets on criminal liability of “grave robbers” (up to 6 years). Apart from the asset of the encouragement of the persons doing the illegal excavations on the territory of archaeological sites, this law contains norms and regulations new to the Russian legislative practice: about the territory of an object of an archaeological heritage, about the state historical and cultural expert evaluation, about the mainstreakmetation of the objects of an archaeological heritage, about the state national objects’ register and the encourage of the liability of the archeologists. The report is about the analysis of the practice in the application of the federal act 315 for the last two years from the moment of its adoption.

TH2-11 Abstract 01

Growing LivingLandscapes

Author - Dr. MacGregor, Gavin, Northrift Heritage, Glasgow, United Kingdom (Presenting author)
Co-author(s) - Stagno, Anna Maria, University of Basque Country, Spain

Keywords: Archaeology, Future, Landscape
Presentation Preference - Oral

As an introduction to the session, From Archaeological Past to Living Landscapes, I will provide some context as to why archaeologists should be concerned with contributing to the growth of living landscapes.

As such, the paper will consider the ramifications to archaeological practitioners of the increasing need for articulation of the management of archaeological and historic environment assets with other tools and instruments which seek to deliver more sustainable landscape management. Ultimately, it will outline some perspectives and areas of practice which could be developed further as opportunities for future innovation in growing archaeology and historic environment as part of living landscapes.

TH2-11 Abstract 02

Cultural landscapes in the Cantabrian Mountains: rethinking the future of rural Europe

Author - Dr. González Álvarez, David, Universidad Complutense de Madrid, Salas, Spain (Presenting author)

Keywords: Cultural Landscapes, Heritage, peasant communities
Presentation Preference - Oral

In the region of Asturias (North of Spain), local government chose thirty years ago a terrific successful slogan for promoting rural tourism: ´Asturias, Natural Paradise´ (from Spanish ´Asturias, Paraiso Natural´). The logo of this famous campaign shows an idyllic rural drawing with green meadows which are sight through the arches of the early medieval church of Santa Maria del Naranco.
in Oviedo. We could imagine herds of cattle grazing in the green landscape which is commonly associated with Asturias, but, nevertheless, there is no people in the image. Accordingly, most of the campaigns made since then by the regional institutions and tourism agencies have firmly stablished a primarily focused message on the natural component of the Asturian landscape. Thus, bears are the main characters in advertising and TV spots, while local peasants or the long cultural biography of landscapes are kept silent. Only few outstanding monuments, such as Palaeolitico art caves or some medieval churches, stand out among the forests in the mountains or the cliffs in the coast.

However, recent Landscape Archaeology studies and palaeoenvironmental research have shown the relevance of human activities in the formation of European landscapes, even in the most remote or liminal areas. At least since the Neolithic, the labor and the effort deployed by peasant communities in taking advantage of the soil potentialities has determined the anthropogenic construction of the landscapes. In addition, the last debates in Social Sciences point out that society, political systems, individual and collective identities mediate all together in the cultural construction and the perception of the environment. Thus, it might be argued that the energy invested by the local communities in working the land is the main agent in the modelling processes of landscapes in these mountains through the last 6000 years. At the same time, cultural narratives, the sociopolitical contexts, and their historical roots are central in the relations we (contemporary Europeans) stabilish nowadays with the rural landscapes. But, are these ideas sufficiently considered by state and regional-level governments in the management of European landscapes?

It seems clear that, rather, this ‘natural paradise’ is actually an artificial image in which the cultural aspects should have a more significant weight. The rural landscape is reified, while the experience and efforts made by local communities are muted. This way, peasant families become subastment actors who barely can speak, since they are marginalized from the policy making processes. So, the aim of this paper is in the first place to evaluate the consequences of this sort of naturalistic narratives for the local peasant communities. Secondy, I think we (archeologists) should deconstruct the official speeches made by public institutions on the management and promotion of tourism and the Asturian cultural Heritage. In fact, we could disseminate alternative narratives which may reinforce the local peasant positions as stakeholders for the future of rural landscapes.

Landscape Archaeology can provide more comprehensive narratives about cultural landscapes which would strength the role of Archaeology as a valuable Social Science for rethinking the future of rural European landscapes.

**TH2-11 Abstract 03**

**Environmental archaeology in rural landscape and heritage management: experiences in Liguria (Italy)**

**Author**: Pescini, Valentina, University of Genoa, San gimignano, Italy (Presenting author)  
**Keywords**: environmental archaeology, environmental management, rural landscape

**Presentation Preference - Oral**

Since 1970’s re-naturalisation strategies are currently in use in Italy aiming at the preservation of current environmental conditions or even restoring an ahistorical and aprocrisic ‘natural’ balance. These strategies are the results of rural landscape policies and environmental management that have adopted a ‘perceptive approach’, and are exemplified in general policy documents such as those of the European Landscape Convention, within which no attention is paid to the ecology of specific places and sites.

The abandonment of local agro-silvo-pastoral practices, awarded by general and national choices of re-naturalisation of the rural landscape, is one of the main causes of the loss of biodiversity, increase in hydrogeological instability and risk of fires.

A redefinition of the actual factors that produced and shaped individual rural landscapes is required for a better understanding and a more sustainable management of the current historical and cultural landscape. In the historical study of environmental resources involves archaeological, environmental and historical ecology methods of investigation; such a historical approach to specific sites allows identifying, characterising and explaining the environmental resources and rural landscape features as the output of both historical and environmental processes.

This paper presents some research carried out in Liguria (NW Italy) that contributed to the study of land use and of the historical ecology of sites. The first case is related to the restoring of some rural buildings and terraced area located in the Cinque Terre National Park in order to recover past agricultural activities. The second case regards a multi-proxy approach to identify evidences of past land use, rural architecture and vegetation coverage in North Liguria. The last experience deals with the historical characterization of a local landscape, comparing material features with a perceptive reading linked with the establishment of a literary park in Western Liguria.

All of these researches are a direct response to a question of ‘applied history’: the results of this work have been applied in environmental planning and in the historic characterization of the rural heritage, agro-silvo-pastoral landscapes and local products.

**TH2-11 Abstract 04**

**Engaging stakeholders, shaping practice: Strategies for sustainable cultural landscape management**

**Author**: Dr. Tully, Gemma, Durham University, Durham, United Kingdom (Presenting author)  
**Co-author(s)**: Dr. Moore, Tom, Durham University, Durham, United Kingdom

**Keywords**: Cultural landscapes, Engaging stakeholders, Sustainable management

**Presentation Preference - Oral**

Understanding and integrating stakeholders as the active creators and beneficiaries of cultural landscapes is an essential but under-developed element of sustainable heritage research.

Through work focusing on some of the most significant monuments in European history (Late Iron Age oppida: c.200BC-AD600), this paper will explore how communities (including farmers, smallmedium enterprises (SMSEs), wildlife organisations and residents) understand, experience and shape cultural landscapes. The work will focus on the cultural landscapes of Astigitian and Salmonson in the UK, which represent 5 of the 4 case study sites involved in the Reassessing Europe’s first towns (REFT) project funded by the Joint Heritage European Programme’s (JHEP), Joint Heritage Initiative (JHI). The project represents co-operation between Durham University (UK), Biblinci EPCC (France) and Universidad Complutense de Madrid (Spain), alongside associate partners from outside archaeology (including wildlife management, farming, national parks and local government) from the three partner countries.

This project recognises that archaeological heritage is one of many aspects of value – ecological, social, cultural and economic – within cultural landscapes and therefore needs to be part of an inclusive approach to developing landscape resilience. In order to develop better management strategies, the first stage of the project has been the analysis of current stakeholder perceptions of these cultural landscapes. This has been assessed through surveys, interviews and focus groups as well as initial engagement events. This paper examines how these cultural landscapes are used and understood. Using this analysis we explore how current knowledge can be increased whilst integrating existing landscape values into the management of cultural landscapes. As the project progresses, we look forward to seeing how such approaches can be used to develop engagement practices which will enhance cultural landscapes for greater mutual benefit to both landscapes and people.

**TH2-11 Abstract 05**

**Living Archaeological Sites in Modern World: Discussions on Ancient Rural Heritage in Turkey**

**Author**: Assist. Prof. Naci, Nida, Mersin University, Mersin, Turkey (Presenting author)  
**Keywords**: archaeology, landscapes, living heritage

**Presentation Preference - Oral**

Turkey possesses several examples of ancient rural settlements varying from modest agricultural compounds to richest remains of village settlements which altogether constitute ‘ancient rural landscape heritage’ in the country. The abandonment of local agro-silvo-pastoral practices, awarded by general and national choices of re-naturalisation of agricultural terraces to control topography, rock-cut workshop edifices for olive-oil production or viniculture activities are some examples, which show adaptation skills of ancient cultures considering potentials/constraints of the environment they are located within. These ancient cultures have affected their followers over centuries by transmission of local knowledge systems to later generations. In addition to their heritage values, several traces of ancient rural heritage sites possess information values to establish sustainable development strategies for future.

However, several examples of such ancient rural heritage are degraded by development impacts due to abandonment of traditional rural settings, changes in land-use patterns, topographical interventions due to infrastructural investments, modernization in agricultural activities and lack of adequate management systems in traditional rural areas. This paper aims to discuss enhancement of potentials and establishment of strategies to achieve “living archaeological sites” approach by sustainable development of traditional communities living in these sites. For this purpose, a number of different cases from different parts of Turkey, in which the author has been involved during past few years, are presented. The results of multidisciplinary experiences are discussed in order to highlight potentials to link integrated management policies between rural archaeological heritage and traditional landscape policies under the theme of “living archaeological sites” within the framework international doctrines and national legislations.

**TH2-11 Abstract 06**

**Archaeology and landscape policies of rural areas. First results of a project in Southern Europe**

**Author**: Dr. Stagno, Anna Maria, University of the Basque Country, Vitoria Gasteiz, Spain (Presenting author)  
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**Keywords**: Cultural Heritage, Local Practices, Rural Archaeology & Historical Ecology

**Presentation Preference - Oral**
Across Europe rural areas are suffering, in term of loss of biodiversity, cultural landscapes and traditions, as the consequence of depopulation and increasing abandonment of their management. This problem is particularly evident in mountain areas, where the presence of common-lands and common access rights was crucial in shaping settlement patterns and rural landscapes, nowadays often protected as natural heritage.

This paper will consider, through presentation of the first results of a project focused on the archaeology of common-lands in Southern Europe, how archaeology could contribute to the creation of more synergies between research and management of mountain and rural areas.

The study is centered on the connection between social structures and related material evidences of local practices. The investigation pays specific attention to the practices of management and production of agro-forestry-pastoral resources. This approach has clearly shown, on one side, the historical dynamism of rural areas (and in particular of common-lands) for transformation of uses, organization and access rights and, on the other, the contribution of local knowledge to the construction and preservation of historical rural landscapes.

The paper will reflect on how archaeology and historical ecology could help to connect historical reconstruction and present management of landscapes. This link could offer new approaches to better define landscape management policies, based on local actors and local management of environmental resources, in the framework of actions for the conservation of rural areas as a part of European Cultural Heritage.

TH2-11 Abstract 07
Cultural landscapes and territorial management: the case study of Madrid

Author - Dr. Ruiz Del Arbol Moro, Maria, Institute of History, CSIC, Madrid, Spain
Co-author(s) - Bastie Prats, Ines, Institute of History, CSIC, Madrid, Spain (Presenting author)
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Co-author(s) - De La Calle Vaquero, Manuel, Universidad Complutense, Madrid, Spain
Keywords: Cultural Landscapes, Madrid, Tourism
Presentation Preference - Oral

The Community of Madrid (this is the name of the administrative region of Madrid) is one of the main tourist regions in Spain, with a high density of historic and cultural heritage. The cultural heritage, both of a rural and urban character, is protected by several laws and articulated into several typologies. As in other parts of Europe, this heritage constitutes an important factor for the quality of life of local people; and, at the same time, needs to be turned into an asset for regional development. Our proposal aims to explore these issues, and to analyze the opportunities that the archaeological past offers for sustainable change in the conception of the character of the heritage and facilitates connections and links with the global process of territorial management (through links with environmental laws, or normative of environmental impact...). This is both a challenge for the public administrations and an opportunity to increase the benefits (social, economical, environmental) of archaeological heritage. Our proposal aims to explore these issues, and to analyze the opportunities that the archaeological past offers for sustainable economic development in rural areas. Our approach will focus in the tourism use of these heritage areas and its role in the context of the environmental and social politics of the region. On the background we aim to make a critical reflection on landscapes management policy and its convergence with promotion and valorisation strategies.

TH2-11 Abstract 08
Through Rural Living Landscapes to Ethnoarchaeological Reflections of Salt in Eastern Romania

Author - PhD Student Agnulelescu, Mihaela, "Alexandru Ioan Cuza" University of Iasi, Iasi, Romania (Presenting author)
Keywords: rural immaterial heritage, Salt-scapes, traditional practices
Presentation Preference - Oral

Salt, due to its diverse properties, is found in all the dimensions of the human communities. This is proved over time by numerous archaeological findings, Greek and Latin inscriptions and by current human behaviour determined by the abovementioned natural resource.

The Eastern Romania, a region rich in salt, has a privileged position in European landscape and even worldwide, due to the high quality of all the saline occurrences. The most common are the salt springs, of a great value, first of all because they were known, appreciated and exploited since Neolithic times. These springs came to be used progressively in various aspects, from their role of condiment to the symbolic dimension of the product obtained by crystallisation of the liquid salt. A special situation is highlighted by the continuity of the traditional practices of exploitation of brine from salt springs in the rural world of Eastern Romania, still at a high level of intensity.

However, because the area determined by the presence of salt and his community are threatened by a rapid globalisation and by a forced civilizing, it is necessary to draw attention over the risk of the irreversible loss of many of these practices that make a unique intangible heritage.

This paper aims to highlight the human behaviour that is defined by the collective mindset of Eastern Romania rural societies, through a diachronic approach, under several aspects, for identifying some ethnoarchaeological paths for an archaeological interpretation.

TH2-11 Abstract 09
Ethnoarchaeological heritage and cultural landscapes: a case-study from the Western Alps

Author - Dr. Carrer, Francesco, Newcastle University, Newcastle upon Tyne, United Kingdom (Presenting author)
Keywords: Ethnoarchaeology, mountain landscapes, Tourism
Presentation Preference - Oral

Landscape management is a key-aspect of European policy. Cultural landscapes are described in the European Landscape Convention as bearers of important identity values, and their protection is expected to have a crucial impact on environmental sustainability (preservation of biodiversity and traditional products, prevention of soil erosion and geomorphological instability, etc.) and the safeguard of local communities.

Ethnoarchaeology is placed at the core of this cultural and political framework. Ethnoarchaeological inquiries provide crucial insights to understanding archaeological landscapes and their evolution, but they can also contribute to the protection, management and planning of traditional landscapes in Europe and abroad. Despite these potentials, the impact of ethnoarchaeology is still quite limited outside archaeology and outside academia.

This paper wants to address all these theoretical and methodological issues, using a case-study from the Western Alps: Val della Brignola, an upland valley (>1800 m asl) in the Cuneo province (Italy). The landscape is defined by the presence of brine springs, with zones of pastoral structures: dry-stone pastoral cabins (gais) and cellars for cheese-maturing (selle). Most of these gais and selle are still exploited by local herders. They were recorded via remote-sensing, fieldwork survey and historical maps. Archaeological excavations within the gais of Sella Brignola suggested that this pastoral landscape dated back at least to the 17th century. Interviews with the local herder provided information on its function and use.

The historical and ethnographic importance of the gais of Sella Brignola, and the interest shown by policy-makers, members of the local communities and tourists for this research, suggested that the results of the project could be used for protecting and managing this site and the pastoral landscapes within which it is embedded. This paper focuses mainly on the initiatives that have been undertaken to preserve these pastoral hutts and to make them a point-of-interest in the touristic hiking tracks.

TH2-11 Abstract 10
From the loss of a city, to the discover of Archaeological Heritage: the modern story of Palestrina

Author - Pintucci, Alessandro, University of Rome “LA Sapienza”, Roma, Italy (Presenting author)
Keywords: Heritage, Italy, Protection
Presentation Preference - Oral

Modern archaeological history of Palestrina, city of ancient origin near Rome, started in the mid 1700s, when the first discoveries of tombs and archaeological materials were carried out in the territory; after a successful brackets linked to the promulgation in 1820 of one of the first laws of Italian protection, the Paccia's Edict, in the second half of the 1800 the city became a popular destination of Italian and foreign antique dealers, in particular French and Germans, who devoted to systematic excavations, almost never scientific, to recover the precious fabric of the Colombella necropolis. This pirate-logic excavations and recovery of materials went on until the middle of 1900, when, after World War II, the city, like the whole of Lazio Region, was the scene of an uncontrolled speculation that put a strain on the site of Palestrina and in the countryside: in the 1960s Palestina became famous in the newspapers as an example of poor land protection, culminating in the 1970s, with the opening of a painful legal case, which led to important arrests of staff of the Ministry of Culture too, turning the countryside: in the 1960s Palestina became famous in the newspapers as an example of poor land protection, culminating in the 1970s, with the opening of a painful legal case, which led to important arrests of staff of the Ministry of Culture too, turning the
TH2-11 Abstract 11
The Landscape of Via Appia Antica: From a panorama of ruins to an Archaeological Park
Author - Dr. Habib, Dubribi, Rachela, University of Rome ‘Sapienza’, Rome, Italy (Presenting author)
Co-author(s) - Curcio, Marilatesa, University of Rome ‘Sapienza’, Rome, Italy
Keywords: Archaeological Park, Landscape of ruins, Via Appia Antica
Presentation Preference: Oral
The landscape of Via Appia Antica, characterized by ruins of imposing monuments immersed in the vast countryside, doubtless preserves some of the richest cultural heritage of the ancient world, whose fascination has been celebrated by artists and writers since the Renaissance. For centuries these archaeological ruins have played the role of generic memorials, beautiful fragments creating romantic panoramas, findings decontextualized from their environment, waiting to be looked at, dreamed of, but uninterpreted, except by specialists. The lack of reception of their historical value by the community has led to the abandonment of archaeological sites; and, therefore, the past has been seen as an immobile, faraway, meta-historical, idealized, unattainable reality that can only desperately store or regret, or even (as has been the case so far) simply be ignored. For these reasons, although since Napolonic times different plans have envisaged Via Appia as becoming a great archaeological park between the Roman Forum and the Alban Hills, this idea has been threatened by private interests, such as housing construction. Even after the creation of the Park in 1988, the aims of which are, however, at most naturalistic, 95% of the area has remained in the hands of private entities. Moreover, the traditional approach of Italian institutions to the cultural heritage, based on the concept of preservation, constraint, and protection, has increased the gap between archaeology, on the one hand, and communities, on the other, over the past decades.
In occasion of the decision taken by the Italian Ministry of Culture to finally transform this area into a national archaeological Park, the authors participate in critical reflections on this paper as manager, policy and tools analysing the significance that archaeology could have for local communities in the creation of a shared identity based on a common landscape and focusing on the inescapably public use of archaeology, which as such must be defined, properly designed, and clearly explained to define new opportunities for building broader sustainability and legacy. In view of the future management of Appia Antica Park as an archaeological Park, inhabitants’ current aspirations and needs in the negotiation of what they feel to be “their own” past and culture with institutions and politicians will be examined. This political perspective will be used to develop a critical reading of the state of archaeology in the Park, illustrating practical examples of “active protection” of its landscapes by the citizens and identifying, in the changing process of the appropriation of the past, some key elements for the recovery of a shared memory. Hence, a public approach to the management of the park will be proposed that could promote cultural growth, including a proper debate between archaeology and communities, supporting territorial planning and envisioning new forms of development and democracy, all indispensable elements that can finally transform a landscape of ruins into a living landscape.

TH2-11 Abstract 12
The siege of ‘s-Hertogenbosch in 1629 Historic and archaeological research with the local community
Author - Fiamman, Jeroen, Vestigia Archaeologica & Cultuurhistorie, Amersfoort, Netherlands (Presenting author)
Keywords: archaeology and history, communities and volunteers, landscape management
Presentation Preference: Oral
The siege of the Dutch town of ‘s-Hertogenbosch in 1629 has been an important moment in the war between catholic Spain and the Dutch Republic and the rise of the Netherlands. ‘s-Hertogenbosch was the main Spanish base and a well-fortified city protected by an experienced Spanish garrison and by formidable water defences. The army led by Frederic Henry, prince of Orange, erected a defence and forefront of 40km around the town. It contained many dikes, trenches and ditches and several fortified encampments for large military forces. The town was besieged for 5 months out of these fortifications before it was conquered. Noble visitors from all over Europe visited the siege to admire the novel and spectacular method. Because of this and its historic importance the siege is very well documented in several historic reports and documents and also paintings and drawings. Even the situation and location of the defence and forefront lines were measured and documented.

In ‘s-Hertogenbosch the foundation ‘De Groene Vesting’ / ‘The Green Stronghold’ is established. It’s a local initiative of inhabitants of ‘s-Hertogenbosch and surrounding villages to visualize and experience the lines of Frederic Henry of 1629 around the town for a broad public. By opening up the many historic sources people are invited to research and discover them selves what was and is happening around the lines of 1629 in the past and nowadays.

On the eastside of ‘s-Hertogenbosch a new canal has been realized between 2008 and 2015. Archaeological research has been accepted by the archaeological heritage management. During the desktop study it became clear the new canal would cut through the historic lines of the siege at several locations.

The excavations resulted in an intense cooperation between the municipality, the foundation and the archaeologists. The group set frequently to exchange the knowledge of the moment. The location of the lines was marked on a digital map, a 3D model and modern map based on studies of historic maps. The seven excavations, varying between 200 and 20.000 square meters, gave new insight in the size, position and character of the lines. The archaeological results were integrated in the structural concept for the environment and the new archaeological characterization maps of the lines.

The EAA-lecture will present the work of the foundation ‘De Groene Vesting’ as well as the results of the archaeological research of the lines of the Siege of ‘s-Hertogenbosch 1629. Example are given how archaeological and historic research can contribute to the development of the landscape around the town, how a foundation of volunteers from the local community can start and support local environmental concepts and how these plans are accepted by the municipalities, local community and several entrepreneurs. And also how commitment for many years results in great plans and ideas for the future.

TH2-12 Abstract 13
Archaeology and Landscape Partnerships
Author - Dr. Murtagh, Paul, Northlight Heritage, Glasgow, United Kingdom (Presenting author)
Keywords: Heritage, Landscape, Sustainability
Presentation Preference: Oral
Archaeology forms a key component of many Landscape Partnerships schemes in the UK. These schemes, funded by the Heritage Lottery Fund, “put heritage conservation at the heart of rural and peri-urban regeneration” (Heritage Lottery Fund 2016) where local, regional and national organisations, often with conflicting areas of interest or priorities, work together to “make a real difference to landscapes and communities for the long term”. These HLF funded schemes are designed to make a “major contribution” (ibid) to the UK’s implementation of the European Landscape Convention.

This paper will explore how these schemes contribute to the study, engagement, understanding, management, protection and enhancement of archaeology in the UK, what problems and tensions have arisen and how these obstacles have been addressed. The paper will further examine the sustainability and legacy of such models.


TH2-12 Abstract 14
The greening of Wroxeter: an alternative approach to displaying urban remains
Author - Dr. White, Roger, University of Birmingham, Shrewsbury, United Kingdom (Presenting author)
Keywords: Archaeological Park, Landscape management, Wroxeter
Presentation Preference: Oral
The burial city of Wroxeter in Shropshire, in the English Midlands, is a challenging site to interpret and present to the public. Its principal focus is the ruins of the town baths, but this is just one visible building within an urban site covering 78ha. The remainder of the site has been down to uniform pasture since 1975 when it was purchased by the State to prevent further damage from ploughing. While the existence of the pasture has not prevented significant research - the major geophysical campaign of the Wroxeter Hinterland Project of the mid 1990s has resulted in the publication of the first full plan of the town, and a new interpretation of its chronological development - the monument is visually unimpeaching to the general public. This is reflected in the visitor figures for the site, run by English Heritage Trust, which are only in the tens of thousands. Yet immediately adjacent to the site is the National Trust property of Attingham Park (400,000 visitors per annum) while only 8 miles away is the World Heritage Site at Ironbridge (750,000 visitors per annum).

The purpose of this paper is to suggest a radical new approach to presenting the wider area of the town, around the baths at its centre, that will make the extent of the town visible in the landscape. It is suggested this can be achieved through a varied planting scheme that will not damage the underlying archaeology, creating at the same time a network of pathways that will encourage visitation from the neighbouring Attingham Park. There would be three-fold benefits from the scheme. It would facilitate access and understanding it would provide a biodiverse landscape among the general monoculture of the surrounding modern agricultural landscape and, lastly, would encourage a greater diversity of wildlife on the site. Such a planting scheme would not hamper any future archaeological work on the site, but would make the site more attractive for the general public along permissive paths that did not interfere with the possible use of the site by wildlife.
Such an approach reflects the increasing desire to see archaeology as part of the wider historic environment, and reflects something of the reality of a site that was a Roman city for 500 years, but has been farm land for millennia, before and after the Romans.

TH2-11 Abstract 15
Transformation and management of Historical Agrosystems in the Iberian Landscapes (THALES)

Author - Dr. Sarabia, Julia, University of Alicante, Alicante, Spain (Presenting author)

Presentation Preference - Poster

The interest in the study of cultural landscapes has grown considerably in recent years. Several strategies have been developed in this field in Europe, marking it as a priority area of interest in Community policies as landscapes combine elements that reflect both the cultural, environmental, economic identity and political heritage. In this context, we present the first results of THALES project (University of Alicante, Spain). The main challenge of the project is the combination of different methods to study the Iberian cultural landscapes for more advanced purposes: to contribute to a deeper understanding of the territory, in order to achieve development that respects the legacy of the past and its conservation. It is used a multidisciplinary approach (archaeology, geography, ethnography, soil science, agronomy), from a multi-scale (from local to European level) and with a diachronic perspective (from antiquity to the present day). In order to consider the various mechanisms of appropriation and transformation of the environment by the societies, the project focus on the analysis of various types of cultural landscapes of the Iberian Peninsula, especially selected by the morphology of their agrarian systems: one of the most homogeneous expressions of the interaction between man and territory: 1) mountain landscapes of Sierra del Segura (Albacete) and Sierra de Atana (Albacete), characterized by small height villages of Islamic origin with an agropastoral economy. The element that characterizes the agricultural systems of these communities is the terrace farming: plots created to take advantage of the mountain slope where are developed infrastructures for the exploitation and distribution of water resources (cultural landscapes generated from the Islamic period to the present day, still in use). 2) plain landscapes of Campo de Hellin (Alicante), the Valle del Vinalopó (Albacete) and Vega Baja del Segura (Alicante), characterized by exploited agricultural environments without interruption from antiquity to the present day, but with different strategies (Roman villas, early medieval rural villages and farmhouses, medieval fiefdoms, contemporary agrarian colonies). Our study focus on understanding how historical societies have occupied and administered this space, characterized by a shortage of water resources.

TH2-11 Abstract 16
Landmarks and landscape in the South Eastern Sicily

Author - Dr. La Terra, Lia, Novara, Italy (Presenting author)

Presentation Preference - Poster

South-Eastern Sicily provides a privileged view for the analysis of the impact on the culture of “Sikels”, thanks to its huge variety of indigenous settlements dated to the Iron Age and concentrated around the Ionian coasts, which were early visited and occupied by Greek colonies. Nonetheless, the archaeological debates and researches have been always concentrated in a Greek point of view, leading indigenous archaeology as a “niche archaeology”, where sites are even not well preserved and inserted in the archaeological potential resources.

For these reasons, I would like to focus on the analysis of the indigenous sites of the Hyblean Area. The portrait that has been revealing forces me to leave the well-known ethnic classifications and characterizations, getting close to the concept of “hybridity”. In fact, Greeks and indigenous people have developed an interactive dialogue that highlights the creation of a “third space” or “middle ground” that is neither indigenous nor stranger, rather a cultural melange generated by the meeting between the two parties, well visible in the social exchanges, osmosis of ideas and material culture.

Re-centring the specificity of the indigenous archaeology could be an important way to reconsider also the archaeological landscape nowadays and promote new strategies of development of the area. In fact, the case of the South eastern sites are emblematic to describe a shared situation for a considerable number of sites in the Region that are affected by lack of funds and absence of great managing plans. Investigating further the relationship between sites and their natural landscape might be very interesting. Prehistoric sites in Sicily (e.g. Pantalica, Cassibile, Thapsico, Monte Finocchito) are set on beautiful and breathable scenarios and the boundaries between archaeological landscape and natural-rural landscape are full of overlaps and possible links. This fact could suggest the idea of possible integrated landscapes where naturalistic tracks, rural traditions and archaeological sites are linked together in unified managing plan for preservation and tourism.

It is still detectable the complete harmonisation of archaeological remains into the rural landscape and the landmarks of rock-cut architecture, still used nowadays in agriculture, as a reference for the ancient deep relationship between humans and landscape and an ancestral proof of the respectful use of the land that the rural civilisation of the area has been promoting since its origins.
GIVING NEW MEANING TO CULTURAL HERITAGE: THE OLD AND THE YOUNG IN PAST SOCIETIES

In archaeological studies of the past the humans were often viewed as being adults in the prime of life and inappropriately male. Females were introduced into archaeological discourses with the growth of gender archaeology during the 1980s and an explosion of research had been undertaken on the archaeology of children in the past decade. With some notable exceptions, however, the elderly are still largely invisible in archaeological narratives – even though ethnographic analogy demonstrates that ‘elders’ were often viewed with particular respect due to the perceived wisdom associated with their longevity. The inclusion of a wider spectrum of humanity within modern archaeological discourses has also resulted in an increase in studies of the human lifecycle. Such studies stress the necessity of interconnecting the different stages of the life cycle to enable us to gain a better understanding of the life experiences of individuals at different times for the duration of their lives.

In this session we wish to focus on adult and child relationships and, in particular, evidence for the interaction of the young with the old. In the modern world grandparents are often key figures in their grandchildren’s lives, but was this also the case in the past when people generally died at a much younger age than today? Is it possible to find evidence of such interactions in the funerary record, in the charnel osteoarchaeology associated with different forms of material culture, in spatial analyses or in any other aspect of archaeological research? How is the evidence approached, integrated and presented in the professions of cultural heritage management? By focusing on these relationships we hope to bring the elderly out from the shadows while also remembering that children in the past would have interacted with adults beyond their parents – just as they do in the present.

Keywords: bio-archaeology, child/adult relations, ex-situ preservation

Presentation Preference: Regular session

TH2-13 Abstract 01
Protect or perish: On the outlook for the young and the old in a museum’s collections

Author: Head of dep, Hoegestol, Mari, University of Stavanger, Stavanger, Norway (Presenting author)
Co-author(s): Denham, Sean Dexter, University of Stavanger, Stavanger, Norway
Co-author(s): Lillehammer, Grete, University of Stavanger, Stavanger, Norway
Keywords: bio-archaeology, child/adult relations, ex-situ preservation
Presentation Preference: Oral

High childhood mortality was a fact of life in the past. More children were born than would ever reach adulthood and old age, putting a limit on the potential for interaction between the young and the old. Modern society has seen a change in this. Improvements in health, labour and welfare conditions have increased life spans and altered somewhat how we use our time. This population wave of older adults has sparked the growth of a new stage in the human life cycle on a global scale, one in which older individuals have time and resources not previously available to them. This has changed the dynamic of the present, and increased the potential for interaction between the young and the old. It is possible to see such life-stage interconnections in something as simple as grandparents and grandchildren visiting museums together. None the less, museum outreach programs, activities and research communications rarely highlight this aspect of child-adult relationships in the archaeological narrative about the past.

The research program BEVARES (Biological Environmental and Archaeological Interdisciplinary Research on life course, materiality and materiality in human depositions), at the Museum of Archaeology, University of Stavanger, Norway, seeks to address issues surrounding the recovery and curation of organic materials from archaeological contexts, particularly those involving the preservation of human biological remains. Our project within the program focusses on previously excavated material in the museum’s collections which has either not been analysed at all, or not been analysed using up-to-date techniques and standards. The paper presents our attempt to establish an overview of the ex-situ skeletal remains (burnt and un-burnt bones) of children versus elders and the contextual evidence of archaeological grave, settlement and loss finds. Not surprisingly, the results indicate that burial rituals together with the frequency of highly acidic soild in the region, are an impediment to the bio-archaeological analyses of the human body and its treatment before and after death. As these conditions strongly influence the preservation of human bone, in particular the remains of inhumations, the possibility of gaining an understanding, both biological and social, of the interconnections of different stages in the human life cycle is the present are challenging.
their social roles, agency and interactions, and integrating them into a holisitic analysis of the prehistoric world is vital for a better understanding of the workings of these early Aegean cultures. Integrating ethnographic data with a systematic study of material remains from the study of burials (including simultaneous adult-child ones) to iconographic sources and textual references, the aim of this paper is two-fold: a) to provide a comprehensive account of the diverse attitudes towards childhood and the elderly in the region during the Late Bronze Age; and, b) to shed light on the interactions between children and elderly both at household level and at the level of the archaeological record during this period.

**TH2-13 Abstract 05**

**Family constructions and adult-child relationships in the Ancient Greek Oikos**

**Author:** Sommer, Maria, Skanderborg, Denmark (Presenting author)

**Keywords:** Adult-Child relationships, Ancient Greece, Childhood Archaeology

**Presentation Preference:** Oral

The presentation will focus on family constructions in the ancient Athenian oikos with special attention to children age 0-7 years. Research points to the fact that children in the ancient Greek household - the oikos - grew up in an extended family with multiple relationships with parents, grandparents, siblings, friends, slaves and caregivers. The theories of alloparenting and multiple caregiving are introduced to give insight to the complex world of children and their peers in the ancient Greek oikos.

This research has been published in: Sommer, M. & Sommer, D. (2015). Care, Play and Socialization in Ancient Africa – A Developmental Childhood Archaeological Approach (DK: Aarhus University Press).

**TH2-13 Abstract 06**

**Circle of Life? Aspects on youth and old age in Viking Age and Medieval Scandinavia**

**Author:** PhD Mejsholm, Lotta, Uppsala, Sweden (Presenting author)

**Keywords:** Age construction, Burials, Viking Age

**Presentation Preference:** Oral

In Viking Scandinavian society, people were to a high extent defined and commemorated by their deeds. The productive, freeborn, preferably male, adult formed a societal norm, to which children, slaves, outcasts, unproductive elders and “others” were contrasted. Consequently, and as a result of contemporary academic paradigms, children, and elderly has often been tagged as “invisible” in the records available. Nothing could be more wrong.

In this paper, the sphere of children and elderly in Viking Age and Medieval Scandinavia is explored, as a specific culturally and socially defined construction, contrasted to the normative adulthood, as displayed in textual and archaeological records. In medieval provincial law codes, a clear distinction between man slaughter (killing an equal, a free adult man) and killing children or elderly people, unable to defend themselves, is made. In case of the latter, the killer was charged with a significantly more severe penalty. The defencelessness of these household dependents is expressed in terms of limited capabilities, which, is argued, is a relevant definition also in academic discussion.

In the burial records from Late Viking Age and Early Middle Age, graves of elderly, impaired, sick people and children in many cases differ from those of the productive adults. One specific phenomenon is approached in this paper, namely the use of amber beads amulets. Amber has been used as protective agent in Viking Age, i.e. as amulets attached to swords. A similar understanding could be used considering the burial arrangements for elderly and young. Characterised by a state of dependence and limited capabilities, but also specific legal and magical protection, the young and the old seem to represent a distinct social category within the household. Likewise evident, the youngest family and household members, the unbaptized and newborn infants, were yet to enter this specific sphere.

Is it possible that this correspondence between age identity of the young and old represent a Viking Age cyclical view of life? Perhaps so, but there might be reasons not to simplify the interpretation of the complex eschatology interacting with reality in Viking Age society.

**TH2-13 Abstract 07**

**The old and the young in the Icelandic early Christian household cemetery**

**Author:** Zoega, Gudny, Skagafjordur Heritage Museum, Saudarkrokur, Iceland (Presenting author)

**Keywords:** Bioarchaeology, Household, Medieval

**Presentation Preference:** Oral

In recent years a number of early Christian cemeteries have been excavated in the region of Skagafjörður, North Iceland. These cemeteries belonged to, and were managed by, occupants of individual farms and were in use from around AD1000-AD1100. These household cemeteries differ from the sparse archaeological burial record in that they are all inclusive, i.e. include various degrees of both sexes and all ages, essentially representing all the inhabitants of a household. An interesting feature of these cemeteries is the large number of infants and relatively large number of “older” individuals. The Icelandic sagas rarely mention children, and the old hand not to be in viewed in a favourable light. By looking at the osteological data in conjunction with spatial analysis a more detailed picture emerges providing information on the possibility of three generational families and the role and perception of the young and the aged within the medieval household. This paper discusses how this unique material can add to the predominantly philological and historical discussion on the nature, makeup and social interactions of the medieval Icelandic household. It also touches on how the data may be used to create a fruitful discourse on how the “traditional” Icelandic household is presented and disseminated at a rural heritage museum. By comparing and contrasting the medieval bioarchaeological material and the historical/ethnographical research pertaining to the museum’s collections and exhibitions, a new light may be thrown on historically “inconspicuous” social groups such as the aged and the young, irrespective of time periods.

**TH2-13 Abstract 08**

**Interpreting Multiple Interments in Irish Medieval Burial Grounds**

**Author:** Dr. Murphy, Eileen, Queen’s University Belfast, Crumlin, Northern Ireland, United Kingdom (Presenting author)

**Keywords:** Funerary archaeology, relationships, skeletal remains

**Presentation Preference:** Oral

Burials that contain the remains of two, three or even larger numbers of individuals are occasionally discovered during excavations of medieval Christian burial grounds in Ireland. In the majority of cases the remains are those of neonatal infants – perhaps indicative of a multiple birth – in which the infants did not survive, while other examples may comprise the burial of two or more adults. In other instances a full-term foetus remains within the mother’s abdominal region and clearly died prior to delivery. Cases also arise in which a neonate has been interred with an adult female, and it seems likely that many of these may represent cases where both a mother and her baby had died shortly after delivery. Other examples have been discovered in which an adult male was buried with an infant or an older child was buried with an adult. This paper will explore the evidence for multiple burials where both a mother and her baby had died shortly after delivery. Other examples have been discovered in which an adult male was buried with an infant or an older child was buried with an adult. Other cases may concern cases where both a mother and her baby had died shortly after delivery. Other examples have been discovered in which an adult male was buried with an infant or an older child was buried with an adult. This paper will explore the evidence for multiple burials where both a mother and her baby had died shortly after delivery. Other examples have been discovered in which an adult male was buried with an infant or an older child was buried with an adult. Other cases may concern cases where both a mother and her baby had died shortly after delivery. Other examples have been discovered in which an adult male was buried with an infant or an older child was buried with an adult.
Inquiries into age identity have only recently received attention, despite the recognition of gender identity in archaeology. Particularly elderly individuals are often ignored or treated with the assumption of a universal experience of old age. Traditional age estimation methods have failed to provide more accurate estimates to aid in the identification of aged skeletons. Individuals of 45+ years are often lumped together, ignoring any potential social differentiations in the later stages of the life course. In this study, the Transition Analysis has been utilized on the Iron Age cemetery collection of Wetwang Slack, East Yorkshire, UK, using the method’s statistical approach to provide more accurate age estimates for older individuals. Additionally, data on sex and age-progressive conditions including osteoarthrosis, general spinal degeneration and dental health has been collected to investigate the social identity of elderly adults in comparison to younger adults. Using a sample of 150 individuals, the Transition Analysis provided a more dynamic age profile which shows that age differences are found across gender lines and in terms of disease likelihood. Elderly females have especially stood out since they showed a substantial increase of spinal degeneration of the vertebral bodies, caries and tooth loss as compared to elderly males who show a significant decrease or stagnation in these conditions. Older females however in common with younger adult females the severity of spinal osteoarthritis in the facet joints in comparison to the young male – elderly male grouping which is less affected. Females generally appear to be more affected by disease, yet elderly females of this population are particularly haunted by ill health which ultimately may have made their deaths and presence in this cemetery more likely. Death also is an important aspect of these women’s identity. Other forms of identity are highly important in gauging age differences and relationships between young and old. Age only becomes visible through the growing, gendered or diseased body as a medium in the social experience of age. The archaeological interpretation of osteological data shows that Wetwang Slack age groups have various relationships to one another depending on sex, health or even affected body location. This trait of age estimate, sex affiliation and disease profile has proven useful in separating the elderly social identity from that of young adults in a way which provided especially elderly Wetwang Slack females with a kind of personality without ignoring their relationships to other age groups. In life as in death, elderly women stood out physically from the younger individuals of their community, while their relationship to younger females may indicate greater success in surviving the adversities associated with the female experience at Wetwang Slack.
greater community participation in caring for this resource the Heritage Council of Ireland has launched a pilot Adopt a Monument Scheme in 2015-16. The experience gained from this will be shared at the round table. At the time of writing this scheme, learning from work in Scotland, has progressed from an open public call for entries to selecting monuments and communities. Further details will be available in September.

TH2-14 Abstract 03
Community Outreach and Engagement through Archaeology Fairs

Author - Dr. Thomas, Ben, Archaeological Institute of America, Boston, United States of America (Presenting author)
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Keywords: Community Engagement, Heritage Education, Partnerships
Presentation Preference - Oral

Since its founding in 1879, the Archaeological Institute of America (AIA) has worked to create an informed public interest in the cultures and civilizations of the past through its many outreach programs. The Institute educates people of all ages about the significance of archaeological discovery and encourages community-based outreach. In 2001, the AIA hosted its first archaeological fair. The fair brought together independent archaeological organizations representing a rich array of archaeological subfields to present their programs and resources to a local community in an interactive and engaging manner. Through the fair, the partnering organizations, presented activities that combined the excitement of discovery with sound archaeological thinking; emphasized the idea that archaeological discoveries are resources that help us better understand how people lived in the past and how human societies and communities functioned, developed, and grew; and informed attendees about archaeology and cultural heritage by having them participate in hands-on activities, by observing demonstrations of ancient technologies, and by talking to the experts presenting these various programs. Since 2001, the AIA has organized 23 more archaeological fairs and informed thousands of people through this popular outreach activity. The overall aims of the archaeology fairs are to promote a greater public understanding of archaeology, raise awareness of local archaeological resources, and bring together proximate archaeological groups with a shared outreach goal. In this presentation, the authors will discuss how the AIA fair model was developed through feedback cycles that include evaluation, data analysis, reflection, and trial and error, how it evolved, and how it is spreading to other groups around the world. To date, 28 AIA local societies have hosted fairs and the popularity of this program as an outreach event is increasing among other archaeological groups across the USA as well as in Belize, Canada, Colombia, the Czech Republic, Iran, and Myanmar. This growth in popularity and implementation presents us with unique opportunities to collect and reflect upon data essential to conducting archaeological outreach around the globe.

TH2-14 Abstract 04
The "archaeological path" in the interdisciplinary research in Polish Jurassic Highland

Author - MA Majerek, Magdalena, Nicolaus Copernicius University Torun Poland, Torun, Poland (Presenting author)
Co-author(s) - PhD Lawrowicz, Olgerard, University of Lodz, Lodz, Poland
Keywords: archaeology, Jurassic Highland, interdisciplinary research, places of memory and forgetfulness
Presentation Preference - Oral

The project, called Places of memory and forgetfulness: Interdisciplinary research in northern areas of the Polish Jurassic Highland, involves carrying out research in areas that can provide inputs to multifaceted cognition of the history, cultural reality, social-drama, local family memory, the heritage of generations, and contemporary identity the inhabitants of the northern part of the Polish Jurassic Highland, i.e. in the area of five communes: Janów, Lele, Mstów, Olsztyn, Przyrów. The project adopts an interdisciplinary perspective on the modern cultural anthropology, and refers to the new trend in archaeology focused on the study of modern times (XIX-XX centuries). Reflection these two disciplines is supplemented and verified through the knowledge of local history and the history of art.

The project distinguished three complementary research path: anthropological, archaeological, historical/archival and a common path. Cultural anthropologists use the photographs, written materials, archives, documents and available publications. For them, the source of knowledge about the past and the present is orally primary history, heard stories from encountered people. Within the queries historical researchers collect general information about the regional history, as well as about specific places and objects, often not adequately developed in the academic literature.

In the discussed archaeological path aim is to attempt to answer the following question: whether in a particular place are material elements of culture capable to confirm, deny or modify the knowledge of the past emanating from collected stories. Archaeological diagnosis was divided into two stages: reconnaissance and non-invasive research (including aerial surveys). In the first stage of the archaeological diagnosis, archaeologists investigate the available source base and makes an initial reconnaissiance of the municipality. Then divide objects (places), which have been proposed for research by anthropologists, into three categories: A - objects studied non-invasive methods, which does not require detailed documentation; B - objects studied non-invasive methods, requiring accurate documentation; C - objects studied non-invasive methods, requiring accurate documentation, subjected to additional investigation using a metal detector, drill and survey trenches. Established in the course of archaeological field research documentation (ie. the description card of places, photographs, drawings, movable monuments: artifacts and eloects and their inventories, provides a database for a detailed analysis of the results of archaeological research at the level of a single place (object), as well as the analysis of a set of places in the municipality.

The project is implemented under the National Programme for the Development of Humanities funded by the Ministry of Science and Higher Education in Poland.

TH2-14 Abstract 05
Role of archaeology in rise and fall of local tourist industry.

A warning example from Finland

Author - Laukumà, Vesa, The National Board of Antiquities, Helsinki, Finland (Presenting author)
Keywords: Local involvement, Media, Tourism
Presentation Preference - Oral

In June 1996 paleolithic stone tool was found in Susiluola-cave in western Finland. As the first known paleolithic site in Scandinavia it received plenty of attention in national media. Soon after the first find was revealed and reported in media, the site was visited by thousands of people and local economics was boosted by the visitors. Tourism flourished. Hats, t-shirts, food, exhibits, bars and restaurants were named after the site. Archaeologists, on the other hand, were not happy that their precious archaeological site harnessed for a tourist business and were criticising local efforts as pathetic. Local communities were planning to invest millions for the future attractions, like Ice Age Centrum and even an opera. In meanwhile there was a growing debate among archaeologists if the finds and the site was paleolithic or not, it was also accused to be a hoax. Critics grew stronger also in the media. Debate cast a long shadow over the site and affected the public opinion. Attraction faded away and tourism collapsed. Last excavations season was in 2008. The debate concerning the authenticity of the finds and cave as a paleolithic is still unsolved. New discoveries in archaeology get usually attention from media and public. Growing interest can turn archaeological site to tourist attraction and raise local tourist businesses. In the best cases this will lead to fruitful co-operation between archaeologists, local officials, entrepreneurs and public. It is also possible, that overenthusiastic start can lead to very disappointing end for all parties involved.

TH2-14 Abstract 06
My Home Ground - past and present

Author - Hjel Madsen, Lene, Museum skanderborg, Skanderborg, Denmark (Presenting author)
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Keywords: Art, Ownership, Storytelling
Presentation Preference - Oral

Escape is a concept that adds energy and historical context to newly developed suburban sites. When an excavation site has been “emptied” for historical data by the archaeologists and the area has been developed for modern life, it is important to tell the unique story of the place to newcomers as well as the people who already live around the site. This can be done in many ways. Our experience is that bringing in Art into the process lifts the story-telling- and a work of art as well as the presence of an artist at Work - result in increased local communication and also make the site a point of interest for tourists. The concept eScape combines art, archaeology, past and present and creates and communicates art on sites with strong archaeological evidence combined with the scientific excavations. Specialties in Tourism, Art and Archaeology work together and combine the three on equal terms with the participation of locals and children. Escape makes a crucial difference from non-participation to ownership.

TH2-14 Abstract 07
Giving is having! Everybody is winning!

Author - Architekkes Lesel, Krieta, Pirkanmaa Provincial museum, Tampere, Finland (Presenting author)
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Co-author(s) - Adiel, Vadim, Pirkanmaa Provincial museum, Tampere, Finland
Keywords: cooperation, local people, openness
Presentation Preference - Oral

TH2-14 Abstract 08
A warning example from Finland

Co-author(s) - Adiel, Vadim, Pirkanmaa Provincial museum, Tampere, Finland
Keywords: cooperation, local people, openness
Presentation Preference - Oral
Pirkanmaa Municipal Museum has conducted excavations on a very unique Late Iron Age / Early Medieval dwelling place during the past years. The first discoveries were made by the local people, who have been familiar with the place for decades. The site has attracted an extraordinary amount of interest from various operators: a large museum centre and a small local museum seeking to enhance its activities; a university and independent researches with personal interest in the site and its material; local authorities wishing to develop tourism. Pirkanmaa Municipal Museum has made research material and information freely available to all, and established contacts with many different operators and experts. With a little effort from everybody, the enthusiasm is clearly spreading. But how well do the different players cooperate? Will the outcome be a large-scale exhibition, a new tourist attraction, and a new multidisciplinary research project, as planned? The paper deals with archaeological excavation project as a societal concept, which creates working interfaces between different operators and sectors of society. The current and potential role of the museum as an enabler of new kinds of activities and projects will be discussed. It is noted that transparency, publicity, contacts, and efficiency are the most important basis for cooperation, and required in managing a research project with lower level of resources than normally.

During the last EAA-meeting in Glasgow, the idea rose to re-create an EAA commission on illicit trafficking of archaeological heritage. Our round table is organised by the Working group of this commission.

Antiquities as the ‘hottest invest’ (TIME-Magazine, 12/2007) are one of the biggest problems of archaeology. Finds deriving from unauthorised excavations, metal-detecting, robberies of museums/public collections, appear on the market with faked provenience, and are legally sold. The majority of illegal/illicit finds that enter the market, seemingly entirely legally, go unacknowledged by archaeologists. Only rarely do such finds later surface and only few, like the spectacular find of the Bronze Age Nebro-disc, are acknowledged by the wide public. In the case of more mundane finds this rarely ever occurs.

Today, the internet offers an easy and growing platform for rapid exchange of archaeological artefacts, the sheer volume of sales making it hard to keep track of newly advertised finds and sales. Thousands of archaeological artefacts are daily presented through mediums such as ‘treasure hunter’ internet platforms, advertised and sold online through outlets and sold through licensed auction houses.

The reaction of archaeologists has been to largely ignore this market. But the volume of finds entering the market reached already the point where we must begin to address the lack of knowledge, and to what degree our legitimate archaeological find corpus is any longer truly representative, and whether it alone remains valid for future research.

We will focus in particular on how to:
- prevent and limit trafficking and selling of cultural heritage in Europe (especially trafficking of antiquities from the Near and Middle East);
- reduce illegal excavations in Europe;
- develop strategies for a common European legal basis on the protection of archaeological sites;
- furthermore, we want to discuss an official statement for the EAA concerning illicit trafficking of antiquities.
The systematic and inspiring raising of social awareness through the educational (equally pedagogy and andragogy) museum function about the flaws of decontextualized archaeological material and the inestimable (non-material) value of archaeological heritage is certainly the best long-term protection method because, frankly, lack of knowledge jeopardizes heritage the most. However, my praxis taught me that this approach, in which I firmly believe and in which I actively participate for years, will never fully eradicate malicious predators who will, despite everything, continue to use archaeological heritage for personal profit.

Illicit trafficking of archaeological heritage

The looting and illicit trafficking of archaeological heritage has a long tradition in Croatia, though most of these illegal activities have been concentrated in a few key centers. One of these black spots is the city of Sisak, which developed on the ruins of the Roman provincial center Siscia and has provided seemingly inexhaustible archaeological material for all sorts of dealers and smugglers since the second half of the 19th century. The attitude of professional institutions, primarily museums, towards these activities varied between the 19th and 20th centuries: from tacit approval and cooperation by purchasing illegally collected items, to ignoring the issue, and finally limited loud advocacy for legal punishment. Unfortunately, throughout this period, these institutions mostly failed to encourage a wider public debate on the issue of destruction wrought by the illicit trafficking of archaeological heritage.

What makes the Croatian socio-political context unique among Central European and Mediterranean countries are the war and post-war periods of the 1990s and 2000s. The beginning of the '90s saw a wide range of problems concerning the preservation of archaeological resources, including the direct destruction of sites and museum institutions; the looting of archaeological material by the Yugoslav Army and Serbian paramilitary units, and the mining of large areas that, in the long-term, has made archaeological sites inaccessible for research. The post-war period brought even more problems. For example, there was no institutional cooperation, except in some individual cases, during the process of clearing thousands of square kilometers of land from mines with metal detectors. We can imagine that great numbers of objects have been found but only a small portion ended up in museum collections while the best pieces probably entered the illegal market. A more recent problem is the phenomenon of illegal metal detecting. In some cases it is conducted by war veterans who are protected within local communities because of their contribution to the defense of the country. There are some attempts at coordination between local museums and these “enthusiasts”, but it seems that such relationships are still not clearly defined.

A policy on collecting written through a consensus in the archaeological profession could deter all potential malicious collectors, not leaving room for them to manipulate ‘family heritage’ and, on the other hand, should not discourage well-intended donors and legal possessors to give their finds over to museums. A high-quality and publicly available collection policy of archaeological museums, made in cooperation with legal experts, is a key step in preventing illicit behavior regarding archaeological heritage, and is a strong appeal to state legislature to redefine the legal framework for such activities.

I hope to share my experience and specific proposals for how to win this fight by participating at this round table.

TH2-16 Abstract 02
Illicit trafficking of archaeological heritage in Croatian post-war and transitional context

Author - Curator Đurčić, Ivan, Archaeological museum in Zagreb, Zagreb, Croatia (Presenting author)
Presentation Preference - Oral

The looting and illicit trafficking of archaeological heritage has a long tradition in Croatia, though most of these illegal activities have been concentrated in a few key centers. One of these black spots is the city of Sisak, which developed on the ruins of the Roman provincial center Siscia and has provided seemingly inexhaustible archaeological material for all sorts of dealers and smugglers since the second half of the 19th century. The attitude of professional institutions, primarily museums, towards these activities varied between the 19th and 20th centuries: from tacit approval and cooperation by purchasing illegally collected items, to ignoring the issue, and finally limited loud advocacy for legal punishment. Unfortunately, throughout this period, these institutions mostly failed to encourage a wider public debate on the issue of destruction wrought by the illicit trafficking of archaeological heritage.

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TH2-16 Abstract 03
Can local people preserve cultural heritage?

Author - Munawer, Nour A., University of Amsterdam, Amsterdam, Netherlands (Presenting author)
Keywords: Conflict, Cultural Heritage Under Threat, Local People
Presentation Preference - Oral

Cultural heritage has fallen under the threat of being of damaged due to armed conflicts, and destruction has increasingly become a major part of daily news all over the world. This phenomenon is not limited to specific geographical areas, but it includes various countries as much as it contains different ways and tools of destruction such as looting, bombing, illegal excavations, occupation of armies, and illicit trade. In response to these disgraceful actions, procedures have been taken to protect cultural heritage from being damaged. However, the preservation process cannot be done individually; it has to be done through institutional order. As it is well-known, governments are the main responsible stakeholder of preserving cultural heritage - as they are representing the people and protecting their properties especially in times of conflict. Local people have been considered as one of the most important stakeholders of cultural heritage.

In the meanwhile, local populations are not able to preserve cultural heritage without theoretical overviews, practical information or even being informed about the value of their heritage. Hence, the necessity of creating a combination of benefits among the different stakeholders became an urgent necessity.

The ongoing armed conflict in Syria and Iraq has progressively damaged numerous of cultural heritage sites, especially in the cities of Aleppo – Syria and Mosul – Iraq. The escalated violence did not avoid the museums, immovable and movable sites and even intangible cultural heritage was either damaged or completely demolished.

In this paper, the author is going to present samples of cultural heritage destruction in Syria and Iraq. Also, he will present a plan to increase the awareness of local people – as one of the stakeholders - in a way that helps to protect cultural heritage under threat.

TH2-16 Abstract 04
Metal Detecting on Dutch WWII conflict sites

Author - MA Van der Schriek, Max, Vrije Universiteit Amsterdam, Amsterdam, Netherlands (Presenting author)
Keywords: Conflict Archaeology, Illegal excavations, Metal detecting, Illicit trafficking of Cultural Heritage
Presentation Preference - Oral

Dutch academic interest in the heritage of World War II (WWII) has been limited until recently. Attention for the subject is much greater in the wider community. Unfortunately, this interest is also expressed in many illegal searches and excavations. Metal detecting is a hobby that has been vilified by many archaeologists as an uncontrollable threat to the proper study of the past. During this presentation I will discuss if an effective cooperation is possible between archaeologists and metal detectorists concerning this fragile heritage. What are the benefits and drawbacks?

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The systematic and inspiring raising of social awareness through the educational (equally pedagogy and andragogy) museum function about the flaws of decontextualized archaeological material and the inestimable (non-material) value of archaeological heritage is certainly the best long-term protection method because, frankly, lack of knowledge jeopardizes heritage the most. However, my praxis taught me that this approach, in which I firmly believe and in which I actively participate for years, will never fully eradicate malicious predators who will, despite everything, continue to use archaeological heritage for personal profit.

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Although a number of objects end up in museums, most of these “donors” have rich private collections partially or completely unknown to archaeological experts. In addition to cases of illegal metal detecting along the Croatian coastal area, there is a large problem with the looting of ancient shipwrecks in which a large number of artifacts, mainly amphorae, are placed on the illegal market.

Similarly to most post-communist societies in Central and Eastern Europe, the transitional period in Croatia has also created a framework for a new social elite to emerge, and their social status is often confirmed with high-end art collections that sometimes include archaeological objects. There have been cases of high-ranking civil servants in whose possession illegally acquired artifacts have been found. In the last few years, some progress has been made in the legal sanctioning of individual dealers, with some confiscated collections and filed criminal charges.
CLIMATE CHANGE AND HERITAGE: IMPACT AND STRATEGIES

TH2-17 Abstract 01
Threats to Heritage and the Distributed Observing Network of the Past: A Northern View
Author - Prof. McGovern, Thomas, Hunter College CUNY, New York, United States of America (Presenting author)
Keywords: Climate Change and Heritage: Impact and Strategies, Climate Impact, Heritage Loss, Northern Presentation Preference - Oral
Climate change is impacting archaeological sites all over the world, as rising sea levels, increasing storminess, wind erosion, and a range of extreme weather events damage sites and monuments. These processes are ongoing, and in northern and alpine regions the threat of rising soil temperatures and "melting middens" broadens the threat to take in sites far inland. In NW Greenland, recent survey data indicates only a handful of sites retain once excellent conditions of organic preservation (three of nearly a hundred sites sampled). In the Bering Sea and N Alaska sites spanning thousands of years are going into the sea across broad coastlines. The challenge is to identify the threats associated with climate change (such as slope instability and flooding) that have the potential to impact in situ environmental conditions. Which measures may be taken to mitigate the predicted climate changes and ensure continued site preservation? Some of these challenges should be prepared with strategies for how to manage this. This paper sets out a methodology for assessing climate change risk to historic sites, identifying the threats associated with climate change and preparing a risk register for the properties across the HES Estate and in in situ environmental conditions. Which measures may be taken to mitigate the predicted climate changes and ensure continued site preservation? Some of these challenges should be prepared with strategies for how to manage this. This paper sets out a methodology for assessing climate change risk to historic sites, identifying the threats associated with climate change and preparing a risk register for the properties across the HES Estate and in

TH2-17 Abstract 02
Mitigating Climate Change Effects on Heritage Sites?
Author - Drs Martens, Vibeke Vandrup, NRK - Norwegian Institute for Cultural Heritage Research, Oslo, Norway (Presenting author)
Keywords: in situ preservation, mitigation, Northern Norway Presentation Preference - Oral
Future climate change is expected to raise sea levels, increase temperatures and change the overall precipitation patterns, with a potentially great negative effect on preservation conditions. How should cultural heritage management respond to these threats? In order to prepare adequate mitigation schemes, it is necessary first to know exactly what is happening. This is the task is trying to preserve, what state it is in now, and what the conditions for in situ preservation are. Degradation of archaeological remains depends on environmental conditions. Which measures may be taken to mitigate the predicted climate changes and ensure continued in situ preservation of heritage sites? Should they be covered, or can changes in soil chemistry be stopped? Studies in sites in Northern Norway are used to demonstrate impacts and possible mitigating actions.

Climate Change and its Impact on Cultural Heritage
Author - Talbot, Peter F., University at Buffalo, Buffalo, United States of America (Presenting author)
Keywords: Climate change, hydroelectricity plants, Skjærk watercourse Presentation Preference - Oral
Climate change and increased demand for energy that is produced from sustainable sources are two challenges for archaeological heritage in Norway. On one hand, archaeological sites are subject to changes in flooding and rain for sites located in reservoirs, changes in reservoir regulation schedules affect them in ways we so far have little or no information about. At the same time Norway is the be the supplier of green power to the rest of Europe, "Europe's green heart". This means that wind power plants are to be built in many places, mostly along the coast affecting not only cultural heritage sites, but also the landscape of which they are an integrated part. New hydroelectricity plants are being constructed, and old reservoirs are being expanded, flooding new areas and new sites, and challenging the preservation of sites that are located in the reservoir. The Skjærk watercourse in the South of Norway is subject to all of this, and we foresee many challenges for the preservation of the cultural heritage in the area.

TH2-17 Abstract 05
Managing coastal heritage as climates change
Author - Graham-Allsop, Elinor, University of St Andrews, St Andrews, United Kingdom (Presenting author)
Co-author(s) - Dawson, Tom, University of St Andrews, St Andrews, United Kingdom
Co-author(s) - Hambly, Joanna, University of St Andrews, St Andrews, United Kingdom
Keywords: Coastal Archaeology, Erosion, Scotland Presentation Preference - Oral
Managing coastal heritage as climates change
Scotland’s vast coastline contains a wealth of archaeological sites, many buried under shifting sand dunes which has led to remarkable levels of preservation. Coastal erosion, accelerated by climate change, is impacting on thousands of these invaluable heritage assets. In recognition of the severity of the threat, the SCAPE Trust was established with a remit to research, conserve and promote the archaeology of Scotland’s coast.

Since the mid-1990s, Historic Scotland (now Historic Environment Scotland), has sponsored a series of Coastal Zone Assessment Surveys (CZAS) of the coastline in order to quantify the condition and threats to Scotland’s coastal archaeological resource. These surveys have targeted vulnerable areas and covered over 40% of the entire coastline. As well as assessing the geology, geomorphology and erosion risk of coastal cells, more than 11,500 heritage sites have been recorded. A prioritisation process taking account of a site’s value, vulnerability and condition this dataset and classified nearly 1,000 sites as requiring attention.

Following prioritisation, SCAPE initiated the Scotland’s Coastal Heritage at Risk Project (SCHARP), which worked with members of the local community to update and enhance this data, focusing on high-priority sites. The citizen science approach created a network of volunteers to monitor vulnerable sites in the dynamic coastal zone. As monitoring alone does not save threatened sites, SCAPE has also worked with community groups to undertake action at locally-valued sites. As preservation in situ is impractical or impossible in many coastal locations, the main aim is to rescue as much information as possible from these sites. A variety of strategies, from innovative digital recording and excavation to relocating and reconstructing sites have been deployed. The next project aim is to reference the updated data generated by SCHARP against the set of national research questions presented in the Scottish Archaeological Research Framework. This will ensure that research is undertaken at sites that will otherwise be destroyed, creating a ‘research / rescue’ framework. The potential of these vulnerable sites to answer research objectives will be shared with the international archaeological community.

A second aim is to map the updated data against the National Coastal Change Assessment. This project has plotted past change to the coastline and maps future susceptibility to erosion; and the result of the mapping exercise will inform future management of the coastal archaeological resource and highlight national and local priorities for further work.

This paper will present the impact of coastal processes on Scotland’s archaeological heritage, examine the methodologies employed to mitigate the threats sites face, consider the application of citizen science to the problem of coastal erosion and give case studies of some of the differing strategies used to preserve vulnerable coast sites by record.

TH2-17 Abstract 06
Identifying and Mitigating Climate Change Impacts on Heritage Assets in the Trent Catchment, UK

Author: Dr. Knight, David, York Archaeological Trust, York, United Kingdom (Presenting author)
Co-author(s): Howard, Andy J., Landscape Research & Management, Bridgnorth, United Kingdom

Keywords: Climate change, Heritage assets, Landscape analysis

Presentation Preference: Oral

In the UK, the devastating summer and winter floods of the last few years have brought sharply into focus the changing nature of weather patterns, the challenges of future flood risk management under such extreme scenarios, and the need to develop robust strategies for the preservation of the cultural heritage resource. Inevitably, when such disasters occur, emphasis is often placed upon individual localities or groups of built assets and the development of solutions that consider both contemporary and modelled geomorphological processes. Whilst the impact of these major floods on heritage assets has gained some prominence in the media, much of the damage to the cultural heritage resource goes unrecognised as its impact on ‘invisible’ subsurface remains that may be recorded and monitored only by intrusive or remote sensing techniques.

Identification of the range of heritage assets within river catchments and of spatial and temporal variations in the archaeological and palaeoenvironmental resource can assist study of past climatic and environmental changes, the environmental impacts of human activity and the responses of communities to geomorphological processes and events. Particularly in industrial landscapes, such work also has the potential to identify the legacy of past pollution and its impacts upon ecosystems and future geomorphic thresholds.

Whilst the historic environment record has the potential to inform environmental managers, it is important that the archaeological community adopts a holistic approach to examining landscapes, within clearly identified research frameworks that provide equal weight to individual sites and more expansive terrain units. This paper provides an example of such a framework, developed within the Trent catchment along the riverine corridor dominated by the historic mills of the Derwent Valley Mills UNESCO World Heritage Site and supported by Historic England and Derbyshire County Council. This has assisted in the development of toolkits to help characterise the geoarchaeological resource, establish its potential for elucidating past landscape change and develop strategies for responding to future natural events.

TH2-17 Abstract 07
Submerging Heritage: Forecasting Climate Change Impacts to Set Preservation and Research Priorities

Author: Dr. Heilen, Michael, Statistical Research, Inc., Haymarket, United States of America (Presenting author)
Co-author(s): Lueth, Friedrich, German Archaeological Institute (DAI), Frankfurt, Germany

Keywords: archaeological modeling, climate change, heritage management

Presentation Preference: Oral

Global climate change represents one of the largest impending threats to the preservation of heritage resources faced today. Some of the most acute impacts to heritage resources are those stemming from rising sea levels and increased storm intensity. These processes are already underway in some areas and will cause increased inundation and erosion of coastal and island resources across the globe. Climate change impacts are expected to increase in their frequency and severity in the coming decades, resulting in compromised integrity or outright destruction of untold thousands of heritage resources, many of which may never be identified before they are gone. Efforts need to be made now to understand the extent of the problem: inventories, record and save what we can rescue; and study important resources that will be lost. Thus, we need to determine where sites are vulnerable to specific climate change impacts, understand how they are likely to be impacted, and prioritise the study and preservation of important resources. To this end, we have developed a modeling approach that first predicts where sites will be located in areas affected by sea level rise or storm surges. We then classify sites into types and through a series of algorithmic transformations prioritize site types by research potential and risk assessment. We highlight our work with two case studies, one from the Atlantic coast of the United States and one from the Baltic Sea region.

TH2-17 Abstract 08
Sun, wind and rain: renewable and non-renewable resources in Wales

Author: Belford, Paul, Clwyd-Powys Archaeological Trust, Welshpool, United Kingdom (Presenting author)

Keywords: heritage management, renewable resources, Wales

Presentation Preference: Oral

This paper will look at two aspects of the effect of climate change on archaeology and cultural heritage in Wales. Firstly there is the need to reduce carbon emissions by increasing the use of renewable energy. However onshore wind and solar electricity generation has polarised public opinion, with many seeing them as a blight on the landscape. Although such installations may have an impact on archaeological and cultural heritage sites, the principal concern – both for heritage professionals and the public – is their impact on the wider landscape and the setting of heritage assets. In many ways the windfarm debate in twenty-first century Wales echoes nineteenth- and twentieth-century contestation over the loss of landscapes when reservoirs were created to supply water to English cities. Secondly, very significant damage to archaeological sites has taken place around the Welsh coastline in recent winters. Erosion has sometimes destroyed the historic environment, but it has also enabled new discoveries. The problem has been in providing resources to ensure that the archaeology is recorded or preserved – and one very successful response has been the ‘Arfordir’ scheme run by the Welsh Archaeological Trusts training large numbers of volunteers to identify and record coastal heritage sites, and the changes that are happening to them. Discussion will focus on the role of archaeological curators, commercial contractors and public bodies in managing these cultural heritage challenges. What impact is climate change having on the cultural heritage, and how effective is the system in Wales at mitigating those impacts?

TH2-17 Abstract 09
Climate change and the effects on cultural heritage in the Netherlands

Author: Kars, Eva, EARTH Integrated Archaeology B.V., Amersfoort, Netherlands (Presenting author)

Keywords: Climate change, In situ preservation, strategies cultural heritage

Presentation Preference: Oral

Climate change is a fact. A fact is also that the knowledge of the impact of climate change on the parameters in the soil is very limited. Knowledge on the behavior of soil parameters is very important within in situ conservation programs and therefore we have to work on finding measures to adapt to climate change in relation to conservation of the archaeological heritage.

TH2-17 Abstract 10
Managing the archaeological heritage

Author: Heileen, Michael, Statistical Research, Inc., Haymarket, United States of America (Presenting author)

Co-author(s): Lueth, Friedrich, German Archaeological Institute (DAI), Frankfurt, Germany

Keywords: archaeological modeling, climate change, heritage management

Presentation Preference: Oral

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TH2 Abstract 10
Sustainable energy versus sustainable heritage
in The Netherlands
Author - Kars, Eva, EARTH Integrated Archaeology B.V., Amersfoort, Netherlands (Presenting author)
Co-author(s) - Van Rooijen, Cees, Cultural Heritage Agency of the Netherlands, Amersfoort, Netherlands
Keywords: in situ preservation, spatial planning, sustainability
Presentation Preference - Oral
The Netherlands is not only a small country but also a country with large storage of archaeological remains dating from all periods. The Netherlands is also one of the most densely populated areas in the world which means that the archaeological heritage is under severe pressure and is always threatened.

It is a big challenge already to combine the exploration of infrastructure and other expansion and the in situ preservation of the archaeological heritage. The consequence of the implementation of the Renewable Energy Directive gives an even larger pressure and a challenge for the heritage sector. Now, the Renewable Energy Directive puts new pressures on the peripheral regions, both onshore and offshore.

A hot topic is the Dutch approach for combining all functions, characteristics, consistency into one subsity spatial planning policy vision called STRONG. This emphasizes more and more the involvement of archaeology for the sustainable planning and vice versa.

In this presentation we will discuss how the exploration of green energy, both offshore and onshore, will challenge the care for archaeological heritage within the Netherlands. What areas are we to explore? When analyzing the maps of exploration and the maps of the expectations of archaeology in this areas, will you see a conflict or synergy? What type of heritage is threatened and what are the threats in physical damage? And what is the scale of the threats?

But also are there possible advantages for the archaeological heritage? The combination of smart surveys and existing data could be beneficial for windfarming. The ambitions for onshore wind are high but the public opinion is low. Could the investigation of local archaeology have a positive effect on this public awareness for windfarming onshore?

Are there major consequences for archaeology in the EU directives or are we only busy with meaningless directives?

TH2 Abstract 11
Iced heritage. First World War heritage
in frozen contexts in the Alps
Author - Dr. Nicolas, Franco, Ufficio beni archeologici - PAT, Trento, Italy (Presenting author)
Keywords: Global warming, WW Archaeology
Presentation Preference - Oral
Global warming is changing the alpine landscape. The retreating of the glaciers is a climatic emergency, but is taking with it a cultural emergency. The melting of ice is bringing light evidence of the human presence at high altitudes from prehistory to contemporary times (First World War structures and bodies). The sudden change in conditions has led to a genuine crisis for the recovery and conservation of finds. There is the further problem of the plundering of sites by collectors, who by illicitly removing finds cause the gradual destruction of the contexts. In this paper the case study of Punta Linke (3629 metres a.s.l. in the Ortles Cevedale group, Trentino region, italy) is presented. Punta Linke was one of the most important Austro-Hungarian positions of the entire Alpine front during the First World War, close to the frontier between the Kingdom of Italy and the Austro-Hungarian Empire. Archaeological excavations have led to the recovery of the artefacts and uncovered the whole context of the site of Punta Linke, characterised by the presence of a two cableways. All the original structures freed from the ice and the material found there, have been relocated. In summer 2015 more than 2170 people visited the site during 55 days of opening.

TH2 Abstract 12
An integrated approach to sustainability: eco-cultural heritage practice at Aktöpraköl, Turkey
Author - Curtis, Canv, University at Buffalo, Buffalo, United States of America (Presenting author)
Keywords: community, heritage, sustainability
Presentation Preference - Oral
Community participation and sustainability are now widely recognized as crucial strategies in heritage practice. This paper thus presents a case study that utilizes an ethnographic methodology, including interviews with over 70 residents in Aktöpraköl, Bursa, Turkey, the local context of Neolithic-Chalcolithic Aktöpraköl Höyük. With the initial aim of trying to understand sustainability and heritage within the terms of the community, newly gained information can now aid in forging a symbiotic relationship between archaeological sustainability, environmental sustainability, and community sustainability.

When discussing what was most valued locally, many noted that Uzubat Göölı was among the most cherished assets in town. The lake, upon which the town is located, has long been a site for traditional community festivals, and is now used as a family picnic venue for locals and outsiders alike. The lake also attained Ramsar status in 1998 for its rich wetlands and extraordinary waterbird population. However, Uzubat Göölı was also the initial site of industrial development in town over 30 years ago, with the first factories to open setting on the lake edge. These factories deposited waste in the lake, and with a place that had been a local source for recreation, fishing, and irrigation became nearly unusable.

In recent years, local government measures to more strictly regulate factory pollution, as well as efforts to clean the lake spearheaded by a local university, have begun to improve the water quality in the lake. However, at the same time, many note that the local government has not made a significant effort to maintain and develop the shore of the lake for the public or for visitors, with littering a continuing problem. Indeed, many locals noted the untapped potential of the lakeland in Aktöpraköl for attracting tourists, especially considering the existing tourist attraction of Gölyazı island just a few kilometers away at the center of the lake.

Thus, Uzubat lake is both an endangered site and a rich asset for local sustainability. To support additional measures for its maintenance, protection, and management, there are clear pathways here toward the parallel dialogue of archaeological heritage. Similarly, the archaeological site has been threatened by factory development and can be a valuable community and touristic resource. There is therefore significant potential for archaeologists to engage in this broader dialogue of sustainability that includes environmental resources and community concerns. By including the lake in our management strategies, with such simple measures as a litter collection campaign by the excavation team, we can make headway in sustaining a valuable natural and community resource. Moreover, we can open up our site and the region to the benefits of not only heritage tourism but also ecotourism. Consequently, with an integrated approach to not only the sustainability of heritage, but also climate, environment, and community, we can make greater strides toward success in sustainability strategies overall.
PREVENTIVE ARCHAEOLOGY, SCIENTIFIC RESEARCH AND ECONOMIC DEVELOPMENT

Sunday, 3 September 2016, 09:00-10:30
Faculty of Philosophy, Room 214

Authors: Demoule, Jean-Paul, Université de Paris I Sorbonne, Arles, France (Presenting author)
Co-author(s): Guerrand, Marie-Pa, Istituto Beni Culturali - Regione Emilia Romagna, Bologna, Italy

Presentation Preference: Regular session

Is it possible to reconcile three seemingly contradictory requirements that are 1) infrastructure works and their economic implications, 2) preventive archaeology as set out in national legislations following the Malta convention, and 3) structured and genuinely scientific archaeological research? While legal systems have been put in place in different countries after the signature of the 1992 Malta convention, numerous problems of implementation and reconfiguration still remain, often exacerbated by the 2008 economic crisis. In fact, legal positions have actually been eroded in some countries, and additional constraints such as shortened delays and narrower margins have been imposed on archaeological organisations and operations. Moreover, in countries where archaeology is predominantly conceived as a commercial activity, the crisis has thrown numerous organisations into a cost-cutting spiral, with as a side effect, in many cases, the reduction of standards both in terms of employment conditions and of scientific production.

The current session, building on related sessions and round tables regularly promoted by the “Committee on Archaeological Organisation and Legislation” at previous EAA meetings, seeks thus to present the current state of affairs with regards to preventive archaeology, legislation and scientific research in various countries. Our intention is not only to critically appraise a range of case studies, but also to provide some more general arguments and tools for thought to those seeking to promote, towards the third decade of the 21st century, this challenging reconciliation of scientific, patrimonial and socio-economic aims.

TH2-19 Abstract 01

Rescue and Preventive Archaeology in Europe: Public Service or Commercial Activity?

Author: Prof. Demoule, Jean-Paul, University of Paris I, Paris, France (Presenting author)
Keywords: commercial competition, Preventive archaeology, scientific research

Presentation Preference: Oral

While the term heritage normally refers to the transmission of property within a family, the term Cultural or Archaeological heritage refers to a national or ethnic community. Although national identities in the modern sense of the term only appeared in the early 19th century, there have been for some time been two different conceptions of the State in the western world. In countries based on Roman law such as France, the State, even if it is disliked, is central to the conception of society. In “common law” Anglophone countries, and especially the USA, the State has never been completely legitimate. This view was further reinforced in the nineteenth-eighties through the domination of Milton Friedman’s free-market ideology and the Reagan and Thatcher governments. In a sense, there is no real society any more, only a juxtaposition of consumers, buying or not buying goods and services in a market controlled by an “invisible hand”.

As we know, the State was rediscovered in 2008, when the western banks had to be rescued. Yet this ideology also partly affects the perception of Heritage. Developers are not economic agents threatening our shared archaeological heritage, who should pay for excavation to conserve it. They become “clients” who chose between different producers, in this case the private companies doing archaeological excavation. This view has had disastrous consequences in terms of research, since many excavations carried out through Cultural Resource Management have never been studied or published. It also has ethical and political consequences for our conception of our common past. France offers a good (or sad) example of such an historical evolution, since commercial competition was introduced in archaeology in 2003.

TH2-19 Abstract 02

25 Years of Development-led Archaeology in England: Strengths, Weaknesses, Opportunities and Threats

Author: Trow, Steve, Historic England, Southampton, United Kingdom (Presenting author)
Keywords: Archaeology, Developer-led, Planning

Presentation Preference: Oral


While the issuing of a piece of technical planning guidance may seem like limited cause for celebration, it did in fact mark a new era in the archaeology of the UK and far beyond. Beforehand “rescue archaeology” was funded by the UK’s central government: thereafter it became the responsibility of developers. It is estimated that, in the intervening period, some 75,000 archaeological investigations have been supported by this system, recording many thousands of archaeological sites that would otherwise have been destroyed by development, without record.

The quarter-century anniversary of this change provides an opportune moment to reflect on the changes that have been wrought in the intervening period. In terms of resources directed to the study of archaeology, the revolution in understanding that has generated and the growth in professionalism in our discipline, the change in policy has been a major success. But it has also created challenges.

This paper will review the achievements of the last 25 years and the balance of benefit and problem that now faces the archaeological profession in England.

TH2-19 Abstract 03

Identifying research aims at the earliest stage of large development plans, first thoughts matter!

Author: Allan, Tim, Historic England, Northampton, United Kingdom (Presenting author)
Keywords: early assessment, major development, research priorities

Presentation Preference: Oral

‘Development led’ (preventative) archaeology is still regularly contrasted to ‘research archaeology’. In the UK the former is done largely by commercial organisations (contractors), the latter mainly by universities and community groups with public or charitable funds. This use of language belies a considerable shift in intent over recent years, from both archaeological curators and contractors, and considerable crossover with many contractors undertaking both commercial and not for profit projects.

The development of national and regional research assessments, agenda and strategies (e.g. in England ‘Regional Research Frameworks’) has sought to ground archaeological practice in an explicitly aims and objectives based approach. For archaeological assessment and mitigation to produce meaningful results it must work iteratively, we need therefore to formulate initial questions from first sight of a project. Archaeological curators are mostly public employees working for local and national governments, agencies and institutions; they have limited time and relationship capital to spend. To influence outcomes, key research questions must be identified early in process (especially concerning absence of knowledge). If an archaeological impact, in particular a setting impact, is to be mitigated or eliminated (for a planning outcome influenced) both the affected historic asset’s significance and the impact must be understood. Focused research is required to understand these issues, their gravity and what might be done, and it is rarely tenable to raise them late in a project options and design process.

How can archaeological curators and contractors integrate research into large scale development projects and avoid slipping into mechanical processes which simply translate and transform remains to archive? We know what we ‘should do’ but require an understanding of practice and an articulation of the narrative in which our jobs are situated. Without being able to tell to ourselves the story of our role in the archaeological research process we can neither defend our position nor critically assess our success.

Where across complex landscapes with patchy existing information should archaeologists deploy their time and other people’s money and attention? This paper discusses the application of professional judgement and expertise to the identification of key research issues both within and outwith areas of proposed development, at the earliest stages of professional engagement. It draws upon case studies from the English East Midlands (UK). This initial view of a project should not pre-speak an evidenced based and iterative approach but is crucial to support a robust Environmental Impact Assessment (EIA) which avoids a reductive and generic approach. Best advice given at the EIA Scoping stage is the foundation of a reasonable and evidenced based approach based upon research. This supports both the public interest in understanding of our past and in allowing the design process to minimise harm. Archaeological assessment and mitigation requires a research based approach from day one, for better or worse we never have as little information or as much potential influence as we do at that first point.

TH2-19 Abstract 04

Trends in Scandinavian cultural heritage management in the 2010s

Author: Professor Hakon, Göteborg, University of Oslo, Oslo, Norway (Presenting author)
Keywords: development-led archaeology, Heritage management, Scandinavian models

Presentation Preference: Oral

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Since the 1990s the Scandinavian countries have in various ways tried to adjust cultural heritage management and development-led archaeology according to the national political thinking on the one hand and Pan-European legislation on the other. Sweden is probably the country in Scandinavia where the most radical, modernistic reforms have been implemented. The success of these changes has however been questioned. Still, far-reaching changes are nevertheless introduced. Local, Scandinavian solutions are challenged by organisational models from the larger European countries and by EU legislation. This paper addresses some of these trends and their implications for the development of Scandinavian archaeology as a scientific discipline. Theoretical trends underpinning the importance of humans may enhance or describe the power of EU directives as an inevitable destiny of Scandinavian archaeology. This thus makes the fact that archaeological engagement with politics on a national level is of major importance for the future of European Archaeology.

TH2-19 Abstract 05
Development in preventive archaeology in Slovenia: a view from the field
Author: MA Novšak, Matjaž Arhel d.o.o., Ljubljana, Slovenia (Presenting author)
Keywords: preventive, Slovenia
Presentation Preference: Oral

Slovenia has rather long tradition of archaeological heritage protection, dating from the early 1980s when the Imperial/Royal Central Commission for the Research and Protection of Artistic and Historic Monuments was established in Vienna (at that time Slovene provinces belonged to the Austrian Empire). Since then, Slovenia has passed through great political changes to become independent country in 1991 with the end of former Yugoslavia. More than 150 years of legislation in heritage protection is an important factor also when considering the development of preventive archaeology today. General institutional framework and doctrine of protection was for decades tied to the Austrian tradition (even after 1918), and Slovenia kept probably the best organized and efficient heritage service in former Yugoslavia with well developed regional network of heritage protection institutions. Legal transformation of old “Yugoslav” system started early in the 1990s, but it was not these changes which are directly associated with the introduction of preventive (rather than rescue) archaeology. In fact, it was great pressure posed by national program of motorways construction in the early 1990s, which considerably challenged the existing (traditional) system of protection, and required answers in terms of preventive strategies. It is in this context in which also the Malta Convention became rather more than just a paper; it has implemented. Here, it is possible to see two major and parallel trends in changing the system of protection: a) positioning archaeology (and its preventive role) in obligatory procedures in spatial planning and b) emergence of private market of archaeological services. For the period 1994-2008 one could speak of a hybrid system of organization of archaeological preventive works with public (regional) heritage institutes officially directing large scale excavations and surveys (on motorway sites mostly), but hiring private SME for the actual job in the field. Existing public institutions simply could not meet the requirements for fast and efficient archaeological preventive research. In 2008, situation changed again, when new Cultural Heritage Act (which introduced the term preventive research) limited the issues of protection conditions and recommendations (i.e. heritage institutes) to monitoring of archaeological field research. The actual research was undertaken by SMEs or by public instructions which have a right to compete in the market (e.g. museums, academic institutions).

There is also another important issue associated with this act. Prior to 2008, it was the heritage institutes which negotiated the extent and also finances of the research, and have legal powers to force the developers to accept certain measures; while, afterwards, there were possible direct negotiations between developers and preventive researcher. Such liberalization of negotiations had in many cases negative consequences, especially in the context of recent economic crisis, which in Slovenia affected the most the investments in spatial development and construction, and consequently, also all ‘players’ in preventive archaeology.

TH2-19 Abstract 06
In search of a common space: (sharing) the spatial data of preventive archaeology
Author: - Nora, Federico, Sassari, Italy (Presenting author)
Co-author(s): - Monreu, Anne, INRAP, Paris, France
Keywords: GIS, Preventive archaeology, Webmapping
Presentation Preference: Oral

According to the Article 7 of the “European Convention on the Protection of the Archaeological Heritage”, the parties have to “make or bring up to date surveys, inventories and maps of archaeological sites” and “to take all practical measures to ensure the drafting, following archaeological operations, of a publishable scientific summary record before the necessary comprehensive publication of specialised studies”. Furthermore, the Article 8 of the same “Convention” commits the parties “to facilitate the national and international exchange of elements of the archaeological heritage for professional scientific purposes” and “to promote the pooling of information on archaeological research and excavations in progress”. 25 years after the “Malta Convention”, we need to come back to this text and make a debrif of the current situation: is the article 7 just applied? If it is the case, how do the operators of preventive archaeology do in Europe? The issue underlay is that of the harmonization and the sharing of archaeological data. In that perspective, thinking the harmonization of the spatial data appears to be one of the answers: Archaeology is, above all, a spatial science and it seems thinkable to find a general agreement on the way of representing the spatial data. The issue of production, harmonization and management of archaeological data has become by now central, in relation to the huge diffusion of GIS and Web Mapping. Basing on this premise and on two practical experiences developed in very different contexts, this paper aims to give a contribution toward the definition of a minimal spatial and archaeological value, useful to the production of archaeological cartography on a European scale.

TH2-19 Abstract 07
Preventive archaeology in current Slovakia
Author: Dr. Michalik, Tomas, Cultural Heritage Consulting Ltd. / Slovak Association of Archaeologists, Trenčín, Slovakia (Presenting author)
Keywords: archaeological heritage, preventive archaeology, Slovakia
Presentation Preference: Oral

Cultural heritage and its protection is regulated in the number of laws in Slovakia. Basic mentions in the Constitution refer to individual laws, regulating cultural monuments, historic sites, archaeological heritage, museums, galleries, libraries, archives, arts, artists or intangible heritage. From the point of view of archaeology, its protection and management, the Act on Protection of Monuments and Historic Sites Nr. 48/2002 Coll. is the most important law, fully regulating the preventive archaeology as a whole. Additional competences are applied by the regional branch of the Slovak Republic and its local branches. They monitor and supervise all activities with potential impact on the archaeological heritage, then they decide on necessity of conducting of research, its conditions and time frame as well as on offences. Their legal position in the Act is very strong, but their personal capacities (usually there are 2 or 3 archaeologist for one region) are low. Since the last important amendment of the Act in 2014, there is express provision defining and regulating the preventive research, previously there was no definition preventive nature of the research, although this kind of research was often assessed as one of the conditions of the research, especially for long-term and spatially large projects. Preventive archaeology is conducted by licensed organizations in Slovakia; the licence is granted by the Ministry of Culture of the Slovak Republic, taking into consideration opinion of Licence Commission, its advisory body. Currently (February 2016) there are 38 licensed organizations, representing museums, private companies (14), universities (4), civil association (1), town organization (1) and state (2, but important actors – Archaeological Institute of Slovak Academy of Sciences and Monuments Board of the Slovak Republic) in Slovakia. Although museums is the most numerous group, they focus especially on local, less difficult projects. Majority of excavations is conducted by the private sector, what is interesting fact as the first licence for private company was granted only in 2007. Independently on the quantity or quality of archaeological finds, they must be stored in the museum after the finish of the research and elaboration of documentation.

The economic crisis caused substantial consequences in the preventive archaeology sector, but the impact on the practice was probably not so hard than in other countries with different legal situation and research tradition.

TH2-19 Abstract 08
Preventive archaeology should not be reified! The case of the history of Swiss motorway archaeology
Author: Jobin, Paul, Institut d’archéologie, Les Bois, Switzerland (Presenting author)
Keywords: History, Preventive Archaeology, Switzerland
Presentation Preference: Oral

The current economic crisis affects preventive archaeology because of the decrease of investments in the civil engineering sector and the public austerity measures. In other cases the functioning of preventive archaeology is simply prejudiced by new public...
management initiatives. Such deleterious effects can also affect countries which are less affected by the economic crisis. Thus we have to develop strategies to maintain or preserve preventive archaeology whilst its establishment has not been considered as accomplished. At the same time, through the crisis of preventive archaeology, new debates appear about the relation between science and heritage.

Finally, we can ask these questions: What do we really have to maintain? What exactly should we accomplish?

This presentation proposes an analysis of the historic development of preventive archaeology in Switzerland since the end of the 1950's. The particularity of preventive archaeology in Switzerland is its early development under the impetus of a long-term motorway construction programme that has been in progress for 60 years. Another particular characteristic of preventive archaeology is that it is a Federal State with significant autonomy within the 26 cantons and half-cantons which make up the country. Thus Switzerland can be considered as a "tiny European Union" in the centre of Europe, making it an interesting case for comparative study.

Through this historic analysis we will see that preventive archaeology is the result of a continuous and irregular evolution of different practices and numerous processes. They come from different origins: methodology, science, technique, administration, politics and economics. Consequently, the practice of preventive archaeology has been planned through different organizational and preventive political entities responsible for its applications. Therefore, preventive archaeology is not a monolithic ideal model to be established. On the contrary, preventive archaeology consists of several paradigmatic principles related to heritage preservation. Moreover, these principles can be applied very differently from one political state to another.

In conclusion, if we accept that the current state of preventive archaeology is not an end in itself that need to be protected, but that it constitutes a paradigm of research concerned with the preservation of cultural heritage, we should then recognize that the manner in which preventive archaeology is organized can be regularly re-negotiated within civil society so that it is adapted to the evolution of the research context and, last but not least, to our scientific ambitions.

TH2-19 Abstract 11
The system of organisation of Czech archaeology
Author: - Mark, Jan, Institute of Archaeology of the CAS, Prague, v. v. i., Prague, Czech Republic (Presenting author)
Co-author(s) - Unger, Jan, Institute of Archaeology of the CAS, Prague, v. v. i., Prague, Czech Republic
Keywords: Czech Republic, Legislation, Preventive Archaeology
Presentation Preference: Oral
The currently effective heritage law in the Czech Republic entered into force already in the year 1987. Even though the law was created in the environment of socialist state, it was designed in a very progressive way. Despite the fact that the law was not significantly revised since it had become effective it still fulfils the majority of obligations that the Czech Republic undertook to do by joining the Valetta convention in 2000.

However, lawmakers in the year 1987 cannot envision the fundamental political as well as social transformations that occurred in the Czech Republic two years later, in the year 1989. The changeover to a market economy as well as significant increase in building activities brought much higher demands on conducting rescue archaeological field works. This process has resulted, among other things, in increase in number of applications for issuing new licences entitling to conduct the archaeological field work. Besides museums and universities, private companies appeared. So far, altogether 110 public as well as private companies possess the licence to conduct the archaeological research. Implementation of the principle "the polluter pays" has caused that the licenced organizations are using the rescue archaeological field work as one of their major financial sources.

We are responsible for the Archaeology of the Czech Republic and involved in organisation of the Czech archaeology a privileged position. The Institute is the only organization entitled to conduct archaeological field work directly by the law. Furthermore, it has the right to significantly influence the issuing of a new licence to conduct archaeological research (the power of veto), collect information regarding the ongoing archaeological field works, archive Excavation reports and, to a certain degree, to control their quality. However, the effective law does not stipulate any evident standards of archaeological research and, thus, its quality varies significantly in the Czech Republic.

As far as law-making process is concerned, unclear specification of regulations, rights as well as obligations on the side of not only licenced organizations but also developers, property owners and state administration represents fundamental problems of the Czech archaeology. This state of affairs can be solved only by passing of a new law.

TH2-19 Abstract 12
Rethinking Preventive Archaeology: classification of the land as a starting point
Author: - Quezel, A., Spain, Complutense University of Madrid, Madrid, Spain
-Co-author(s) - Castillo, A., Complutense University of Madrid, Madrid, Spain (Presenting author)
Keywords: Interpretation, Land planning, Mediation
Presentation Preference: Oral
Around 30 years ago we started researching the topic of archaeological heritage management in Spain and the necessity to adopt preventive measures concerning archaeological studies in the context of civil works. We used the adjective “preventive” for the archaeological field work in this context, and we developed a specific model (published in 2007). But, we have observed the proliferation of uses abuses of the “preventive archeology” (PA) term as a synonym for salvage archaeological, rescue archaeology, emergency archaeology, as a result of preventive policies, etc. We argue once again here, the idea of Preventive Archaeology as an integrated strategy. Land classification (in an urban sense), including its archaeological potential, is the first and most important step. In our model of preventive archaeology, it is possible to combine research, development infrastructures and the contributions of the Malta Convention. Our proposal is based on the European standards on Environmental Assessments (Strategic Environmental Assessment Plan and Environmental Impact Assessment for projects) to establish Reserve Zones (“untouched areas”) and Caution Areas (for interim protection of construction projects) in the territorial planning of European territories. The implementation of this model will not only achieve a decrease in the number of archaeological rescue or emergency interventions, but will also allow to design archaeological research based on its knowledge, without it being the decision of the private or public civil work.
Today, the challenge is to implement the model more (there are some examples in Spain, but very few), and to improve it to include other kinds of measures such as mediation techniques in front of social conflicts with interventions or adequate interpretation systems for this type of archaeological heritage that usually is more difficult to spread than other archaeologies.

TH2-19 Abstract 13
Preventive archaeology from 2010 onwards in Hungary – legal background and the reality

Author - Bozóki-Ernyey, Katalin, Government Office of Budapest Capital, Budapest, Hungary (Presenting author)
Co-author(s) - Vólk, Katalin, Gyula Forster National Heritage and Asset Management Centre, Budapest, Hungary
Keywords: development-led excavations, legal system, reforms
Presentation Preference - Oral

Hungary has signed the Malta Convention among the first countries (1992), built the Convention’s main principles already into the first cultural heritage law (1997. CXL) issued after the political turn (1989), nonetheless the Convention itself just later (2000) became part of the national legislation. Preventive archaeology – in modern terms – appeared around the 1990s and quickly became the dominant way of excavating, the number of development-led excavations was the highest around 2006/2010. The history of this "evolution" from a few aspects was already discussed by archaeologists mainly in foreign publications, conferences (e.g. EPAC, EAC volumes, ACE project) – unfortunately such a debate is still missing on national level, the characteristic elements of this process, the special interest of the different actors have not yet been analysed. In this paper we focus on the period from about 2010 till now, the period that is characterised by a radical reorganisation of heritage administration under the aegis of the overall government reform, the shutdown of the INRAP-like field service (established in 2007). The recent changes (including the accreditation of excavation institutions and firms) foster the building up a free-market like system in case of development-led large scale excavations; legal “reforms” were introduced in favour of better predictable excavations and investments and for the “benefit” of the citizen. We try to confront theory and practice to outline the problems that should be resolved.

TH2-19 Abstract 14
French preventive archaeology in a European context

Author - Salas Rossenbach, Kai, French national institute for preventive archaeological research, Paris, France (Presenting author)
Co-author(s) - Pion, Patrick, French national institute for preventive archaeological research, Paris, France
Keywords: development-led, European, preventive
Presentation Preference - Oral

Since 2001 French state decided to create a national institute to lead preventive archaeology. With more than ten years of exercise, through crisis and political changes, the institute evolved and learned from these changes. Looking across Europe, French model still looks singular both from is accomplishments and failures. This presentation, comparing European situations with the French one, consists of a critical analysis of the French example. From this base, it proposes some common lines to be discussed at a European level. Each of these lines seem to take us to a central starting point question: why is preventive archaeology done in our countries and how can we collectively answer this question?

TH2-19 Abstract 15
Is Preventive Archaeology viable in time of crisis?
The Greek experience

Author - Kotsakis, Konstantinos, Aristotle University Thessaloniki, Thessaloniki, Greece (Presenting author)
Presentation Preference - Oral

The paper presents the state of preventive archaeology in Greece within the context of the most serious economic and social crisis since the end of the Civil War in 1949. Archaeology in Greece is traditionally and legally closely involved in the State apparatus, a reality which is enhanced by the corporatism of the state archaeologists. However, the urgency of the economic crisis hitting Greece hard since 2009, and the recently added huge refugee crisis is putting a dangerous strain on archaeology. Is state archaeology going to survive the crisis?

TH2-19 Abstract 16
Is preventive archaeology compatible with scientific research?

Author - Dr. Depaepe, Pascal, Inrap, Amiens, France (Presenting author)
Keywords: Economic Crisis, Preventive archaeology, Scientific Research
Presentation Preference - Oral

Preventive archaeology is now, in Europe, certainly the main source of archaeological data, about 90% in some countries, and each European country has a more or less strong legislation about archaeology and cultural heritage. A common point of these laws is the possibility of a commercial archaeology beside an academic one. Therefore many private companies have emerged especially since 2000. But preventive archaeology has been strongly affected by the global economic crisis since 2008. In this paper I will examine if preventive archaeology is efficient in a scientific point of view, not only in a cultural heritage point of view, in western Europe and especially in France.

TH2-19 Abstract 17
Birth and infant death of preventive archaeology in Italy

Author - Dr. Guermandi, Maria Pia, Istituto Beni Culturali, Bologna, Italy (Presenting author)
Keywords: archaeological heritage safeguarding, Preventive archaeology, Public administration reform
Presentation Preference - Oral

The consequences of the crisis - far from being outdated - led to a profound rethinking of the methodological, social and institutional framework in which archaeological discipline has operated in recent years on a European level. For a large majority of EU countries, this framework had its political and legislative basis in the Malta Convention of 1992.

A profound change has occurred in the 24 years since the Convention, particularly in the past 8-10 years, which have witnessed a rapid change in the framework of reference from multiple points of view. The philosophical-political context has changed: with the beginning of the new millennium, the policy documents concerning cultural heritage, on both a European and international level, have made a radical shift away from the previous approach focused on objects, sites monuments towards a conception of heritage founded upon the demands, expectations, interests and needs of the populations.

Almost simultaneously, a gradual but extensive redefinition of the spaces of public intervention in all sectors has taken place throughout Europe. This has made it necessary to redesign the institutional framework of archaeological practices in many EU countries.

The situation in Italy is at the same time specific and exemplary: the grotesque delay in the ratification of the Malta Convention, which took place only recently, has exposed the fragility of the legislation in general when it comes to archaeology. Given the long-term abandonment of legislation and the practices of archaeological heritage safeguarding, the 24 years since the Convention have not produced a significant evolution of future processes in a direction favourable (or less unfavourable) to our archaeological heritage.

In this situation the Italian Ministry of Cultural Heritage undertook since 2014 a reform of its internal structure. A new step of which has been undertaken in January 2016.

This new decree radically changes the structure of the protection and conservation Offices. Archaeological Superintendencies lose their autonomy and come unified with Landscape and Arts Superintendencies.

As regards preventive archaeology, the synergy between the Ministry reform and the revision of the Procurement Code could mean the total deregulation of this sector with a devastating impact on landscape and archaeological heritage safeguarding.

Despite the different national contexts, these are phenomena of a transnational nature. They must thus be addressed on a European level, at least from a cultural and political perspective, if we are to have a hope not only of grasping the underlying reasons for the changes that have occurred and are still underway, but also of coming up with some proposals for orienting the evolution of future processes in a direction favourable (or less unfavourable) to our archaeological heritage.

TH2-19 Abstract 18
How Scientifically based Archaeology can assist Commercial Archaeological units to save money

Author - Forrestal, Colin, Berkshire Archaeological Society, Wokingham, United Kingdom (Presenting author)
Keywords: Commercial, Perception, Scientific
Presentation Preference - Oral

Today, the challenge is to implement the model more (there are some examples in Spain, but very few), and to improve it to include other kinds of measures such as mediation techniques in front of social conflicts with interventions or adequate interpretation systems for this type of archaeological heritage that usually is more difficult to spread than other archaeologies.
Generally, commercial archaeological units in the United Kingdom perceive field archaeology in general, and osteological, zoological, ceramic and of course geophysical analysis as tried and trusted good things. The basic dig it collect what is there as finds, wash the finds and have experts look at them and give dates and functions for the various layers and a real interpretation can be applied satisfactory to all.

Now all of this of course relies on good scientific techniques, it is comparison archaeology and relies on experience and gained knowledge and personal interpretation. Modern archaeology has made great strides in adopting a more vigorous approach to the process of interpretation. Thus Specialists and technician capable of performing Geochemical, X-ray, Geological, Landscape and Environmental analysis are viewed with suspicion and are perceived as being expensive, confusing in the ambiguity, and perceived as costly and not commercially justifiable.

Commercial units want cheap labour, trained in a few cost effective techniques that lead to lower costs and higher profits based on archaeological methodology that would not have seemed out of place in the 1960’s.

This paper aims with the aid of a few case studies to show that this perspective is incorrect and in fact good and thoughtful application of scientific archaeology can not only establish where and what archaeology is on the site with minimal intervention, but in combination with geophysical analysis can establish the best and most cost effective way to investigate and evaluate it. This is not to say the numerous 30m or 50m x 2 m trenches across a site on a consultant whim doesn’t work but I will argue that a targeted environmental and scientific preliminary investigation will lead to a more cost effective and beneficial method of examining our historic environment to the benefit of all.

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**TH2-19 Abstract 19**

**Preventive archaeology in Austria**

**Author** - Mag. Dr. Kiernn, Martin, Bundesdenkmalamt, Krems, Austria

**Co-author(s)** - Dr. Steigberger, Eva, Bundesdenkmalamt, Krems, Austria (Presenting author)

**Presentation Preference** - Oral

The present article deals with the structural changes that have taken place within Austria’s archaeological heritage management in the last few years. Issues such as the current state of human resources and general tasks of the Federal Monuments Office’s Archaeological Department are covered. Special emphasis is placed on the rise of commercial archaeology as well as on the “Guidelines for Archaeological Measures” introduced in 2010.

The presented data clearly show that the restructuring of archaeological heritage management in Austria since 2010 has shown positive effects. The concentration on core competences, the abandonment of direct excavation activity and the assignment of archaeological personnel to each of the respective state departments has intensified the level of regional supervision and has lead to a considerable increase in archaeological measures taking place. Furthermore the quality of excavation documentation and their data integrity has improved through the introduction of the “Guidelines for Archaeological Measures”.

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**TH2-20 Abstract 01**

**Destination management of heritage sites and towns in Croatia**

**Author** - MA Mihelic, Sanjin, Archaeological Museum in Zagreb, Zagreb, Croatia (Presenting author)

**Co-author(s)** - Komidži, Darko, Archaeological Museum of Istria, Pula, Croatia

**Keywords** - Archaeological tourism, Destination management, heritage sites

**Presentation Preference** - Oral

The paper focuses on the present state regarding integrated destination management of heritage sites and towns in Croatia, reviewing a number of recent attempts at broad-scale participative approach integrating needs, wishes and particularities of different stakeholders. In certain cases, the general collaborative framework introduced by a few key stakeholders in the circle including archaeologists, conservators, tourism specialists, local administrative units, civic sector and local community proved an excellent guiding light toward a common goal of integrated management aimed at sustainable development of archaeological sites as dynamic factors in the tourism business at local, regional and national levels. In certain other cases, in which these different voices were not fully heeded and particular interests took precedence, archaeological tourism as a practice often left much to be desired. The authors, directors of two major Croatian archaeological museums (in Zagreb and Pula respectively) draw on their experience in the project management of heritage attractions, with a view to contributing to the discussion towards creating European guidelines for archaeological tourism, as proposed by the session organizers.

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**TH2-20 Abstract 02**

**Bridging the gap: archaeology in tourism**

**Author** - Zuparek, Bernarda, Museum and Galleries of Ljubljana, Ljubljana, Slovenia (Presenting author)

**Co-author(s)** - Bregar, Tamara, Museum and Galleries of Ljubljana, Ljubljana, Slovenia

**Keywords** - archaeological heritage management, archaeological park management, archaeology, tourism

**Presentation Preference** - Oral

Archaeological Park Emona (Ljubljana, Slovenia) exhibits remains and presentations of a Roman Colonia Iulia Emona. The park consists of several locations in the center of modern Ljubljana, the Slovenian capital.

The park developed gradually from 1930-ties on. As a product of specific context, tied to the idea of Antiquity and its heritage as civilizing and inherently understandable, and to Roman archaeology as elite oriented, it was less interesting for the general public, and gradually became obsolete and unknown even to the inhabitants of Ljubljana.

During the project of renovation and revitalisation of the Archaeological park Emona in 2011-2012, carried out by the Museum and Galleries of Ljubljana, several key changes and improvements have been made. The primary goal of the project was to include...
the heritage of Emone into the life of modern Ljubljana, and to enable this, the renovation of infrastructure in the park was carried out, together with interpretative aids and public programmes.

As tourists were one of the weakest groups of our visitors, we designed a marketing plan with them in mind, and started to collaborate with the local tourist board, Tourism Ljubljana, and designed a tourist programme together. We also included local entrepreneurs and artists in some other programmes and workshops. Owing to these changes and endeavours, we had a 25% growth in foreign visitors to the Park. However, we did experience tensions and misunderstanding due to differences in understanding. The project tries to validate the utility of an official method to analyze sustainable tourism in towns. The work is coordinated by enterprise in urban regeneration and participatory processes who have tested this methodology in two villages with a rich cultural heritage: Cazorla (Andalusia) and Sigüenza (Castilla La Mancha).

One of the most important topics to analyze the relationship between Archaeology and tourism is the study of its role under the parameters of touristic agents. In this context, our research team has had the opportunity to collaborate with an enterprise in an experimental project to the Spanish Ministry of Industry. The methodology is based on other European systems, especially The European tourism indicator system for sustainable destinations (ETIS), which is being experimentally tested in several towns all over Europe. The project is called eScape and can be seen as a concept that is all about combining art, archaeology, past and present. Creating meaningful experiences for the general public should be the primary aim of cultural tourism. When securing quality in these meaningful experiences it is crucial to start cooperating with the specialists so that this side is also in cooperated in the project making.

After forty years, the discovery of the Roman barges has led to the realisation of a first-class limes visitor center, partly run by people with mental and physical disabilities. Limes Visitor’s Centre NGMR/PVLLUM opened its doors at April 15th 2016.

TH2-20 Abstract 05
From the ground up: Experiencing Romania through excavations at Halmyris in the Danube Delta
Author - Haracan, Emily, Durham University, Durham, United Kingdom (Presenting author)
Keywords: Authenticity, Heritage, Volunteer
Presentation Preference: Oral

The concept of archaeological tourism, or tourism based on the experiencing of an ‘authentic’ past through the viewing of archaeological sites (Timothy and Boyd 2006), is a distinctly Western phenomenon derived from nationalist capitalism which encourages heritage consumption (Rowan and Baram 2004). There are obvious challenges in the display of heritage specifically for monetary profit, a practice which often silences alternative versions of the past (see e.g. Watt 2000). This does not, however, negate the potential benefits for archaeological tourism, rather it gives us an opportunity for finding new ways of encouraging a more holistic cross-cultural interaction. This paper presents one potential good practice example—an ongoing project in Romania advocating for cultural awareness by encouraging a participatory version of archaeological tourism through field school attendance.

Since 2012 an international management team has run a not-for-profit archaeological field school at Halmyris, a Roman legionary fort in the Danube Delta. The costs for student volunteers are kept minimal and with an average of 25-30 participants each season we are able to independently finance the excavations and sustain the program. We do attract a number of undergraduates, MA students, and PhD students from archaeology and related disciplines; however, since 2014 we have had 10 volunteers who are decidedly atypical. Ranging from 54 years old to 71, and hailing from New Zealand, Australia, North America, France, and the UK we find our project decidedly enhanced by the presence of retired folk eager for new life experiences. They have chosen to help excavate a site which goes a step past comparatively passive tourism to what I term participatory archaeological tourism. By engaging directly with excavations at Halmyris this demographic is able to not only live alongside rural Danubian fishermen, but gain new skills and most importantly a newfound understanding of heritage displays and the social context of the past. I believe this is one model which may be of use for other developing projects looking to finance excavation and engage alternative audiences. In this paper I will examine both the challenges and the benefits for the project in welcoming this demographic of field volunteers, and reflect on the unique experience of Romania they are able to gain through participatory archaeological tourism.


TH2-20 Abstract 06
Unexpected experiences
Author - Hyg-Madsen, Lone, Museum skanderborg, Skanderborg, Denmark (Presenting author)
Co-author(s) - Dissing, Nina Bangsbo, Municipality of Skanderborg, Skanderborg, Denmark
Co-author(s) - Plum, Marianne, Vkl Skanderborg, Ry, Denmark
Keywords: Art, Co-creation, Cultural Tourism
Presentation Preference: Oral

Creating meaningful experiences for the general public should be the primary aim of cultural tourism. When securing quality in these meaningful experiences it is crucial to start cooperating with the specialists so that this side is also in cooperated in the project making. Actually we choose to take the challenge one step further by creating a project that combines archaeology, art and tourism on equal terms.

The project is called eScape and can be seen as a concept that is all about combining archeology, art, archaeology, past and present. Creating and communicating art on sites with strong archaeological evidence in combination with the scientific archaeological excavations.

The location and the landscape is the raison d’être of the project - and locals as well as tourists are given the opportunity to experience landscape storytelling combined with world history interpreted by modern art. eScape brings art and cultural heritage “on location”, away from the walls of the museum, creating a phenomenological space where nature, art and cultural heritage meet and communicate with one another, giving visitors unique and unexpected experiences.

TH2-20 Abstract 03
Looking for archaeology in an official tourism sustainable method.
Examples from two Spanish villages
Author - Castillo, Alicia, Complutense University of Madrid, Madrid, Spain (Presenting author)
Co-author(s) - Domínguez, Marta, Complutense University of Madrid, Madrid, Spain
Co-author(s) - Martín, Juan, Complutense University of Madrid, Madrid, Spain
Co-author(s) - Arevalo, Jorge, Paisaje Transversal, Madrid, Spain
Co-author(s) - Acero, Guillermo, Paisaje Transversal, Madrid, Spain
Keywords: cultural heritage, sustainable tourism, ETIS, university-enterprise collaborations
Presentation Preference: Oral

One of the most important topics to analyze the relationship between Archaeology and tourism is the study of its role under the parameters of touristic agents. In this context, our research team has had the opportunity to collaborate with an enterprise in an experimental project to the Spanish Ministry of Industry. The methodology is based on other European systems, especially The European tourism indicator system for sustainable destinations (ETIS), which is being experimentally tested in several towns all along Europe.

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TH2-20 Abstract 04
Crossing borders along the Dutch Limes - How the famous Roman barges of Zwammerdam support people with multiple disabilities
Author - Hazenberg, Tom, Hazenberg Archeologique, the Netherlands (Presenting author)
Keywords: Limes, visitor center, unique collaboration, Tourism
Presentation Preference: Oral

The Roman frontier fort of Zwammerdam is one of the sites along the Lower German limes, along the river Rhine in the west of the Netherlands. Beside the military fort six Roman shipwrecks are discovered. The ships represent the typical character of the Lower German limes as a river frontier, built in wetland, serving as a main transport route connecting the Germanic and Gallic hinterland with the North Sea basin. For this reason the ships play a principal role in the UNESCO nomination programme.

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The location and the landscape is the raison d’être of the project - and locals as well as tourists are given the opportunity to experience landscape storytelling combined with world history interpreted by modern art. eScape brings art and cultural heritage “on location”, away from the walls of the museum, creating a phenomenological space where nature, art and cultural heritage meet and communicate with one another, giving visitors unique and unexpected experiences.
TH2-20 Abstract 07
A journey through time: sensory tourism in the context of archaeological museums in Poland

Author - Dr. Pawela, Michał, Adam Mickiewicz University, Poznań, Poland (Presenting author)
Keywords - archaeological museums, Poland, sensory tourism
Presentation Preference - Oral

TH2-20 Abstract 08
Museums in Central Asia: The Role of Cultural Institutions in disseminating Information

Author - Dr. Jarosz, Katarzyna, University of Logistics, Wroclaw, Poland (Presenting author)
Keywords - digital divide, museum, tourism
Presentation Preference - Oral

TH2-20 Abstract 09
One’s destination is never a place, but a new way of seeing things: Touring a Heritage trail

Author - Leonor, Perez Ruiz, University of Valladolid, Valladolid, Spain (Presenting author)
Keywords - Cultural Landscape, Historical routes, Language learning
Presentation Preference - Oral

TH2-20 Abstract 10
Exploring the touristic image on World Heritage Archaeological Sites of Europe through the Web

Author - Babii, Bogdan, Móstoles, Spain (Presenting author)
Co-author(s) - Pérez González, Maria Luisa, Complutense University of Madrid, Madrid, Spain
Co-author(s) - Martínez Fernández, Andrea, Complutense University of Madrid, Madrid, Spain
Co-author(s) - García Enríquez, Natalia, Complutense University of Madrid, Madrid, Spain
Co-author(s) - Álvarez López, Mael, Complutense University of Madrid, Madrid, Spain
Keywords - Perception and Interpretation, Tourism, World Heritage Site
Presentation Preference - Poster

Within the context of collaboration of the cultural heritage management research group of the Complutense University of Madrid and according to the interest awoken by the Archaeology and Tourism Working Party, we present this poster with the intention of making a first approach of how the touristic agencies operating on the Web treat the archaeological visit. Following the UNESCO criteria regarding the world’s regional division and the reasons for declaration, we selected the settlements recognized for their archaeological dimensions as World Heritage Sites in the European context and which are accessible to visit. Through a series of charts and quantitative analysis we are going to present which ones are the main references for the touristic industry when encouraging the visit and how much of that quantity is similar to the discourse transmitted by those who work in the research of these archaeological sites. The poster aims to show the differences or the confluences between the scientific discourses and those generated by the tourism sector so that proposals of improvement can be made for the social transfer of archaeology through these means and at the same time, improve the touristic experience related to the appreciation of the research efforts behind these places and that justify their conservation and opening to the public.
Managing the archaeological heritage

Author - Domiter, Ozren, Archaeological museum in Zagreb, Zagreb, Croatia (Presenting author)
Co-author(s) - Radman-Listea, Ivan, Archaeological museum in Zagreb, Zagreb, Croatia

Keywords: interinstitutional-multidisciplinary cooperation, needs of local community and stakeholders, research-presentation concept

Presentation Preference - Poster

Bearing in mind the positive results of the cooperation between the Starigrad Tourist Board, the Starigrad primary school, the Institute of Archaeology and the Archaeological museum in Zagreb (e.g. publications of research results, a series of lectures for students, the creation of interpretative boards and a preliminary presentation plan, presentation activities, the active involvement of the local community), and considering plans for future spatial research and thereby connected presentation of zones round the site of the Sr. Troja hill fort, the Museum succeeded in its intention to raise awareness of the local population and the governing bodies about the rich natural and cultural heritage of the area, and to actively include the community into the forming of its presentation through education activities. In the long run, the Museum wishes to include all potential stakeholders - cultural and natural heritage-related institutions (Palenica Nature Park, Veladib Nature Park, Archaeological museum in Zadar), as equal partners, in order to act in synergy to enrich the existing tourist offer of the Starigrad Municipality, to achieve their own Missions, and, through a contemporary and innovative approach, to enable for the creation of a kind of museum in the open which would, inside its invisible walls, inseparably connect and communicate the rich natural and cultural heritage of the entire Starigrad area in an interesting and inspiring way.

The Museum, as the initiator of the idea of this sort of research-presentation multidisciplinary symbiosis, would use its research work not only as a key step in the collecting and interpretation of scientifically-based data, but also as an exceptional presentational potential, enabling all interested persons to see the site, witness archaeological excavations via the best interactive presentation method - personal experience.

Even when local community and stakeholders are not aware or, for any reason, able to communicate their needs, the Museum constantly strives to offer a broad frame of possibilities, ideas and cooperation models in which such needs of local community and local stakeholders are detected, recognized and outspoken and, after all, always treated with special attention inside its invisible walls, inseparably connect and communicate the rich natural and cultural heritage of the entire Starigrad area in an interesting and inspiring way.

This synergistic, general-heritage and interinstitutional approach includes all three functions of heritage-related institutions (research, preservation and communication) for the overall benefit of the local community and society as a whole.
An Archaeology of Stains. Sustainability and Responsibility in Facing Painful Heritage

Author: Zaleska, Anna, Institute of Archaeology and Ethnology of Polish Academy of Sciences, Warsaw, Poland (Presenting author)

Keywords: archaeology of recent past, painful heritage, Stains Black and White

Presentation Preference - Oral

While thinking about the archaeology’s capacity to endure at the time when it is facing as well old as new constraints together with requirements and pressure to ‘perform’ and to ‘be socially useful’, two aspects demand discussion and comparative studies: the actual participation and efficiency of archaeologists in ‘cultural heritage management’ and tailoring (T) impact of archaeology on that, what is perceived as ‘the Heritage’ by the local and global communities. Unfortunately, we are not the perfect one in taking into account social preferences. At least in Eastern Europe.

However, starting from what I have available, and treating symptoms as informative, I assume that it is worth to focus archaeological attention on the material remains of the XX Century. Some of them already became or soon will become the subjects of the archaeological studies. They are the creations of both the righteous (fair, legitimate etc.) and filthy (vile, gory etc.) events. In general, the first category can be seen as recognised and widely described historically, while the second is still shrouded in uncertainties and hesitations. It also induces growing public interest and can be described metaphorically as the ‘stains’. That which is known and/or unclear and/or unclear can be described as the ‘white stains’. That which is associated with the painful can be described as the ‘black stains’.

In my presentation I will expose that dimension of the concept of sustainability of archaeology, on which as the crucial can be seen the potential of archaeology in exploring those ‘stains’ – within the recent past history. In other words I will try to present the merits - of archaeologists’ ability to deal reflectively and responsibly with the material dimensions of ‘stains’ as with the worth high attention phenomena of the ‘enduring materiality’ and - of the growing readiness of archaeologists to be socially useful when dealing with the ‘traces of the discarded’ or unspeakable. To do so, I will refer to the specified cases of archaeological inquiry from Poland. To exemplify some of the nuanced arguments, the outcomes of the ongoing project titled ‘Archaeological revival of memory of the Great War. Material remains of the life and death in trenches of the Eastern Front and the condition of the ever changing battlefield in the perception of the Rawka and Bzura rivers’ will be presented. That transdisciplinary project deals with the unique assemblages simultaneously neglected and marked by wars/sensitive.

Additionally, in relations to the current calls in the human sciences for a “return to things”, “evidential turn”, “forensic turn”, seen equally important as the still growing public needs for ‘a visible, visitable, tangible, touchable past’ I will elaborate the reasons for which the Gadamerian question on the ways in which knowledge and its effects are affiliate remains central. I will also discuss why material remains, especially those excluded and those difficult to be grasped in words, situate archaeology in position of the discipline necessary or/ and handy for the heritage from or with acquisition of the enduring ‘stains’.

Galicia and the Basque Country (Spain). Sustainable Archaeology in small sustainable countries?

Author: Professor Xurxo, Ayen, University of Basque Country, Vitoria-Gasteiz, Spain (Presenting author)

Co-author(s): Garca Rodriguez, Sonia, University of Basque Country, Vitoria-Gasteiz, Spain

Keywords: Community Archaeology, Spanish Archaeology, Sustainable Archaeology

Presentation Preference – Oral

Spanish Commercial Archaeology lived its golden age between 1990 and 2007. This activity was closely linked with the current model of economic development in Spain, based on speculation and enormous, both private and public constructive activity. The strongest sector for the Evaluation and Correction of archaeological impact served to absorb the skilled labor force formed by the new generations of archaeologists from the universities.

The economic crisis of 2008 had dire consequences for the Spanish Archaeology. The State paralyzed research, universities were left without resources, scientists emigrated abroad and the archaeological market virtually disappeared by paralyzing the construction boom. Although this fact has hurt the archaeological profession, in these seven years have also emerged process serves as an opportunity for Sustainable Archaeology. Thus, the economic crisis led to a political crisis that has led to social movements claiming an active role as a tool for sustainable development. Politicians, residents, associations and patrons need archaeologists to start projects enhancement of Heritage.

To analyze this phenomenon in our communication we show how it is developing this renewed Community Archaeology in two similar contexts, yet very different. The Basque Country and Galicia are two historic nationalities that make up the Spanish State, two small Atlantic countries do not reach 3 million people, with a culture that differentiates them from the rest of Spain. At both sites the Archaeological Heritage has played a key role as a marker of identity and tourist resource.

Galicia is a country bordering Portugal and Spain, with a area of 156,000 km². Basque Country, which lived since the Industrial Revolution in the late nineteenth century, is the richest region of Spain. The political weight of Basque nationalism has resulted in the strengthening of public policies that encourage the development of local production. Basque politics supports research to enhance and internationalize its economy. Such as livestock, wine production, fishing and tourism, Cultural Heritage is a strategic sector. In turn, today, the development of public policy for reports on the political violence of the twentieth century has opened up a whole field of work for the Archaeology of Contemporary Past becomes a tool for sustainable development (and peace).

Knowing and understanding the public: a step before planning sustainable heritage managements

Author: Apen, Ruiz, Barcelona, Spain (Presenting author)

Co-author(s): Pastor, Ana, Universitat de Barcelona, Barcelona, Spain

Keywords: heritage, methodology, public

Presentation Preference – Oral

In this presentation we discuss some methodological experiences carried out in Barcelona with the intention to study and better understand the interactions between archaeology, heritage and its public) with the intention to provide a space of reflection about participatory research in the field of heritage and archaeology. Our main objective is to analyze and explore different methodologies that can allow us to draw up new participative and sustainable strategies for heritage management. Systematic
Managing the archaeological heritage and sustainable development in Laconia, Greece

TH2-21 Abstract 07

The past in the future: archaeology, heritage and sustainable development in Laconia, Greece

Author - Prof. Voutsiouli, Sofia, University of Groningen, Groningen, Netherlands (Presenting author)

Keywords: public archaeology, sustainable development, theory

Presentation Preference - Oral

In the last three decades, the realization that archaeologists have to engage in dialogue with the local communities is growing, and new fields such as Public Archaeology or Community Archaeology are establishing themselves as separate sub-fields of practice and theoretical reflection. At the same time, the current financial crisis (especially felt in southern Europe, but also in the Humanities and the Arts sector) forces us to find alternative and responsible ways to boast local development.

The main argument presented in this paper is that archaeology can contribute to sustainable local development, but it should do so as part of a theoretically informed, socially engaged and carefully researched multidisciplinary project which combines archaeology, history, ethnography and social theory. This can be achieved:

• if we investigate the social and political conditions within which attitudes to the past have been formed and within which notions of local, national, or world heritage have defined,

• if we engage with social problems in the present, and

• if we contribute to the formulation of a vision for responsible growth in the future, by means of a dialogue with the local communities and the policy makers responsible for the study and management of the archaeological heritage in the area.

The discussion will focus on Laconia, a region of southern Greece. The argument proceeds in four stages:

1. The exploration of local perceptions of the past by means of a programme of archaeological (visual) ethnography. Special attention is given to educational programmes for school children presented in the local musea and archaeological sites, as these help to the formulation of local perceptions of archaeology and archaeologists.

2. A discussion of the main problems faced by the local communities, the endemic causes of exclusion and underdevelopment as well as the further deterioration during the current financial and political crisis.

3. The formulation of a vision for sustainable growth and for alternative forms of tourism (e.g. agrotourism, ecotourism, cultural tourism, etc.), and the need for the creation of collaborative structures which can unleash local creative potential and act as a platform for the exchange of ideas.

4. The observation, surveys and participatory walks have been used as methods to enable us to expand into new contexts in which interactions between individuals and heritage could be examined.

The project aims to fill a gap that is not covered by traditional forms of training. Within the project, six European partners develop a variety of integrated educational e-learning materials designed to treat important facets of both sectors. The project contributes to the development of improved methods and content of Higher education and vocational training in the field of heritage. The digital method ensures that the ongoing changes that concern the protection and management of archaeological and natural heritage are connected with education that is useful and up-to-date. The online modules address the rapidly changing modes of protection and management for the archaeological and natural heritage sectors, as well as the significance of integrated heritage in spatial planning and regional development policies. This includes the role of built heritage in urban planning and local and regional heritage policies in Europe.

The basic principle is that through a better understanding of the importance of archaeological and natural heritage, for a variety of different environments, sustainable landscape management can be realised. This project aims to provide an organisational structure for continuous training and a technical infrastructure for blended learning that will benefit the various labour markets.

TH2-21 Abstract 09

Integration of cultural & natural heritage management, developing content for blended learning

Author - MA Travaglia, Andrea, University of Amsterdam, Amsterdam, Netherlands (Presenting author)

Keywords: cultural, natural, vocational, educational training, heritage

Presentation Preference - Oral

Frequently, heritage management professionals are not too familiar with topics that are not directly related to their own domains. The binary separation of “cultural” and “natural” landscape results problematic in national and international legal and administrative frameworks involving planning and development. The improvement of knowledge for landscape management and protection of archaeological and natural heritage is a necessity. In this context, the Archaeological & Natural Heritage project (ANHER) focuses on increasing knowledge and skills for professionals working in the archaeological and natural heritage sectors in Europe. The project aims to fill a gap that is not covered by traditional forms of training. Within the project, six European partners develop a variety of integrated educational e-learning materials designed to treat important facets of both sectors. The project contributes to the development of improved methods and content of higher education and vocational training in the field of heritage. The digital method ensures that the ongoing changes that concern the protection and management of archaeological and natural heritage are connected with education that is useful and up-to-date. The online modules address the rapidly changing modes of protection and management for the archaeological and natural heritage sectors, as well as the significance of integrated heritage in spatial planning and regional development policies. This includes the role of built heritage in urban planning and local and regional heritage policies in Europe.

The basic principle is that through a better understanding of the importance of archaeological and natural heritage, for a variety of different environments, sustainable landscape management can be realised. This project aims to provide an organisational structure for continuous training and a technical infrastructure for blended learning that will benefit the various labour markets.

TH2-21 Abstract 10

Linking efforts towards a new vision: new learning methods in Heritage

Author - Dr. Cubas, Miriam, University of York, York, United Kingdom (Presenting author)

Co-authors - Ezzed, Mikel, Sociedad de Ciencias Aranzadi; Donostia-San Sebastian, Spain

Keywords: Archaeology, heritage, vocational and educational training, Natural heritage

Presentation Preference - Poster

Contemporary thinking about heritage incorporates a wide range of realities with important economic consequences and which create new socio-economic relationships. Frequently, heritage management professionals are not familiar with the topics that are not directly related to their professional domains. In this context, the development of the project Innovative format of education and training of the integrated archaeological and natural heritage (ANHER) funded by the European Commission (Erasmus + 2014-1-PL-KA202-003585) aims to improve skills relating to this wide vision of heritage for practitioners working in both the archaeological and natural heritage sectors. This objective means that the project aims to fill a gap not covered by traditional training systems.

The project is producing a range of innovative didactic materials which bring together an integrated vision of heritage. The binary separation of “natural” and “cultural” landscape results in problematic regional, national and international legal and administrative frameworks and complicates the practice of planning and development.

The project will explicitly address challenges and needs of a vocational education and training (VET) using different methods of distance learning. The didactic content is being produced by applying innovative practices in education and training and providing the opportunity for personalised learning approaches and collaborative learning. All newly produced didactic materials will be stored in an online Content Repository. Flexible content authored supporting by the web-based Content Repository software enables the storage and processing of distance learning content in a SCORM standard, to facilitate its further expansion and enhancement.

The training materials aim to cover the needs of rapidly changing practices in the protection and management of archaeological and natural heritage, as well as recognising the significance of integrated heritage in spatial planning and regional development policies. These materials have been produced following the detailed analysis of the state-of-the-art of training in both heritage fields and the analysis of existing training courses. These analyses made it possible to define the didactical needs of these groups and to apply this in terms of the design of new training contents and methods. The didactic materials cover the most appealing issues of an integrated approach to conservation and management of archaeological and natural heritage and its impact upon planning policies and development. The e-learning modules will aim to improve the competence of professionals employed in both heritage sectors and in local administrations, who may not have been previously trained in the area that they have to make important decisions about.
Practical skills training in European Archaeology: survey results

Abstract

In preparation for the CTTA round table on practical skills training in European archaeology, a survey was conducted to examine practices in different European countries. The survey had been advertised in TEA and was also distributed by other means. In this paper, the results of this survey will be presented and analysed.

Keywords:
practical skills training, results, survey

TH3-01 Abstract 01
Practical skills training in European Archaeology - Options for the Future?

Abstract

The various universities in Belgium (Flanders, Wallonia and the Brussels Capital Region) have their origins in different systems and traditions: Catholic, state, or other. In the last few decades, the traditional association of archaeology with history and art history has been gradually eroded, and more attention is now being paid to specific archaeological methodology, practical knowledge and fieldwork. All universities with an education leading to the degree of bachelor or master in Archaeology now organize specific practical skills training as a part of the formal educational program. The extend and quality of these activities largely depend on the capacities and commitment of the staff members and on the adequate financial and logistic assets available. Due to many restrictions and different circumstances practical skills education still varies largely from one university to another.

As a result of the continuing financial cutbacks in education and in scientific research, universities often have insufficient resources to organize these activities in a sustainable way. Partnerships with archaeological companies have become a necessity to offer sufficient opportunities for students to learn a numerous technical, practical and administrative skills they need to operate in a highly professional environment. If this is the case, the university staff often has too little control over the quality of the work of both the student and the local supervisor. The good news is that the student can often choose a specific traineeship from a wide range of opportunities, both domestically and abroad. That way, on the long run, the student is much better integrated in the professional world and already able to establish a network for his later employment.

Keywords:
fieldschool, practical skills, training

TH3-01
PRACTICAL SKILLS TRAINING IN ARCHAEOLOGY

Friday, 2 September 2016, 11:00-13:00
Faculty of History, Room 329
Author - Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom (Presenting author)
Co-author(s) - Prof. Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom
Keywords: practical skills, standards, training
Presentation Preference - Committee / Working Party meeting

In its annual round table, the Committee for the Teaching and Training of Archaeologists is planning to discuss practical skills training in archaeology. We intend to review the EAA Code of Practice for Fieldwork Training and discuss all aspects related to the teaching and training of practical archaeological skills in Europe and beyond. Whether it is fieldwork or laboratory skills as taught in formal field schools or lab training courses in archaeology degrees; or more informal training in practical skills in extracurricular activities or in the archaeological workplace, we intend to examine different national practices, qualifications awarded or achieved, how training, whether formal or informal is recorded; and whether practical skills training is recognised in career progression and salaries. We would like to examine best practice examples and discuss problems that may occur during or with practical skills training provision, and discuss whether developing more extensive transnational best practice guidance or codes of practice would be of interest to EAA members.

TH3-01 Abstract 02
Practical Skills Training in Archaeology - Options for the Future?

Abstract

The various universities in Belgium (Flanders, Wallonia and the Brussels Capital Region) have their origins in different systems and traditions: Catholic, state, or other. In the last few decades, the traditional association of archaeology with history and art history has been gradually eroded, and more attention is now being paid to specific archaeological methodology, practical knowledge and fieldwork. All universities with an education leading to the degree of bachelor or master in Archaeology now organize specific practical skills training as a part of the formal educational program. The extend and quality of these activities largely depend on the capacities and commitment of the staff members and on the adequate financial and logistic assets available. Due to many restrictions and different circumstances practical skills education still varies largely from one university to another.

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Keywords:
fieldschool, practical skills, training

TH3-01
PRACTICAL SKILLS TRAINING IN ARCHAEOLOGY

Friday, 2 September 2016, 11:00-13:00
Faculty of History, Room 329
Author - Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom (Presenting author)
Co-author(s) - Prof. Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom
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TH3-01 Abstract 02
Practical Skills Training in Archaeology - Options for the Future?

Abstract

The various universities in Belgium (Flanders, Wallonia and the Brussels Capital Region) have their origins in different systems and traditions: Catholic, state, or other. In the last few decades, the traditional association of archaeology with history and art history has been gradually eroded, and more attention is now being paid to specific archaeological methodology, practical knowledge and fieldwork. All universities with an education leading to the degree of bachelor or master in Archaeology now organize specific practical skills training as a part of the formal educational program. The extend and quality of these activities largely depend on the capacities and commitment of the staff members and on the adequate financial and logistic assets available. Due to many restrictions and different circumstances practical skills education still varies largely from one university to another.

As a result of the continuing financial cutbacks in education and in scientific research, universities often have insufficient resources to organize these activities in a sustainable way. Partnerships with archaeological companies have become a necessity to offer sufficient opportunities for students to learn a numerous technical, practical and administrative skills they need to operate in a highly professional environment. If this is the case, the university staff often has too little control over the quality of the work of both the student and the local supervisor. The good news is that the student can often choose a specific traineeship from a wide range of opportunities, both domestically and abroad. That way, on the long run, the student is much better integrated in the professional world and already able to establish a network for his later employment.

Keywords:
fieldschool, practical skills, training

TH3-01
PRACTICAL SKILLS TRAINING IN ARCHAEOLOGY

Friday, 2 September 2016, 11:00-13:00
Faculty of History, Room 329
Author - Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom (Presenting author)
Co-author(s) - Prof. Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom
Keywords: practical skills, standards, training
Presentation Preference - Committee / Working Party meeting

In its annual round table, the Committee for the Teaching and Training of Archaeologists is planning to discuss practical skills training in archaeology. We intend to review the EAA Code of Practice for Fieldwork Training and discuss all aspects related to the teaching and training of practical archaeological skills in Europe and beyond. Whether it is fieldwork or laboratory skills as taught in formal field schools or lab training courses in archaeology degrees; or more informal training in practical skills in extracurricular activities or in the archaeological workplace, we intend to examine different national practices, qualifications awarded or achieved, how training, whether formal or informal is recorded; and whether practical skills training is recognised in career progression and salaries. We would like to examine best practice examples and discuss problems that may occur during or with practical skills training provision, and discuss whether developing more extensive transnational best practice guidance or codes of practice would be of interest to EAA members.

TH3-01 Abstract 02
Practical Skills Training in Archaeology - Options for the Future?

Abstract

The various universities in Belgium (Flanders, Wallonia and the Brussels Capital Region) have their origins in different systems and traditions: Catholic, state, or other. In the last few decades, the traditional association of archaeology with history and art history has been gradually eroded, and more attention is now being paid to specific archaeological methodology, practical knowledge and fieldwork. All universities with an education leading to the degree of bachelor or master in Archaeology now organize specific practical skills training as a part of the formal educational program. The extend and quality of these activities largely depend on the capacities and commitment of the staff members and on the adequate financial and logistic assets available. Due to many restrictions and different circumstances practical skills education still varies largely from one university to another.

As a result of the continuing financial cutbacks in education and in scientific research, universities often have insufficient resources to organize these activities in a sustainable way. Partnerships with archaeological companies have become a necessity to offer sufficient opportunities for students to learn a numerous technical, practical and administrative skills they need to operate in a highly professional environment. If this is the case, the university staff often has too little control over the quality of the work of both the student and the local supervisor. The good news is that the student can often choose a specific traineeship from a wide range of opportunities, both domestically and abroad. That way, on the long run, the student is much better integrated in the professional world and already able to establish a network for his later employment.

Keywords:
fieldschool, practical skills, training
FROM THE COLOSSEUM TO PALMYRA. APPROPRIATION AND OWNERSHIP OF ARCHAEOLOGICAL HERITAGE IN A GLOBAL WORLD

Saturday, 3 September 2016, 09:00-13:00
Faculty of Philosophy, Room 209

The immigration crisis is one of the greatest modern day conflicts currently affecting Europe. In 2015, 1,294,000 migrants and refugees crossed into the EU and claimed asylum. Identity politics significantly impacted their reception, resulting in an often hostile landscape – a landscape in which the relevance of the past is fundamental. The theory of differential inclusion argues that as migrants cross the borders into Europe, they will experience a setting which is open to some but closed to others (Richardson 2013). Archaeology is complicit in the creation of this setting, and archaeology as a discipline needs to address border studies - some have already begun to draw comparisons between modern borders and the frontiers of the Roman Empire. This paper will reflect through the lense of historical comparison: nowadays, as also historian G. Bowersock noted, religion is such a political scale and massiveness of violence towards the cultural heritage in such countries as Syria, Iraq, and, perhaps on a minor extent, Libya, seem to conceal a subtle and targeted purpose in terms of communication. On the one side, to impress, appal, and daze westerners as world heritage, to divert the attention from the real sources of funding, weapons, political support in a crisis of believable threats and the perception of a countervailing threat – another liminal identity. Romania is one such place, which although the nation has yet to draw the same numbers of migrants as Hungary or Bulgaria, is a space uniquely set up for such an attempt. This paper will analyze the ideological foundations of Romania as a European nation, the impact of the Roman Frontier on the lower Danube as a modern border, and start to provide a general methodology for archaeological border studies.


A hot topic of debate in the agenda of Institutions and associations in the field of both tourism and cultural heritage, the present-day administration of the Colosseum and other archaeological sites of Rome may represent a meaningful model for analyzing the value acquired by heritage and archaeology in contemporary Italian society. The Italian word “valorizzazione” (enhancement and promotion), in the minds of lawmakers, is meant to connect the intrinsic value - historical, archaeological, cultural in a wider sense - of the heritage with the economic return of its exploitation. During these recent years, though, in the wake of mass tourism, marketing strategies (“exploitation”) are growing in importance with respect to the cultural issues which should appeal visitors (“valorizzazione”), for instance, temporary exhibitions of questionable scientific contents are promoted as a way to increase entrance fees, while panels and other educational tools seem to be inadequate to the audience needs. As a result, in other terms, is there the strong risk of a mere economic use devoid of real cultural contents and intentions? On the other hand, what does the general public (in this case study meant as foreigner tourists in Rome) perceive when visiting Rome? Is the Colosseum simply a “must-see” destination or a real “cultural experience”?

This speech is aimed at addressing the situation as per public commitment of Institutions, real or presumed enhancement of the heritage in cultural terms, expectations of visitors and their fulfillment. At the purpose, the authors propose an investigation about more recent policies of investment and enhancement; a statistical analysis of the perception of the public through a survey laid on site will be presented. In conclusion, considerations about the role archaeologists may and should play in these various regards will be drawn, under the peculiar perspective of the authors who experience archaeology both in an academic and scientific way, and working as official tourist guides of Rome.

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**TH3-02 Abstract 05**

Interpretative appropriation as religious utopia: Illyrian mythology after communism

**Author:** Bekteshi, Arba, University of Tirana, Faculty of History and Philology, Tirana, Albania (Presenting author)

**Keywords:** Illyrian mythology, interpretative appropriation, material encounters

**Presentation Preference:** Oral

In trying to shift the discourse of Albanian spiritual identity away from a democratic revival of main religious traditions and possible political institutionalizations of culture, a fragment of the academic world hypothesizes for historical spiritual independence. A “spirituality” [that] has to do with the personal; that which is interior or immanent; that which is one’s experienced relationship with the sacred; and that wisdom or knowledge which derives from such experiences (Heelas, 2001).

In this paper I maintain that Albanian analysts are fashioning a post-communist academic discourse in favor of the construction of a unique vernacular transcendental tradition. To highlight the above-mentioned casualty, I reconsider the present day focus on Illyrian origin mythologies as informative of distinctive heritage and ancient Greek syncretism.

To this aim, I contend that efforts for the creation of a discursive platform on vernacular traditions are paradoxical due to the fact that they make the case for a new utopia, similar to the Albanian experience of what Schumpeter asserted to be a Marxist religion. The latter made reference to the everyday life, while constructing evidence for historical pasts that recalled its ideology and values (Qendro, 2014). Moreover, a focus on the vernacular is purported as inclusive of Albanian “metaphysical believers” (Heelas, 2011)” into global postmodern discourses on faith, while it provides a rationale for dissociative “apolitical spiritualization (Haynes, 2011)”.

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**TH3-02 Abstract 06**

Alatri in the Sky with Diamonds

**Author:** Pinuccio, Alessandro, University of Rome “La Sapienza”, Rome, Italy (Presenting author)

**Co-author(s):** Gori, Maja, University of Heidelberg, Heidelberg, Germany

**Keywords:** Alatri, polygonal walls, pseudarchaeology

**Presentation Preference:** Oral

In the last decades, thanks to stratigraphic excavations and associated pottery analysis, many Italian opus reticolatum monuments have been correctly dated to the Republican Era, deconstructing thus the idea of their belonging to the Archaic period or even earlier. Alatri, a well-known archeological site close to Rome, is a paradigmatic example of new scientific methods proving wrong old chronologies and theories. The polygonal walls of the city and its acropolis, indeed, date to the 3rd century BC proving wrong the traditional Archaic or even Pelasgic chronology. This new chronological and cultural framework for the site sparked a passionate debate amongst local Historians, who believe that the construction of the Alatri complex pre-dates the Roman arrival in the region. Local archaeology amateurs assert, thus, opposed new dates and interpretations by having recourse to different theories, mainly based on archaeoastronomy. Alatri was associated to sites traditionally connected to pseudarchaeology, like the Egyptian pyramids, and to the alleged presence of linguistic signs from other parts of the Mediterranean, linking also the parenthesis of the walls to ancient Middle East civilizations, like the Hittites, authoritative and mysterious enough to replace the hated Roman invaders and enough far away not to be perceived as invaders themselves. This paper will focus on Alatri and will address cultural, social, and psychological aspects connected to the denial of the Roman paternity of Alatri monuments. Why the inhabitants of a city of Latium Velus need to seek different and older origins for their city from the ones provided by official archeology? We will also try to explain why – in addition to communicate the scientific results to the society at large – it is important for mainstream archaeology to engage with non-professionals amateurs even if the debate occurs in the archaeofantasy arena.

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**TH3-02 Abstract 07**

The past as a Consuming Object

**Author:** Maoudi, Arman, Tehran, Iran (Presenting author)

**Co-author(s):** Papoli Yazdi, Leila, Neyshabour, Iran

**Keywords:** consuming society, archaeological record, middle eastern archaeology - vandalism - nationalism

**Presentation Preference:** Oral

Consuming society is a society within all agents and individuals are being encouraged to sell, buy and consume things. In such a society, firstly, all the phenomena would change into a commodity while it also put the individuals in endless networks of things, icons. Gradually, consuming changed into a social performance in which the actors are all the human being living in the society. Being consumed, the objective past is being transformed into an everyday commodity and sell in below manners:

- Politically, the past is being applied in order to confirm the society or propagate an especial type of identity.
- The past can be used also as a luxury presenting status distinction. Museums and galleries, the new context of ancient objects, let middle and well-off classes to own or observe the “glory” of the past.
- Artistically, lots of archaeological objects are being used to design new logos, fashion and souvenirs. In such a way, the object takes new iconic meanings, a recent one.
- A very modern use of the past represents in the form of vandalism. According to Freud, part of human instinct is always eager to destruct and death. As a consequence of political abuse of the past, we encounter the daily destruction of heritage in recent century which has in its nature an iconic message.

What’s the role of the archaeologist in the process of object transformation from a meaningless thing to a commodity? The archaeologists reproduce a thing by excavating it, by giving birth to it, by giving it a new name, a new context. Afterwards, the object usually would be located in a museum presenting to the society artistically or politically.

In this article, the authors investigate the different levels of consuming past in Middle East assessing the role of archaeologists in each level.
OPEN ACCESS AND OPEN DATA IN ARCHAEOLOGY: FOLLOWING THE ARIADNE THREAD

TH3-03

Requirements for open sharing of archaeological research data

Author  - Dr. Gaser, Guntram, Salzburg Research, Salzburg, Austria (Presenting author)
Co-author(s) - O'Riordan, Emma Jane, Society of Antiquaries of Scotland, Edinburgh, United Kingdom

Keywords: e-infrastructures, open data, repositories

Presentation Preference - Oral

There are several good arguments for open research data and over the last few years expectations of open sharing of publicly funded data have increased. For example, re-use of data in further research (e.g. based on combined data) is expected to provide much return on investment. Considerable progress has been achieved with regard to e-infrastructures and services for data sharing, access and (re-) use, but the institutional requirements are lagging somewhat behind. Such requirements include the extension of open access mandates from papers to research data, available repositories adequate for research data, and making sure that data shapers receive the credit they deserve. Researchers still perceive more obstacles than incentives for opening up their data, including additional effort, lack of academic reward, concerns that data might be misused, and more. Indeed, clear evidence of benefits of data publication, re-use and citation – both on the community and individual levels – is crucial for pushing forward the open data agenda.

The paper will give an overview of the current landscape of e-infrastructures and open access resources for archaeological and other cultural heritage research, and highlight institutional and other requirements for further progress and innovation through open data over the next 5 to 10 years.

TH3-03 Abstract 02

The Reputation effect

Author  - Dr. Gattiglia, Gabriele, University of Pisa, Viareggio, Italy (Presenting author)
Co-author(s) - Anchinori, Francesca, University of Pisa, Viareggio, Italy

Keywords: open access, open data, Reputation

Presentation Preference - Oral

Archaeologists recognise the potential impact that the sharing and re-use of data can bring: the benefits of accessibility, both as open access and open data, are evident for archaeology, given the primary and unrepeatable status of most data sets. Nonetheless, archaeologists have sometimes been reluctant to share their primary research data. An explanation for this could be a research system, both academic and professional, driven by individual reputation expressed in ranked publications. This system could be labelled as a reputation economy. In a reputation economy, it is necessary both to provide adequate formal recognition and to foster network based interaction.

The recognition for making data available to other researchers means to provide data citations, so on January 2015, the MAPPA Lab of the University of Pisa promoted the first peer review Data: Book dedicated to Italian archaeology. The idea was based on the assumptions that data need to be treated as a relevant part of the archaeological heritage and that the access to it (and not only data paper) should be connected to primary data. These biannual volumes called MAPPA Data Book are conceived as a series of archaeological monographs designed with a dual level of publication: a paper, in which the archaeologists can analyse the data recorded, and the data set published as open data in the MOD (MAPPA Open Data), the open data repository of Italian archaeology. The volumes are published as open access and in a print on demand mode.

As for fostering network-based interaction, we are going to launch a communication campaign aimed to promote the use of academic social network, such as academia.edu and researchgate.net, for embedding the links to the data sets archived in our repository. In this way, on the one hand the archaeologists that share their data can take advantage of the academic social network realised by these platforms and of the metrics that reflect the impact of a contribution, on the other hand the repository can focus on data publication and long term preservation.

Thus archaeological data sharing becomes a way for researchers to collaborate and thereby meet the needs of an increasingly complex research landscape, and the reputation effect becomes a way to foster data re-use.

TH3-03 Abstract 03

Antiquarians in the 21st Century: Opening up our data

Author  - O'Riordan, Emma Jane, Society of Antiquaries of Scotland, Edinburgh, United Kingdom
Co-author(s) - Osborne-Martin, Erin, Society of Antiquaries of Scotland, Edinburgh, United Kingdom (Presenting author)

Keywords: open access, publishing, research

Presentation Preference - Oral

The Society of Antiquaries of Scotland has been an active publisher of Scotland's history and archaeology since 1792; the Proceedings of the Society of Antiquaries of Scotland (PSAS), has been the primary journal dealing with Scotland's past in its British and European context since 1851. Publication in PSAS has often been seen by many archaeologists as the 'end' of the research cycle: excavation is followed by publication, and the process is complete. However, there is increasing awareness that the final report alone does not tell the whole story, and many readers would also like to examine raw data. In 2001, the Society created a new, fully peer reviewed, freely available online journal, Scottish Archaeological Internet Reports (SAIR), so was an early adopter of Open Access in an archaeological context. SAIR was intended to provide a new, lower- cost publication outlet for detailed archaeological reports; over the last fifteen years it has evolved to include the publication of many different types of projects – including large-scale surveys, gazetteers and conference proceedings – which would not be possible or desirable to publish in print for various reasons.

The Society also runs the Scottish Archaeological Research Framework (ScARF). Launched in 2012, this collaborative project brought together experts from a range of disciplines to compile a peer-reviewed summary of our archaeological knowledge up to that point and agree where future research should be directed. The entirety of Scottish archaeology was split into nine panel reports, all of which are available for free download from the project website or can be viewed on the wiki- style website itself. As such, it is the first framework of its kind in archaeology. The Society is contemplating how best to take PSAS, SAIR and ScARF forward in an Open Access world. Our audiences are increasing, both in number and in variety. There have been over 400,000 downloads from Society’s publication archive held by the Archaeology Data Service (ADS) since 2011, and over the past three years ScARF has seen over 262,000 page views. And yet these final reports are only the tip of the archaeological data mountain. As an archaeological publisher, if we aspire to the true aims of Open Access, we should be making the original data available for re-use, data mining and new interpretations. But how can these aspirations be carried out in practice when the data is so vast and varied? As a small independent organisation, we must look to collaboration. How best to do this? One possibility is drawing from the models created by computer scientists and scientific publishers more used to dealing with raw data rather than ‘coffee-table books’. However, making the data available is not only a technological issue – there are already data downloads available in parts of ScARF and SAIR, for example - but a cultural one. Many archaeologists are cautious about openly sharing raw data and we must consider how best to reconcile the needs of authors and remaining true to our own aims of truly open knowledge.
Beyond the Pale: grey literature as a method of publication

Author: Dr. Evans, Tim, Archaeology Data Service, York, United Kingdom (Presenting author)
Keywords: grey literature, open access, publication
Presentation Preference: Oral

The aims of the project ‘Digitizing Early Farming Cultures’ are to create standardized and integrated research data of Neolithic and Chalcolithic sites and finds of Greece and Anatolia (c. 7000–3000 BC according to Greek terminology), two neighboring and archaeologically closely related regions usually studied in isolation of each other. The data will be made available online ensuring compliance to standards in data production for data sharing (metadata and mapping) and interoperability with related initiatives.

The resources that form the basis for the new dataset include digital resources (site- and pottery- and bibliographic- databases in different formats) and also analogue resources such as unpublished manuscripts, site gazetteers and a pottery collection. The resources result from different projects that span over the last four decades and where different methodologies, terminologies and chronologies have been used. In the project we use various methods to integrate the data: creation of a new site database, mappings to CIDOC CRM and digitizing of finds (3D pottery models) and attribution with relevant metadata.

The project will present the results of the project so far and our aims until the end of the project. We will also talk about the working process and our experiences as archaeologists in a project where we present an interface between archaeologists specialized on the subject area of Neolithic archaeology and technicans.

Legacy data and archaeological archives in Europe and North Africa

Author: Dr. Fentress, Elizabeth, Rome, Italy (Presenting author)
Keywords: Archives, Legacy Data, North Africa

Presentation Preference: Oral

Perhaps the hardest data to render open access is that of the archaeological archive, even when, as is not necessarily the case, it is lodged in an institution. A survey of practices for the archiving of excavation data in a number of European countries has revealed that centralized archiving is vanishingly rare, while even university archives of excavation data are hardly easy to access. A particular example of legacy data is offered in this paper, the case of the archives of 150 years of excavations in North Africa. The study has been carried out in collaboration with the Central Institute for the Union Catalogue of Italian Libraries and Archives (CISCEP), the SITAR Project, partner of the Ariadne project from 2013, is completing in the early months of 2016 the analysis of data coming from the Office’s archives, free and accessible to the public.

The SITAR database is now made up of about 4,000 information sources related to archaeological excavations or other archaeological studies or surveys, from which about 14,000 record of “archaeological part” have been identified, each of which represents a descriptive unit distinguished on the basis of a chronological and functional criteria. Data are currently published online on SITAR Project’s WebGIS portal (http://webis.ariadneproject.org/webgis/login.php), where they can be freely consulted.

The SITAR project, partner of the Ariadne project from 2013, is completing in the early months of 2016 the analysis of data licensing, starting from the analysis of the Italian regulatory framework and the comparison with the best practices developed by other project partners.

The study has been carried out in collaboration with the Central Institute for the Union Catalogue of Italian Libraries and Bibliographic Information (CISCEP) and the University of Padua, and in particular it intends to contribute to the definition of methods for achieving interoperability between databases, on Open Data release within Ariadne and the managing and licensing of original archive documents, i.e. grey literature, which have been digitized.

Digitizing Early Farming Cultures: integrating resources from Neolithic Greece and Anatolia

Author: Dr. Aspöck, Edeltraud, ÖAW, Vienna, Austria (Presenting author)
Co-author(s): Dr. Fentress, Elizabeth, Rome, Italy (Presenting author)
Co-author(s): Štuhec, Seta, ÖAW, Vienna, Austria
Co-author(s): Dr. Aspöck, Edeltraud, ÖAW, Vienna, Austria
Co-author(s): Štuhec, Seta, ÖAW, Vienna, Austria
Keywords: Neolithic sites and finds, open data
Presentation Preference: Oral

The aims of the project ‘Digitizing Early Farming Cultures’ are to create standardized and integrated research data of Neolithic and Chalcolithic sites and finds of Greece and Anatolia (c. 7000–3000 BC according to Greek terminology), two neighboring and archaeologically closely related regions usually studied in isolation of each other. The data will be made available online ensuring compliance to standards in data production for data sharing (metadata and mapping) and interoperability with related initiatives.

The resources that form the basis for the new dataset include digital resources (site- and pottery- and bibliographic- databases in different formats) and also analogue resources such as unpublished manuscripts, site gazetteers and a pottery collection. The resources result from different projects that span over the last four decades and where different methodologies, terminologies and chronologies have been used. In the project we use various methods to integrate the data: creation of a new site database, mappings to CIDOC CRM and digitizing of finds (3D pottery models) and attribution with relevant metadata.

Data are currently published on SITAR Project’s WebGIS portal (http://webis.ariadneproject.org/webgis/login.php), where they can be freely consulted.

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The ITL system for describing and integrating data within archaeological projects

Author: Dr. Di Giorgio, Sara, Istituto Centrale per il Catalogo Unico delle biblioteche italiane, Rome, Italy
Co-author(s): Dr. Fentress, Elizabeth, Rome, Italy (Presenting author)
Co-author(s): Štuhec, Seta, ÖAW, Vienna, Austria
Co-author(s): Dr. Aspöck, Edeltraud, ÖAW, Vienna, Austria
Co-author(s): Štuhec, Seta, ÖAW, Vienna, Austria
Keywords: SITAR database.
Presentation Preference: Oral

The SITAR project (Rome).

Achieving interoperability and opening data: practical implementation

Author: Boi, Valeria, archaeological consultant, Roma, Italy (Presenting author)
Co-author(s): Dr. Di Giorgio, Sara, Istituto Centrale per il Catalogo Unico delle biblioteche italiane, Rome, Italy
Co-author(s): De Tommasi, Andrea, Soprintendenza Speciale per il Colosseo, il Museo Nazionale Romano (SSC0t), Rome, Italy
Co-author(s): De Tommasi, Andrea, Soprintendenza Speciale per il Colosseo, il Museo Nazionale Romano (SSC0t), Rome, Italy
Keywords: ARADION, CIDOC-CRM, Open Data
Presentation Preference: Oral

This paper follows on from a contribution presented within the session “Barriers and opportunities: Open Access and Open Data in Archaeology” at EAA 2014. In 2014, we discussed the theoretical implications of data sharing and interoperability within the SITAR project. On this occasion, we want to provide an update of the practical implementation of information-sharing path, regarding the choice of data licenses, the privacy protection and intellectual property rights, and in respect of the CIDOC-CRM mapping of SITAR database.

The SITAR (Archaeological Geographic Information System of Rome) has been designed and implemented by the Archaeological Superintendency of Rome, with the aim of making the archaeological data, coming from the Office’s archives, freely accessible to the public. SITAR database is now made up of about 4,000 information sources related to archaeological excavations or other archaeological studies or surveys, from which about 14,000 record of “archaeological part” have been identified, each of which represents a descriptive unit distinguished on the basis of a chronological and functional criteria.

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The study has been carried out in collaboration with the Central Institute for the Union Catalogue of Italian Libraries and Bibliographic Information (CISCEP) and the University of Padua, and in particular it intends to contribute to the definition of methods for achieving interoperability between databases, on Open Data release within Ariadne and the managing and licensing of original archive documents, i.e. grey literature, which have been digitized.
TH3-03 Abstract 09

Linked Open Data Approaches within the ARIADNE Project

Author - Dr. Wright, Holly, University of York, York, United Kingdom (Presenting author)

Keywords: ARIADNE, Linked Data, Open Data

Presentation Preference - Oral

ARIADNE is a four-year EU FP7 Infrastructures funded project, made up of 24 partners across 16 European countries, which hold archaeological data in at least 13 languages. These are the accumulated outcome of the research of individuals, teams and institutions, but form a vast and fragmented corpus, and their potential has been constrained by difficult access and non-homogeneous perspectives. ARIADNE aims to bring together and integrate existing archaeological research data infrastructures, so researchers can use these distributed datasets in combination, and in new ways. This paper will give an overview of the progress of the ARIADNE project, focussing on efforts to create a shared infrastructure into which metadata is gathered, and a portal to allow cross-search of this metadata. To this end mapping work has been carried out to facilitate searching across space, time and subjects, using Linked Open Data (LOD). This work represents LOD best practice by incorporating existing international initiatives such as the Getty Art & Architecture Thesaurus, and contributing to emerging best practice initiatives like PeriodO. As much as Late Antiquity is strictly connected to the development of Medieval Europe, so are the Byzantine and Islamic worlds. Thus, the session wishes to open a thoroughly debate on the chronologies, the historical questions, the methods, and the tools of sources archaologists use in their daily work over a period of 1500 years in Europe and the Mediterranean. In particular, the session will focus on the theoretical framework of each approach, the tools and sources, rather than single case studies, unless they are the bases of a historical model.

TH3-03 Abstract 10

ArchaeologistsEngage. Thinking Big - We Can Change Archaeology

Author - Tibbetts, Belinda, Exeter, United Kingdom (Presenting author)

Co-author(s) - Schenck, Tine, ArchaeologistsEngage, Oslo, Norway

Co-author(s) - Wapnrott, Emily, Southwest Archaeology Ltd, South Molton, United Kingdom

Keywords: Engagement, Public, Social

Presentation Preference - Poster

ArchaeologistsEngage encourages engagement between archaeologists and the public. We offer a platform for public engagement and dialogue through social media and a range of events. In January we launched Challenge 2016, an exciting call to archaeologists to undertake one new form of public engagement to improve the direct dissemination of our research to members of the public.

TH3-04 Abstract 01

Medieval archaeology in Europe. Chronologies, topics, perspectives

Author - Dr. Carli, Carlo, University of Siena, Siena, Italy (Presenting author)

Keywords: Europe, medieval archaeology, Mediterranean

Presentation Preference - Oral

Europe is a small peninsula at the western corner of Eurasia. However, its history is fragmented. There is a general agreement to consider middle ages the period between AD 500-1550, though this is only an agreement among scholars. Terms like late antiquity is meaningless in northern regions, while late Iron age is out of the time span for the Mediterranean. Coherent chronologies have been adopted in each region, but it is not easy to relate all of them one another. Terms like late different very far. Christian organisation of towns and countryside is a key issue for the Mediterranean since the 4th c. While in Scandinavia or the Slavic territories it occurs much later. The making of the medieval town has to relate with the Roman past within the borders of the former empire, while it has different roots outside it. Material culture is different too. The impact of stone architecture is different both from a chronological and geographical point of view. Literary sources are almost absent for many regions up to the Carolingians, while for others they are abundant since the late Roman age.

Thus, it seems that medieval archaeology in Europe should resign itself to be an undefined mass of data within a time span which has nothing to do with reality. On the contrary, it is clear that the end of the Roman west, the fragmentation of the Mediterranean, the emerging countries of the northern and eastern regions allowed a closer relationship even at a long distance. Muslims were in contact with the Vikings, the Saxons with the Mediterranean, people moved to trade, and not only for this. Archaeologists often focus on regional studies, while they should also stress these long distance connections.
TH3-04 Abstract 02
Islamic archaeology: theoretical and methodological issues
Author: Asst. prof. Tavaniari, Cinzia, Abdollahi Gul University, Kayseri, Turkey (Presenting author)
Keywords: Islamic archaeology, theory, methods
Presentation Preference - Oral

This contribution wishes to present an appraisal of the discipline of Islamic archaeology and to analyse and discuss its development and the current trends in the discipline.

The origins of Islamic archaeology span a little more than a century and its strong initial relationship with the history of art and monumental architecture (archaeology) to its early development; only in the 1980s Islamic archaeology could gain its independence from these fields of study and start facing new challenges such as carving its place within the field of Islamic studies and looking for common approaches with other fields of archaeology. In the last thirty years Islamic archaeology has thus witnessed a great development both in discoveries and interpretation, where the pace is now comparable to research in the scientific disciplines. From the study of the material culture and the methods of masonry archaeology to the castles of the Middle East. Islamic archaeology has also often suffered from a sense of inferiority to other fields of archaeology. The basis for this archaeological model is the site of Darband and the current modern and nationalist archaeologies. The presentations aims at identifying the influences different branches of archaeology had on Islamic archaeology and at comparing the research approach of Islamic archaeology with archaeologies from other regions and periods. One of the objectives of the contribution is also to discuss the contemporary and urgent challenges of the discipline. In fact, I believe that Islamic archaeology is essential to help build dialogues between Islamic countries and other countries, particularly Europe, and needs to be recognized as a fundamental element to achieve a comprehensive knowledge of the development of the Mediterranean zone. Finally, present weaknesses of the discipline and future directions will also be debated, particularly, I will examine the role of digital technologies in the field of Islamic archaeology.

TH3-04 Abstract 03
Ottoman Mediterranean and its archaeology between two worlds
Author: Dr. Dikikaya, Fahri, TED University, Ankara, Turkey (Presenting author)
Keywords: Ottoman Archaeology, Symbiosis, the Mediterranean
Presentation Preference - Oral

The Ottoman legacy has left a significant imprint on the social and cultural relations in the Mediterranean. The chronological frontiers of Ottoman legacy share a shared knowledge in the Levant, especially in the Levant. But, this legacy and its chronological contexts protect a local and differentiated knowledge, also. Ottoman symbiosis and cohabitation created a symbiosis between its central and peripheral clusters. The archaeological data and its distribution in the Ottoman Mediterranean indicate Ottoman policy and its colonization effects on the social and economic structures. This paper aims to discuss Ottoman knowledge and its archaeological clusters to identify Ottoman Mediterranean and its some problematic and debatable validity in the current modern and nationalist archaeologies.

TH3-04 Abstract 04
Reconciling Islamic, Byzantine & Medieval Lives through Lefebvrian Spaces at Darband
Author: Dr. Shingina, Irina, University of Oxford, Oxford, United Kingdom (Presenting author)
Keywords: Byzantine and Islamic archaeologies, Medieval Europe, Theoretical Framework
Presentation Preference - Oral

This paper seeks to contribute to the debates regarding chronological and spatial incongruities which exist between the realms of the Islamic, Byzantine, and Medieval archaeologies, and will propose a theoretical framework which helps to reconcile and integrate those fields through archaeological common ground. The basis for this archaeological model is the site of Darband in the Eastern Caucasus – the fortress that marked the frontier between the world of the Christian culture of the Late Antiquity/Byzantine Empire, the Islamic Caliphate, and Medieval North represented by the indigenous people of the Caucasus and the Steppe Nomads. Besides being a fortress and the wall built to separate the above-mentioned worlds for defensive purposes, this site is laden with deeply religious meaning and it lives on as a sacred place where people gather and display their imperial and local identities, inscribe their religious testimonies, and perform rituals and commemorative actions executed in direct and encoded forms. All these cultural activities leave archaeological traces. In order to contextualize this common ground and meeting place, I propose to look at this site through Lefebvrian Spaces, namely at the multiple spaces of representation extant at the times of Darband: “The Production of Space” by Henry Lefebvre (1991) outlines three main categories of space: perceived (physical) space, conceived (mythical, conceptualized, enclosed) space, and lived space (the space of political negotiation between all categories, including archaeological “spaces of representation”). In my paper, I will argue that this theoretical framework can be useful in order to reconcile different archaeologies at the common ground where physical space and knowledge are shared as a part of everyday life.

TH3-04 Abstract 05
Monastic Archaeology: sources and methodology in the Mediterranean landscapes
Author: Prof. Staasola, Francesca Romana, University of Rome Sapienza, Rome, Italy (Presenting author)
Keywords: Mediterranean landscape, Monasticism, Sources
Presentation Preference - Oral

The spread of monasticism is one of the most important phenomena in the medieval Mediterranean area. Here it was born and it was experienced from the architectural, topographical and administrative point of view. From the beginning of the Seventh century monasteries start to spread their influence in affecting the landscape expressing themselves as architectural complexes and actors in the agricultural exploitation of natural resources. Whole areas were reshaped according to a process that is possible to rebuild thanks to the integration of different sources. In Italy, the huge number of sources kept in the monastic archives and the static nature of the rural landscape, are the starting point for the methodological development of a monastic topography based on the integration of different written records, cartography, iconology compared with the archaeological data giving rise to a multi-layered historical perspective with distinguished and integrated levels.

TH3-04 Abstract 06
Early Middle Ages as social conflict: local communities in post-Roman Iberia and the Mediterranean
Author: Doctor Tejerizo, Carlos, Olipec, Vitoria-Gasteiz, Spain (Presenting author)
Keywords: Archaeological theory, Post-imperial period, Social conflict
Presentation Preference - Oral

In the last two decades the debates over Early Middle Ages in Western Europe have been revitalized due to two interrelated processes. On the one hand, the incorporation to the scientific research of a huge amount of new data coming from Commercial Archaeology and the resulting damage to heritage within a capitalist management in pre-crisis times. On the other hand, it has been revitalized because of the introduction of concepts such as “identity”, “religious community” or “ethnics” within archaeological and historical interpretation of the period. The renewal of identity and ethnic interpretations, almost lost after World War II, have introduced new important and interesting debates, but also recovered others, even though the discipline, in general terms, is still dominated by a kind of naïve empiricism which pays little attention to the social and political implications of archaeological data. However, as philosophers like Slavoj Zizek claim, this “ethnics revival” is not casual but closely related to the crisis of the late capitalism and used as a shield against postmodernism traumas. Early Middle Age archaeology, as a scientific field (following Bourdieu’s characterization) has not been isolated from this process and in some cases, has not only misinterpreted the archaeological record, but also has been the basis for racist politics in Western Europe. One of the consequences of this is the blurring of Early Middle Ages as a period of high social conflict among different social strata, beyond ethnic parameters. In this paper, we will try, in the first place, to make a deconstruction of some current discussions over Early Middle Ages and, in the second place, to make a social and anthropological interpretation of Early Middle Ages in terms of social conflict and of economic and symbolic adaptation of local communities, overall peasant societies, to the failure of a Roman project of World Empire. For that purpose, some concepts from Marxist and Critical Historical Archaeology (in the line of M. Leone or R. Mcguire, for example) will be used to interpret some key elements of post-imperial archaeology, using the central place of the Iberian Peninsula as a case study within the Mediterranean context. This territory has been recently analysed in a PhD research and is inserted in a Research Project on social inequalities in Early Middle Ages. Thus, domestic architecture, settlement patterns or funerary remains will be analysed within this theoretical frame, trying to contextualise but also to extraplate conclusions and ideas for other case studies.

TH3-04 Abstract 07
Beyond hierarchy: Common property rights & migration as a factor in rapid change in material culture
Author: Professor Oosthuizen, Suan, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: common property rights, governance, migration
Presentation Preference - Oral

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Sudden and almost complete changes in material culture are, in archaeological contexts, frequently ascribed to migration. An inauspicious example is the almost complete replacement of Romano-British artifacts by those from north-west Europe in many parts of England in the first few decades of the early fifth century AD.

The paper begins by offering a brief critique of current models for explaining such rapid change in which migration is given a leading role: military cohesion among migrant groups; their apparent resistance to assimilation; replacement of existing leaders by high status immigrants; and ethno-linguistic differentiation. The deliberate framing of political ideologies aimed at rationalizing territorial control. It notes that all elements of such models take a ‘top down’ view, in which access to power is predicated on status and wealth within hierarchical political structures, and where cultural change is explained in terms of leadership by an elite.

The paper moves to an alternative, experimental, ‘bottom up’ approach to investigating rapid changes in material culture. It begins with the premise that all aspects of a stable, sustainable, agricultural economy depend on property rights over land. Access to and exercise of property rights enable an individual to make a living, offer the opportunity to generate a surplus or acquire goods, and create opportunities for personal interaction with elites through tribute, gift-giving or taxation. An analysis focused on the practical management of agricultural property rights offers the possibility of a ‘bottom up’ perspective on cultural change that anchors abstractions about social relations into the everyday realities of making a living.

The argument does not discount the possibility of cultural change as a result of variations in access to resources, wealth and status whether or not as a result of migration. Nor does it challenge the existence of political and social hierarchies. It argues, instead, that the complementary contribution of collective traditions should not be neglected in explaining transformative cultural change. The paper concludes by suggesting the need for more complex, more dynamic, perhaps even epidemiological, models to explain change in the human past.

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**TH3-05 Abstract 01**

**Nature: Cultures Heritage, sustainability and feminist posthumanism**

**Author:** Associate Prof. Christina, Fredengren, Stockholm, Sweden (Presenting author)

**Keywords:** Environmental Humanities, Heritage, Posthumanism

**Presentation Preference:** Oral

This paper makes use of feminist posthumanism to outline how a range of heritage policies, practices and strategies, partly through their base in social constructivism have a clear anthropocentric focus. Not only do they risk downplaying materiality, but also a number of human and non-human others. Driving a wedge between nature and culture may in turn be an obstacle for the use of heritage in sustainable development as it deals with range of naturalized others as if they have no agency and leaves the stage open for appropriation and exploitation. This paper probes into what heritage could be in the wake of current climate and environmental challenges if approached differently. It explores how a selection of feminist posthumanisms challenge the distinction between nature/culture in a way that could shift the approach to sustainability in heritage making from a negative to an affirmative framing.

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**TH3-05 Abstract 02**

**Time, Colonialism and the Intricacy of Relational Practice**

**Author:** Professor Corneli, Per, University of Gothenburg, Västra Frölunda, Sweden (Presenting author)

**Keywords:** Americas, Colonialism, Relationalism

**Presentation Preference:** Oral

In the context of destructive and fictive colonialism, questions of interaction and relationism are crucial but also intricate and require subtle means of analysis. In the advent of European Colonialism in the Americas, the encounters is largely one of human exploitative and conflictual interaction, but also a question of humans encountering, relating to new bacteria, new animals, new vegetation. Opening for a fresh approach to these questions require a set of theoretical and methodological tools, which includes thoughts from feminist writers like Braddock. But there is also a need to critically examine certain aspects of relationist approaches, like those developed by Haraway or Barad. The general frame must allow for an intricate of time, for varied times and processual developments operating in different fields and in different spheres. Revisiting certain ideas from Marx, perhaps partly surprising, can prove productive and stimulate new approaches to questions of historical process, class and exploitation.
TH3-05 Abstract 03
Where is the Feminism in Archaeology?
Author - Tonge, Joanne, University of Southampton, Poole, United Kingdom (Presenting author)
Keywords: Feminism, Gender, Survey
This paper examines the extent to which feminist theory has been integrated into research and teaching within archaeology. Based on a study of publications and the modules taught by archaeologists who have previously published on gender and feminism in archaeology, the state of the discipline in relation to feminist theory and the complexity and problematic features of the integration of feminism into mainstream archaeology are revealed. The results show that publications which are of interest to feminist scholars are found in many academic journals, yet a notable lack of archaeological publications explicitly assert a feminist perspective. Most publications have a tendency to take either a more neutral approach found in ‘apolitical’ gender archaeology or a post-processual interest in experience, embodiment and phenomenology. Can we then assume that feminist archaeology has successfully managed to integrate into mainstream archaeological thought? Results of a survey of the profession, in particular of academics with teaching posts indicate that archaeological modules which focus on feminism in both undergraduate and postgraduate settings have now fallen by the wayside. By investigating publications of a specifically feminist or gender archaeology together with modules taught at universities across the Western academic archaeology tradition, the results of this research illuminate a post-modern trend to scrap categories and accordingly the marginalisation of those subjects which require categorisation for acknowledgement.

TH3-05 Abstract 04
Politics and archaeology in an uncaring universe, or feminism without historical binaries
Author - Professor Robb, John, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: evolution, gender, politics
This paper pursues the paradoxes which result from the collision of three facts: (a) Archaeological and historical accounts of the past are often taken as foundational narratives and laden with political meaning; following on from this, archaeologists have a responsibility to make sure that our work is used in productive rather than destructive political ways. (b) We also have a responsibility to say true things about the past. (c) People in the past were often deeply “political incorrect”, with attitudes and practices different from today’s and sometimes no doubt entirely appalling by modern standards. The prehistory of gender relations is itself one example. Archaeologists have responded to this paradox in varying ways, none satisfactory. One is by not engaging with the question of whether the past acts as a political mirror for the present. A second is by adopting a “see no evil” approach where we contemplate only positive aspects of the past. A third is to fit the past within the three traditional narratives (historical lack of change means natural inevitability, progress towards utopia, and progress towards dystopia). All of these rely upon an underlying, often unspoken rigid and distorting historical binary distinction between “us” and “them”, the modern and the pre-modern. As a counter-example, I explore a revisionist history of gender in which not only the “content” of gender but its existence and definition form is seen to evolve continuously throughout human history. A feminist approach in this case is not about championing the interests of one sector, but about exploring the possibility for difference of all kinds, including historical. The result is a narrative which both accepts the past on its own terms and which we learn what history really implies about our present and our future.

TH3-05 Abstract 05
Women and archaeology in Portugal during the 60ies of the 20th century: ‘exceptio firmat regulam’?
Author - Doctor Martins, Ana Cristina, Faculdade de Ciências Sociais e Humanas da Universidade NOVA de Lisboa, Lisboa, Portugal (Presenting author)
Keywords: Portugal, Theory, Women
Presentation Preference - Oral
In 1958, Lisbon hosted the first National Archaeological Congress. Being itself a novelty in the Portuguese archaeological panorama, this Congress has integrated other innovations, likewise a growing number of women in archaeology. Situation confirmed in the following decade, when the number of women dedicated to archaeology has been more evident. Toward that several political factors that characterized the important ‘60s, influenced largely by changes observed in culture and cross-border mentality, as witnessed young graduates Portuguese archaeologists academically in other European countries. Using methodologies of history and science and archaeology, and of gender studies, we will seek to comparatively analyze the status of women in archaeology practiced in Portugal in the 60ies. We will list, for that, names, research projects and knowledge production places. A method that will allow us to understand if the participation of women in archaeology in the country in those years, corresponded to the emergence of new research topics and ways to observe the material realities identified in the field and (apparently) absent from the archaeological record, as female ones. We intend, therefore, to realize to what extent women archaeologists contributed to the development and archaeology statement in Portugal, permitting translated knowledge networks, or not, in sharing and perpetuation of theories and methods. Only then can we recognize the existence of individual scientific independence, especially in women, or, on the contrary, the (consciously or unconsciously) reproduction of already established theoretical models.

TH3-05 Abstract 06
Bones, Stones, and Names - determining and naming prehistoric men and women
Author - Dr. Fries, Jana Esther, Lower Saxony State Service for Cultural Heritage, Oldenburg, Germany (Presenting author)
Keywords: Binary Perception, Physical Anthropology, Venus
Presentation Preference - Oral
The paper discusses by which methods and means a certain sex is attributed to the bodies of prehistoric individuals or depictions and the effects of an (early) ascription. Bog bodies, skeletal remains and cremated bones have been determined as physically male or female by physicians, archaeologists and physical anthropologists. Statuettes haven’t been named “Venus” (often) or “Adonis” (rarely) by archaeologists and historians and even rather abstract depictions of prehistoric humans have been interpreted as biological men and women. These attributions have an immediate effect on the further description and interpretation of the archaeological record. I will discuss how and why archaeologists (among others) tend to see a (biological) man or a woman in every representation of a human being and even in their physical remains. Besides that the paper examines the long history of naming (pre)historic individuals or depictions after antique goddesses or heroes. It deals with the physical and psychological characteristics that are attributed by this naming and the resulting effects on our image of prehistoric humans.

TH3-05 Abstract 07
The end of archaeology as we know it
Author - Dr. Vogel, Helga, Free University Berlin, Berlin, Germany (Presenting author)
Keywords: Ancient Near Eastern Studies, Archaeology of the gap, Function of theory
Presentation Preference - Oral
One of my favourite thinking-things are the findings unearthed by Leonard and Kathleen Woolley and their workmen in the Royal Cemetery at Ur in what is today South Iraq. The archaeological record of the cemetery (around 2500 BC) is well known beyond the narrow limits of ancient Near Eastern studies partly because of the exceptional grave goods, which still provide one important fundament of our knowledge of ‘Sumerian culture’, partly because of the mass burials the excavators came across in some special graves. To my knowledge there is probably no theoretical approach, popular in archaeology the last 20 years or so, that was not used to ‘explain’ these mass burials, often hardly noticing the actual archaeological record. Now, my on approach to make some sense of the findings of the Royal Cemetery was always very material based taking into account not only the 16 ‘special graves’ but the whole Early Dynastic cemetery (roughly 660 graves). The result is this: scarcely anything fits together and everything seems contradictory. The situation may be summed up in one statement (actually a Detroit based music collective’s motto): UR, this is Underground Resistance, unexploitable. What is the function of theory in such a situation? More than gloss over lack of knowledge? Does it make any sense, for example, to interpret the positions of dead bodies in a 4500 year old ancient grave with Foucault’s concept of ‘d’octole bodies’? Is it really satisfying to reduce human behaviour to performances of power/ submission? If we want an archaeology that actually respect ancient people, their lives and attitudes, should we not accept the resistance of the dead of UR against our access/ exploitation? Whom do we serve by producing the fantastic fantastic worlds (supported by sophisticated postmodernist frameworks) standing on test of clay (literally in the case of ancient Near eastern studies)? I strongly advocate decentralizing perspectives in archaeology. This is an ‘archaeology of the gap’ of blank spaces’ occupied by women and all other ‘subgroups’ usually not represented in the records of ancient Near Eastern archaeology [at least this is the usual attitude that one might also question]. But how to theorize the proposed approach and who will fund archaeological projects that only produce open ends and tons of questions?
Helga Vogel, Free University Berlin Email: vogelhva@zedat.fu-berlin.de.
TH3-05 Abstract 08
Contributions of social anthropology to the knowledge of the status of adorned bodies in archaeology
Author: Dr. Belard, Chiho, University of Southampton, La Roche sur Yon, France (Presenting author)
Keywords: adorned body, gender, archaeology, social anthropology
Presentation Preference: Oral

This paper proposes to present the first elements of a research project taking an interest in the visual effect of adornments, the social status of the body and gender ideology. The main issue is to determine to what extent the social and symbolic status of the body can be understood in death archaeology by means of ethnographic record. Firstly, through different ethnographic data, it is possible to observe how adornments are used to emphasise the different parts of the body according to their aptitudes and their symbolic meanings.

Secondly, the social categorisation and gender ideology related to adornments can be specified in view of social anthropology and in taking into account the notion of intersectionality. Three questions are fundamental: who are the wearers of adornments, why do they wear them and for whom? Furthermore, which aspects of adornments are used by several human groups as a medium to create social categorisation and which other aspects can be individualised? Finally, how bodies and movements of men and women can be controlled by means of adornments and to which aspects of gender ideology of each society this can be linked? Therefore, this research project aims to investigate to what extent social anthropology can allow us to better understand the bodily and symbolic use of burial adornments.

TH3-05 Abstract 09
Was there always a man and a woman?
On flexibility of sexuality in historical Islamic Iran
Author - Prof. Papisl Yazdi, Leila, Meybod, Iran (Presenting author)
Co-author(s): Dezhahami, Sasan, Maryam, University of Hesilberg, Hesilberg, Germany
Keywords: flexibility, Safavid Iran, Teimurid Iran, sexuality, bisexuality, homosexuality
Presentation Preference: Oral

Being propagated reflexively, the general image of contemporary Middle Eastern Muslim women is comprised of feministic bodies rapidly justified by the so-called Chador (veils), the ones who cry more than speak, feel more than deduct and are always fighting/to be controlled by a very patriarchal society. Such an image has been seriously produced based on a very recent dichotomy between genders, women and men. Violent dominant men/dominated women.

How much these images can be generalized to the past? During the last decade, the propagated image of Islamic sexuality has been very much challenged by historians. Referring the miniatures, sculptures and wall paintings, the performativity of gender during medieval ages can be very differently described from the recent propagated one.

Chronologically, by the entrance of Islam to historical Iran the change of the solid Zoroastrian dichotomic concept of men/women begun while afterwards the invasion of this region by central Asian Turks made bisexuality normative. Very famous pieces of literature such as Ghaboosnameh [from 10-17 centuries A.D] introduce the only real love, the love between two men or two women begun while afterwards the invasion of the region by central Asian Turks made bisexuality normative. Very famous pieces of literature such as Ghaboosnameh [from 10-17 centuries A.D] introduce the only real love, the love between two men or two women begun while afterwards the invasion of the region by central Asian Turks made bisexuality normative.

TH3-05 Abstract 10
How moral travel produces difference - telling Nuu-chah-nulth whalebone clubs
Author: Dr. Marshall, Yvonne, University of Southampton, Southampton, United Kingdom (Presenting author)
Keywords: becoming, difference, moral geography
Presentation Preference: Oral

Wilson Duff (1975: 12) opens his book images stone b.c.: “Images seem to speak to the eye, but they are really addressed to the mind. They are ways of thinking, in the guise of ways of seeing.” Duff went on to suggest that the choice of stone as a medium for seeing-thinking was a move designed to place thinking outside of time – and thereby into a world of being (cf Marshall 2000 World Archaeology). In a recent article in the Canadian Journal of Archaeology (2019), Natasha Lyons and I argued in a similar vein for an understanding of objects as spatial ‘tellings’ materialised in non-linear, non-narrative and therefore a-temporal forms. Our common point with Duff is that objects/images are arguments concerning possibilities for being and becoming, not representations of beings.

Using whalebone clubs as my forum, I show in this paper how the Nuu-chah-nulth people of Vancouver Island, British Columbia, create object ‘tellings’ (ways of thinking) which set out a moral or ontological geography. Moral travel through this geography constitutes a process of becoming which produces difference (cf Marshall 2012 Feminist Theory). Simple moral travel produces everyday life change and change. But when more fundamental transformation is sought, through engagement with great power or wealth, moral travel is demanding and dangerous. The transformative possibilities of moral travel are calibrated in effort and risk.

TH3-05 Abstract 11
Material feminisms and the question of anthropomorphism in northwest Argentina
Author: Alberto, Benjamin, Framingham, United States of America (Presenting author)
Keywords: Anthropomorphism, Feminism, Materiality
Presentation Preference: Oral

Elizabeth Grosz has argued that new ontologies are essential for new grounds of feminist politics. Anthropomorphism in ceramic forms, often encountered in archaeology, always risks reduction to only a metaphoric expression in which the substance of the thing - its materiality, its ground - is left unquestioned. An absolute divide between fleshly body and ceramic body underlies and results from such reductionism. Addressing the ontological status of sex, gender, and the materiality of bodies, as Grosz has for many years, provides new ways to conceive of different bodies and their relationships.

I bring into focus the potential for new ontologies of bodies informed by feminist and queer approaches to materiality through a study of a collection of anthropo- and zoomorphic ceramics from first millennium AD northwest Argentina. If, as Grosz suggests, difference is enacted equally through or across ‘natural’ and ‘cultural’ processes, the ceramics can be understood as materialities/bodies that share processes in common with other bodies (flesh, stone, etc) regardless of the stuff out of which they are made. Anthropomorphism then becomes less a question of resemblance and more one of marking and enacting difference.

TH3-05 Abstract 12
Foreign women – from merchandise to merchant.
The change in interpretations
Author: Dr. Koch, Julia Katharina, Lektorat für Archäologie, Preetz, Germany (Presenting author)
Keywords: gender archaeology, mobility, social construction
Presentation Preference: Oral

Grave inventories which deviate from the norm of particular cemeteries are very popular in interpretations about prehistoric social structures. Special cases are buried with imported grave goods and therefore discussed as indicators for different types of social contact and transfer. The focus of the paper is on the change in interpretations of female burials with foreign artefacts in Central European Bronze and Iron Age. In the 1960s the first perceptions of such prehistoric women in the “Högelbräger”- Bronze Age or in Late Iron Age burials near the oppidum Manching buried with foreign artefacts are combined with images of passive female roles. Influenced by a changed image of social female roles in Europe the interpretations permit actually similar Early Iron Age women an active role in trade networks around the Alps. But independent of interpretations the archaeological data are always the same - female burial with a mixture of local and non-local jewellery. So, how can we know how active or passive such women could have been as social actors in prehistoric times? This paper discusses the change of interpretation for the background of the increasing influence of gender theories in Archaeology and asks about the possibility of approximation to prehistoric realities beyond modern ideals and utopian (feminist) wishes. A further aspect of this topic is the influence of the new scientific methods like isotopic analysis on actual mobility models.

Keywords:
- Dr. Marshall, Yvonne, University of Southampton, Southampton, United Kingdom (Presenting author)
- Dr. Koch, Julia Katharina, Lektorat für Archäologie, Preetz, Germany (Presenting author)
Implementing Intersectionality: Diversity of Viking-Age Shields

Author: PhD student O. Nævreløk, Kerstin, Stockholm University, Södertby, Sweden (Presenting author)

Keywords: Identity, Intersectionality, Viking Age

Presentation Preference: Oral

This paper presents parts of my current research, in which I study Viking-age shields using intersectionality as an analytical tool. Although discussed for years, intersectionality as an archaeological analytical method is still relatively unexplored. Hence, I will outline some possible methodological implementations of intersectionality with regards to a specific research material, using shields and representations of shields as an example. I will also present some of the identity categories that are visible in the material and how they possibly intersect.

My research explores shields in archaeological contexts along with two- or three-dimensional depictions of shields, how shields are described, and in what contexts they occur in the Old Norse literature. By identifying four ‘shiel’t categories’, I explore how different shields relate to identity and social roles as well as practices during the Viking Age.

When analysing the shields with regards to identity and objects as identity markers, I aim to understand how the different shields reflect identities and practices that intersect. Using intersectionality as a multi-dimensional analytical tool for studying power and social hierarchy, by preprocessing different aspects of identity (such as gender, religion, class, etc.), I propose it is possible to identify features that overlap the material/non-material shields. Taking intersectionality as a starting point creates the potential to highlight the seemingly diverse and complex aspects of shields in the Viking Age that previously have been overlooked.

Body, scale and affectivity – reflections based on Viking Age imagery

Author: Prof. Ann-Elisabeth, Dept. of Historical Studies, Gothenburg, Sweden (Presenting author)

Keywords: Affectivity, Body, Viking Age

Presentation Preference: Oral

In feminist research, the body is often highlighted as a central node, from which various relational perspectives are organized. In this paper, the question is raised on how the situated body relates to the affective affordances of the small and the larger-than-life-sized object. Based on a case study of Scandinavian Viking Age miniature objects and rune stone imagery, the situated sensing and experiencing body will be discussed from a perspective of intersecting affective communities.

“Chercher la femme”.

Interpreting the late Iron Age record in Gaul

Author: Fleurly, Bruxelles, Belgium (Presenting author)

Presentation Preference: Oral

Late Iron age studies, by the very nature of the main written source, “Caesar De Bell Gaulico”, our modern western view of war, and periods of unrest and culture change, as well as the trend towards the interpretation of records through male directives of research strategies, mostly lead to geopolitical and economical models of culture change, and by a self-feeding process, overlook the clues enabling archaeologists to identify in the records, and therefore in future record, the missing links leading to alternative interpretations.

Indicative are the titles of the majority of classical archaeological monographs, “Le pas des legions”, “Roman frontier” (or non-defined genders given the neutrality of linguistic terms “ the god of the Celts”, “Les Celties”, “Celtic art”).

One could argue that in the process of synthesizing the new discoveries, in the long term historical interpretation, one might still easily miss the presence of females in archaeological contexts, and therefore their role in society, with implications in the long term historical interpretative framework and therefore in the building of contemporary ideology.

Individually, the status and role of females in society of a given period would rely on texts, inscriptions, figurative representations, burial types, as no indices appeared in northern Gaul UK contexts, and their tangibility in other areas, on tenous indications in earlier contexts. There, the arid nature of the archaeological witness, in a traditional interpretative schema leads to conclude that lack of evidence is proof of absence, however this is no proof of non-existence, and criteria could be inferred from wider context in order to find missing links in further research.

For the purpose of sociological interpretation, bold authors refer to classical historical records, as well as later testimonies, so that sociological discourse oscillates between myth and reality: mentions in later Celtic societies of great Britain, or poetical works, and occurrence of alternative roles, exemplified in the short episode of the revolt of Boudicca and her daughters, their subsequent destiny (and maintenance in the status of the dominated).
REVIVING THE MAKING AND BREAKING OF COMMUNITY IN EUROPEAN PREHISTORY

Friday, 2 September 2016, 14:00-16:00
Faculty of Philosophy, Room 107

Author: Bonney, Emily, California State University Fullerton, Long Beach, United States of America (Presenting author)
Co-author(s): Johnson, James, Vienna Institute of Archaeological Science, Vienna, Austria
Keywords: community, prehistory
Presentation Preference: Regular session

TH3-06 Abstract 01
A phenomenological turn in archaeological explanation: is it possible?

Author: Assoc. Prof. Tooniev, Tsani, National Institute of Archaeology and Museum - Bulgarian Academy of Sciences, Sofia, Bulgaria (Presenting author)
Presentation Preference: Oral

Archaeology borrows ideas from semiotics which in its reducitional variant sees symbolic features as passive signs that only through the acts of mind acquire social value.

To improve archaeological explanation it should be studied the logic of how individuals and communities establish epistemic relations and how they create their own ontologies. I will provide examples of prehistoric symbolic behavior based on similarities not measured in distance and time but on how people perceive things.

TH3-06 Abstract 02
The making, the breaking and the remaking of the Greek Neolithic Community

Author: Consulting Prof. Pyrgaki, Marie, Hellenic Open University, Athens, Greece (Presenting author)
Keywords: community, prehistory
Presentation Preference: Oral

This paper explores the meshworks and examines their epistemologies for identifying the Greek Neolithic Community. Community and its constituent parts were continually being made, broken and remade over the year (Amit 2002; van Veet 2008). The community acts as a meshwork for how people, things, feelings and ideas are linked by some kind of association. The last years have seen journals and conference papers with references to networks, bundles (Keane 2003, 2005; Pauketat, 2013), entanglements (Hodder 2011, 2012) and assemblages (following DeLanda 2006). This paper discusses the Ingold's idea of meshworks, Ingold (Ingold, In Lines 2007) takes inspiration from Deleuze and Guattari's idea of entanglements (Hodder 2011, 2012) and assemblages (following Deleuze and Guattari 2007; DeLanda 2006). This paper argues that these situations are more than just referential. Instead they reveal the way in which the life history of community on Crete was always emmeshed in the landscape read most broadly, and that parallel to the shifting economic and political structures seemingly centered on significant architecture there was a broader community woven into the environment. Thus when communities dispersed at the end of the Neolithic around 3100 BCE many populations affectively took with them the caves they had occupied and used for burial relocating these as built circular stone tombs or tholoi and eventually re-activating as house tombs providing the new center for social interaction. Animal vases in the tombs further attests to this linkage with nature. The gradual accretion of villages and towns in the territory around the tombs yielded at the transition into the Middle Bronze Age ca. 1950 BCE to a re-centering of populations around central court complexes accompanied by the re-assertion of the centrality of the natural world in the peak sanctuaries which arguably served as the center of a larger community that paralleled those admitted to the first so-called palaces, and associated with the increasingly urbanized tombs. Rather than fix at particular sites community on Bronze Age Crete was fluid and defined by the presence of natural features - by vistas, rocks and caves - and visible as well in the penetration of animals and birds and plants in all media. Three case studies will consider this alternative to looking at the making and breaking of communities.

TH3-06 Abstract 03
A Minoan Meshwork: Gathering the Natural World into Community

Author: Prof. Miller Bonney, Emily, California State University Fullerton, Long Beach, United States of America (Presenting author)
Keywords: community, prehistory
Presentation Preference: Oral

This paper explores the meshworks and examines their epistemologies for identifying the Greek Neolithic Community. Community and its constituent parts were continually being made, broken and remade over the year (Amit 2002; van Veet 2008). The community acts as a meshwork for how people, things, feelings and ideas are linked by some kind of association. The last years have seen journals and conference papers with references to networks, bundles (Keane 2003, 2005; Pauketat, 2013), entanglements (Hodder 2011, 2012) and assemblages (following DeLanda 2006). This paper discusses the Ingold's idea of meshworks, Ingold (Ingold, In Lines 2007) takes inspiration from Deleuze and Guattari's idea of entanglements (Hodder 2011, 2012) and assemblages (following Deleuze and Guattari 2007; DeLanda 2006). This paper argues that these situations are more than just referential. Instead they reveal the way in which the life history of community on Crete was always emmeshed in the landscape read most broadly, and that parallel to the shifting economic and political structures seemingly centered on significant architecture there was a broader community woven into the environment. Thus when communities dispersed at the end of the Neolithic around 3100 BCE many populations affectively took with them the caves they had occupied and used for burial relocating these as built circular stone tombs or tholoi and eventually re-activating as house tombs providing the new center for social interaction. Animal vases in the tombs further attests to this linkage with nature. The gradual accretion of villages and towns in the territory around the tombs yielded at the transition into the Middle Bronze Age ca. 1950 BCE to a re-centering of populations around central court complexes accompanied by the re-assertion of the centrality of the natural world in the peak sanctuaries which arguably served as the center of a larger community that paralleled those admitted to the first so-called palaces, and associated with the increasingly urbanized tombs. Rather than fix at particular sites community on Bronze Age Crete was fluid and defined by the presence of natural features - by vistas, rocks and caves - and visible as well in the penetration of animals and birds and plants in all media. Three case studies will consider this alternative to looking at the making and breaking of communities.

TH3-06 Abstract 04
Communities of death: Microarchaeological analysis of community reproduction in Bronze Age Hungary

Author: Polanyi, Tamás, Northwestern University, Evanston, United States of America (Presenting author)
Keywords: community reproduction, micro-politics of death, social discourse
Presentation Preference: Oral

Sociopolitical transformations of Central European Bronze Age were marked by the appearance of fortified settlements, long-distance trade in bronze and secondary animal products, warfare and radical changes in death rituals. In this paper I study the ways in which local communities negotiated and facilitated such broad historical changes. Challenging reproduction of communities, contradictions arose between local investments in subsistence, operational for the construction of communal identities, and distant relationships of trade and people. Emerging networks of exchange and prestige competition introduced new knowledges, wealth, and distinctive lifestyles, which created tensions within communities. Furthermore, the introduction of new materialities provided means for innovative social and political configurations by opening up alternative sources of power for the construction of personal distinctions.

In this study I will present archaeological evidence for political discourse to narrate processes that led to the slow transformation and subsequent dissolution of close-knit corporate communities in central Hungary by the end of Middle Bronze Age. Although often neglected in the analysis of social change, I argue that funerary practices offer an important insight into the life histories of communities. Here, I will demonstrate the active construction and negotiation of communities through a comparative and contextual analysis of multiple communal cemeteries. I propose a multiscalar and historical processualist approach to death rituals articulating the micro-politics of funerals and the broader historical circumstances that shaped the lives of communities.
Entanglements of pottery acquisition strategies in the Mycenaean palace at Pylos

TH3-06 Abstract 05

Entanglements of pottery acquisition strategies in the Mycenaean palace at Pylos

Author: Zeram, Pirot, Adam Mickiewicz University in Poznan; Institute of Prehistory, Poznan, Poland (Presenting author)

Keywords: Entanglements, Mycenaean culture, Pylos, Pottery production, pottery acquisition

Presentation Preference: Oral

Mycenaean economy has been a subject of numerous analysis, focusing mostly on various aspects of palatial redistribution, exchange and control system (Voutasiki and Killian 2001, Pullen 2010). The idea of the “palace”, which was supposed to be dominant in Mycenaean social and economic landscape, still constitutes the foundations of our thinking about the processes taking place in the Late Bronze Age Aegean. But in the meantime, many scholars have pointed out a clear duality in Mycenaean economy. It consisted of the “palatial” section, visible thanks to the archives of Linear B tablets, as well as “non-palatial” section, noticeable only by the archaeological remains and sporadically appearing in the archives (Shelmerdine and Palaima 1986, Bennet 2001, Knappel 2001, Whitehead 2001, Gailey 2007, Nakassis 2010).

Within the broad subject of Mycenaean economy I would like to scope only on the one particular subject of pottery acquisition strategies in the palace of Pylos, narrow the analysis only to the last period of its existence. The duality of Mycenaean economic system mentioned above, can be clearly seen and presented within that subject. The period LH II B, dated roughly to the 13th century BC (Shelmerdine 2008: 4), is the climax of Mycenaean palatial civilisation, containing most of available archeological remains. The palace at Pylos, after 300 years of development was by that time a complex, bureaucratic, administrative and industrialized structure (Wright 1986). It’s organisation and ways of controlling the society and economy were the subject of numerous papers and analyzes, approaching this extremely wide subject with different perspectives and propositions (Shelmerdine and Palaima 1986, Voutasiki and Killian 2001, Gailey and Parkinson 2007, Pullen 2010). I would like to propose a combined model based on earlier papers. The strategy of palatial pottery acquisition system will be presented as an again two-dimensional system, with two main pillars. Firstly, the pottery industry has been affected with the designation of the “royal” potter, who probably together with his co-workers or competitors listed on tablets, had become high-rank and specialized producers, cooperating with the palace, supporting the waras in fulfilling his duties and enjoying special privileges. The second pillar of the pottery acquisition strategy was obtaining all the other needed vessels through a taxation of various local workshops, existing in the town of Pylos and the internal part of the Hither Province of the state. I would like to present this model using the idea of entanglements, created by Ian Hodler (2012). Outlining the wide web of dependences, between things and humans involved in Pylian pottery industry, will help to better understand its complexity and position in the Mycenaean community of Messenia.

Creating Locality: Place and Community along a Fen River

TH3-06 Abstract 06

Creating Locality: Place and Community along a Fen River

Author: Dr. Kohring, Sheila, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Co-author(s): Boulton, Kate, University of Cambridge, Cambridge, United Kingdom

Keywords: community, landscape, locality

Presentation Preference: Oral

How do you define ‘being a local’? Often this is an intangible concept wrapped up in a sense of community identity including an intimate knowledge of your social network and immediate environment. Embedded in this is a shared understanding of the time and space you inhabit. But how do you measure these intangibles, and their influence on society? In this paper, I will draw on a current research project exploring landscape and place identity of fenland communities around the changing River Granta (Cambridgeshire, UK) and to wider reaching social phenomena over time. Both the wider ontological structures and the immediate physicality of the world interplay in this example to highlight the constantly changing sense of local knowledge, place and community.

Theoretical and methodological perspectives in archaeology

TH3-07 Abstract 01

The Place and Importance of the Working Parties & Committees in the EAA

Author: Dr. Holyoak, Vincent, Historic England, London, United Kingdom (Presenting author)

Co-author(s): van den Dries, Monique, Leiden University, Leiden, Netherlands

Keywords: EAA, Strategies, Working Groups

Presentation Preference: Oral

We would like to look at three main objectives:
• to review the practices of operating an EAA Working Group. What is the collective experience?
• to consider the overlaps in working group aims and endeavour, thereby identifying common themes
• to draft a statement of intent on future collaborative working, with recommendations to the EAA Executive Board.

TH3-07 Abstract 02

Experiences from the Farming, Forestry and Rural Land Management Working Group

Author: Dr. Holyoak, Vincent, Historic England, London, United Kingdom (Presenting author)

Keywords: common agricultural policy, European Commission, rural

Presentation Preference: Oral

The EAA/EAC Working Group on Farming, Forestry and Rural Land Management has been active now for over 10 years. Its foundation and its subsequent work have been a recognition that - not only is the European Commission more active in rural policy

TH3-07 Abstract 03

POLITICAL STRATEGIES FOR THE EAA

Author: PhD Yalman, Emine Nurcan, Cultural Awareness Foundation Istanbul

Co-author(s): van den Dries, Monique, Leiden University, Leiden, Netherlands

Keywords: EAA, Strategies, Working Groups

Presentation Preference: Oral

The recent conflicts witnessed by the world have created a range of new dilemmas for the management of cultural heritage sites, museums, cultural artifacts and so on. Working Parties are one of the core elements of the EAA to produce knowledge, strategies and propose decisions about specific issues. There are positive and negative changes happening in the world and this fast rhythm of dynamism necessitates updating in the fields of archaeological practices, interpretations, documentations and protection measures. The Working Parties and Committees have crucial role in contributing to that updating process. This form of organization enables members to express themselves, to share thoughts, and to create proposals. The outcomes of discussions within these groups are unequivocally important for the future of European archaeology. This presentation aims to remember the initial objectives of Working Parties and Committees within the EAA, what the current situation is and to discuss how to generate a network and connection between related Working Groups and how to appeal to the wider members to join these active smaller units.
than in almost any other sphere - but if we truly wish to influence the conservation of rural archaeology and the wider heritage then we must also engage with the policy makers and those who influence them. Frequently this also means working alongside groups or bodies who may have divergent or even conflicting interests. As with all negotiations, dialogue must then focus on the "art of the possible" - seeking to identify the potential for common ground. Over the past decade there have been several occasions when we wanted to speak on behalf of EAA, especially on consultations by the European Commission regarding Rural Development, Agriculture or Forestry matters. In 2010 the WG was also involved in writing a statement called "Europe's living landscapes: cultural heritage as a force for rural development" in partnership with a number of European organisations, including Europa Nostra and the European Landowners Organisation. Arguably, we have been effective in building external relationships. But it is also clear that there remains potential for closer co-working within EAA (specifically across working groups), but also with representative organisations for archaeology and archaeologists at national or Member State level. If this were also to be supported and endorsed by the EAA board there would greater opportunities still for increasing the traction of our work with external policymakers. TH3-07 Abstract 03 The working group „Archaeology and Gender in Europe (AGE)“: views on the past and to the future Author - Dr. Gustmiedt-Schümann, Doris, Freie Universität Berlin, Hamburg, Germany (Presenting author) Presentation Preference - Oral In 2009, the working group “Archaeology and Gender in Europe (AGE)” was started. It has as its area of concern the discussion of Gender issues in European archaeology, where gender is considered both as a structural element to be studied in the past and as influencing research in the present. It addresses the study and the understanding of gender arrangements in the past and the study and understanding of how current gender systems affect archaeology as an academic and professional practice.

Today AGE is a very active working group with 58 members from Europe and beyond (U.S., Iran), which is organizing sessions to gender-related topics at the Annual Meetings of the EAA. To make this sessions more sustainable, they should also be published. With this paper, I would like to give a short overview over the actions of AGE in its first 7 years. As mentioned in the round table abstract, at the Annual Meetings of the EAA is much room for the presentation and discussion of research, but mainly in an individual perspective. Working groups can organize session within their topics, but besides that there is not much room for them to present their work and communicate what they have done in the year between two conferences. The small report working groups are asked to give at the Annual Business Meeting are mostly either cancelled or shortened. Therefore, I would also like to present and discuss some ideas how the working groups can be made more visible within the EAA, which could bring them on the one hand more active members, on the other hand can promote the collaboration between the different working groups. TH3-07 Abstract 04 From Incident to Structure. Possibilities for a network of professional Associations within EAA Author - MA MSC Mark, Spanjer, SAXION, Amsterdam, Netherlands (Presenting author) Keywords: Advocacy, Political Strategy, professional archaeological associations Presentation Preference - Oral Archaeologists have power, real power. The power to inspire; the power to bind people; the power to influence; the power to address and make change. We are perceived as interesting. We, ourselves and our work have a pull on the general audience and fellow human beings. Our potential "selling power" makes the average politician and activist drool. In the past 50 years we have incidentally used our influence to protect Cultural Heritage to great effect. EAA can look back on a series of successes where it was able to effect developments to protect Archaeology in Europe. But even with this in mind, generally speaking we as individual archaeologists or even as a group feel that we are politically speaking of little relevance, or even powerless. As long as the CPAA exists the committee has discussed, in and outside our annual meetings at the EAA conference, the need to become more political active and more organized. Yes, as individuals we can achieve great results in influencing politics and decisions. But the general consensus over the years within CPAA is that we need a constant and structural stream of actions to influence laws, regulations and decision making in the field of Cultural Heritage at the seats of power in Europe. Individuals and national associations on their own will almost certainly not be able to operate with great effect on this stage. To achieve this structural influence, EAA seems an excellent possibility and "tool". In the last year it seems that the organization is moving towards a more active political role.

What would be needed to enhance EAA with a successful political machine? What would EAA need to fulfill that role? How would CPAA and other committees and working parties need to evolve to make this possible? This presentation would like to explore the opportunities for a European Network of archaeological associations with EAA as an overall body.

TH3-07 Abstract 05 Working Party (WP): Integrating the Management of Archaeological Heritage and Tourism Author - Williams, Annemarie, Amsterdor, Netherlands (Presenting author) Keywords: Archaeological tourism, Tourism Presentation Preference - Oral The aim of any WP should be to avoid overlap in sessions and create synergies between sessions with related topics; to put a certain topic the agenda of the EAA, create a dialogue amongst the EAA members and with representatives from other relevant disciplines outside the Association if we don’t want our comments to remain unnoticed in an “archaeological vacuum”. A WP could form a link to the outside world, a mouthpiece on certain topics that are important for archaeology but relevant to other disciplines as well. A WP can make connections and control the topic within the expanding organization of the EAA. It is clear that with the growing number of sessions and papers the scientific and local organizing committee don’t have a clear oversight. It would be interesting if the WP’s could form two-way bridges where information on specific topics can be brought outside our EAA bubble, and other ideas and thoughts can also reach us, always with the archaeological interest at heart.

Our WP explicitly invites participation and input from all stakeholders that are involved in archaeological tourism and strongly supports a multi-disciplinary approach. In an ideal world the archaeologist plays a central when an archaeological site is developed for touristic activities. This is however not always the case and in order to achieve change we will invite other stakeholders that aren’t EAA members to join our WP and participate in our meetings and sessions and the EAA members of this WP will take part in other conferences and prominently become part of the decision making in processes that concerns archaeological tourism.

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TH3-07 Abstract 06 Public archaeology is a martial art Author - Dr. Richardson, Lorna-Jane, University of Umeå, Umeå, Sweden (Presenting author) Keywords: Public archaeology, UK Presentation Preference - Oral Public archaeology in the UK deals with politics, power and inequalities, and aims to explore the impact of archaeology in present day social and political landscapes. Can this work in practice during a period of unprecedented cuts to government budgets covering heritage issues? This paper will explore how our work affects political decisions and whether archaeology be used as an instrument of policy and politics. Can political activism be part of our professional work, and is this ethical?

TH3-07 Abstract 07 EAA and Politics: role and potential of the non-permanent Working Parties and Committees Author - Dr. Hueglin, Sophie, Newcastle University, Basel, Switzerland (Presenting author) Keywords: Politics, Professionalisation, Working Groups Presentation Preference - Oral Apart from the scientific exchange EAA’s Annual Conference always has been also an important opportunity to discuss and engage in political topics. For groups who want to meet regularly and work on long term issues the EAA offers the possibility to form a Working Party or Committee. Currently the EAA has more than ten active Working Groups (http://e-a-a.org/working_groups.html), who meet in Round Tables during the Annual Meeting and give a short report on their activities at the Annual Members Business Meeting. Some of them even report on their Round Tables in TEA.

Working Groups are very different regarding their topics, but also in the way they work. With the EAA having increased considerably in members and becoming more professional the Working Groups should too. Here some of the most active members are still bound, but at the same time the potential of these unofficial bodies is far from fully exploited. We should discuss on very practical terms how Working Parties could contribute more to the expertise needed in the EAA Board and how they could meet effectively at the Annual Meeting, but moreover also work continuously during the rest of the year.

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The material record naturally lends itself to long-term perspectives. In few areas is this as apparent as the study of technology, which has historically been closely intertwined with the disciplines of archaeology and anthropology. But has our focus on the long-term caused us to unwittingly shape a unilinear, technologically deterministic picture of the past? And is there something to be learnt from the parts of the story which have been pruned from this evolutionist model?

The papers presented in this session will explore examples of how our pattern-seeking approaches have excluded interesting aspects of the story of the relationship between humanity and technology, and the methods by which we can restate these. We argue in favour of complexity (but not as a rule); of the little details which can enrich or subvert archaeological grand narratives, while acknowledging that the latter are also an integral part of our discipline.

This session is intended to stimulate discussion of our current approaches to the archaeology of technology, and to consider ways in which they can be developed in order to inform broader theoretical and methodological developments.

TH3-08 Abstract 01
Technology and the Arrow of Time

Author: Dr. Duckworth, Chloe, University of Leicester, Leicester, United Kingdom (Presenting author)
Co-author(s): - Gowans, Edwards, David, Universidad Nacional a Distancia, Madrid, Spain

Keywords: archaeological theory, archaeometry, technology
Presentation Preference - Oral

We argue that evolutionary assumptions are still prevalent in many areas of archaeological research, regardless of whether or not they are made explicit. While there is undoubtedly a place for such models, they can also have negative effects on our understanding of the past, driving us to frame change in a developmental sequence and omitting those parts of the picture which do not accord with this ‘single story’.

This is particularly true, we suggest, of the archaeology of technology. A key problem is that we have no clear archaeological definition of ‘technology’. In modern English, the term generally applies to the cutting edge of a given period; that is, to novel practices or products only. Longer-lived technologies, particularly those involved with animal-rearing and food production, are rarely considered in the same breath as pyncotechnologies, despite their often global impact.

Without doing away with narrative approaches altogether, we can nonetheless benefit from a more complex and thorough handling of the archaeology of technology, which acknowledges the diversity of past practices and leads us to a closer understanding of where and how the material and the social worlds meet.

TH3-08 Abstract 02
Embracing variability as a mode of analysis

Author: Dr. Kohring, Sheila, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: chain of operation, improvisation, pottery
Presentation Preference - Oral

Archaeology excels at locating patterns in the distribution of material culture and interpreting the behavioural practices associated with these artifacts. However, in order to do this, we are often required to homogenise data towards ‘norms’ that will fit macro-scale narratives about prehistoric lifeways. Often the variability underlying the complexity of social networks is ignored when, in fact, it could provide insight into the dynamics of how change at the macro-scale occurs. This paper explores how analysis of technical variability can be beneficial in assessing how knowledge is networked within communities and how it articulates with wider social and technological traditions. In particular, it uses Late Neolithic, Copper Age and Early Bronze Age pottery technology to assess how the analysis of variability (rather than the lack of variability) opens up questions on how social change occurs and becomes sedimented within local communities.

TH3-08 Abstract 03
Documenting the microscale of pottery technology in large samples

Author: PhD candidate Papaioannou, Anna, Aristotle University Thessaloniki, Thessaloniki, Greece (Presenting author)
Co-author(s): - Kotsakis, Kostas, Aristotle University Thessaloniki, Thessaloniki, Greece
Co-author(s): - Urem-Kotsou, Dukhia, Demokritou University of Thrace, Komotini, Greece
Co-author(s): - Chondrogianni-Metaki, Ani, Ephorite of Antiquities of Kozani, Kozani, Greece

Keywords: forming techniques, Neolithic technology, pottery

Presentation Preference - Oral

Regarding the forming of pottery from Greek Neolithic sites, it is broadly characterised as handmade. Apart from this general statement about the technology of Neolithic pottery, little discussion has been made of the specific shaping techniques. The poster will present the ongoing study of forming techniques on large samples of pottery from two early Neolithic sites in Western Macedonia, Greece, namely Varemnoi Goulwm and Roditi Palenba, which are dated at 6430-5670 and 6220-5900 BC respectively. The techniques are studied macroscopically, based on attributes of the vessels’ surface, section and fracture that are considered diagnostic traits of the different primary shaping practices. The aim is to explore the vessels’ building in detail within the pottery assemblage of each settlement and to compare the techniques used by the potters of the two sites. The technological traits will be compared to the common typologies of pottery based on vessel form and ware.

The study so far has shown the variability within and between the settlements in the microscale of performing the basic forming techniques, but also the common practices used in the neighbouring sites. So, the focus on the details of the shaping techniques gives us insight into the communities, enriches our understanding of the Neolithic potters and their practical knowledge, and points to a more complex picture of Neolithic technology.

TH3-08 Abstract 04
Lost and Found: The Complexity of Find Contexts and the Technology of Bracteate Breakage

Author: Prof. Wicker, Nancy, University of Mississippi, Oxford, MS, United States of America (Presenting author)

Keywords: metal technology, Migration Period, Scandinavia

Presentation Preference - Oral

Find locations of Scandinavian Migration Period (5th- and 6th-century CE) gold pendants known as bracteates are typically identified as burials or hoards. One of the grand narratives of bracteate scholarship is that mapping the find contexts leads to obvious interpretations, with earlier hoard finds in southern Scandinavia and northern Germany, and later grave finds around the periphery of this area from the island of Gotland, to western Norway, England, Normandy, and across Central Europe. However, the distribution patterns are not immutable, and single finds of these objects outnumber the find locations (not the overall number of specimens) of those recovered from burials and hoards. Dracks in the tidy categorization of find contexts have been begun to appear. In England, where bracteates are typically found in graves, a hoard was recently discovered at Binham in Norfolk. In addition, settlement excavations now complicate the picture. Some bracteates found in settlements may have been deposited purposefully, as in a posthole at Gudme, Denmark, while others may have been accidentally dropped.

In this paper, I examine the “little details” and the technology of single finds. I consider whether single finds should be regarded as (very) small hoards, too insignificant or too scattered for us to recognize as what we traditionally consider hoards, or whether they were simply dropped. Our definition of a hoard should take into account the possibility that a single object might be offersitually or hidden for safe-keeping. However, some single finds of bracteates may have resulted from the breakage of suspension loops and the chains or cords on which the pendants were suspended. Numerous single finds of bracteates have torn or missing loops, and the damage may have been either intentional for ritual reasons or accidental due to technological failure. Heavily “deluxe” bracteates undeniably cause more physical stress on pendants and their cords than smaller, lighter pieces, yet as a consequence of their ostentatious quality would be more likely to be noticed and retrieved if dropped. Damage to a bracteate might revealingly it to deposition in a hoard since it could no longer be worn in the usual manner around the neck or displayed on the chest of a deceased man in the grave. The technology of jewelry breakage – as well as the corollary of physical and emotional loss – has not been included as a part of the story of bracteates as scholars continue to focus on the dichotomy of graves and hoards. The little details incorporating the technology of manufacture and the agency of individuals confound the former simplicity of a grand narrative as we elaborate on our understanding of the past.
Untold Stories About Ancient Survey: Balbus and his “Expositio et Ratio Omnium Formarum”

**Abstract 05**

**Title:** Untold Stories About Ancient Survey: Balbus and his “Expositio et Ratio Omnium Formarum”

**Author:** Mironit, Alexandru, Institute of Archaeology, Bucharest, Romania (Presenting author)

**Keywords:** Balbus and Celsus, groma and dioptra, military survey applications

**Presentation Preference:** Oral

The paper starts from the premises that, most often, the ancient written sources were given less attention from the perspective of technical information they might provide. The details concerning the dating, geographic location and the correlation with already known historic events was considered essential and, unfortunately, most often insufficient. In addition, specialists capable to read in the original language the ancient sources might not have always been familiarized with the principles of ancient context. Due to these causes, many of the stories concerning the beginnings of technology remained untold. We might have proof that a certain principle or method were applied, but we do not know HOW. Our presentation proposes a re-reading/re-analysis of the work Expositio et ratio omnium formarum, dating most probably from the first decade of the 2nd century AD, and preserved in fragmentary copies from the 6th and 9th centuries. Taking the shape of a letter written by a certain Balbus and addressed to a certain Celsus, the work contains numerous data of topographic nature, including the mentioning of certain military survey applications. These latter ones present a particular interest. For example, the determination of the widths of a river that had to be crossed or the height of a fortification that had to be conquered “without venturing within bowshot of the enemy” (M.J.T. Lewis) led to the development of ingenious methods. Although the volume is often cited, the accent on the politico-military conjecture prevailed, to the detriment of the technical information it provided, which was neglected. Our presentation will analyze exactly these neglected aspects. We will approach Balbus’ text at three interrelated levels. Firstly, we will try synthesis all the mathematical knowledge that Balbus possessed at the time. Then, strictly based on these, we will try to reconstruct the methods and, implicitly, the instruments that might have allowed the performance of the three military survey applications that Balbus mentioned in the text. The reconstruction of the methods and instruments will be integrated in the historical context of the original text, by evoking a contemporary personality, that of Heron of Alexandria, which brought numerous contributions to the technical field, including that of topographic measurements, with his paper Dioptra. Finally, we will try to discover more about the persons behind the analyzed text (Balbus and Celsus), who, most probably, were people outside the upper classes and the governing group which traditionally provided most of the evidence that comes from literature (Brian Campbell 1996).

**TH3-08 Abstract 06**

Tin presence in Geto-Dacian silver coins as revealed by XRF and micro-PIXE – a possible explanation

**Abstract 06**

**Title:** Tin presence in Geto-Dacian silver coins as revealed by XRF and micro-PIXE – a possible explanation

**Author:** Dr. Constantinescu, Bogdan, National Institute for Nuclear Physics and Engineering, Magurele, Ilfov, Romania (Presenting author)

**Keywords:** geto-dacian coins, silver, tin

**Presentation Preference:** Oral

Geto-Dacian silver coinage - “Celtic” type starting with Philip II tetradrachms imitations – is active from end of fifth to beginning of 1st Centuries B.C. A spectacular aspect is the presence of tin in these coins starting with 1st Century B.C. It is logic to suppose that tin was deliberately and gradually introduced. The average fineness and the average weight of the issues corroborate the supposition. There is a reduction of the fineness with the time that is specific to almost every Geto-Dacian coin issue. Tin concentration in coin increased with the time - at the beginning of 1st Century B.C. It was more or less proportionally to copper concentration. This could suggest that tin and copper were used to produce silver. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A similar situation is represented by stoichiometry and, in some cases, also by reactions, for example: Cu–Sn → Cu2Sn. This means that tin was introduced in silver for the production of a better looking silver. A possible “metallurgical” explanation related to 279 B.C. Celtic Delphi defeat is discussed.

**TH3-08 Abstract 07**

“Yes! We’re all individuals!” “I’m not”: Clusters and the singular in the chemistry of copper-alloys

**Abstract 07**

**Title:** “Yes! We’re all individuals!” “I’m not”: Clusters and the singular in the chemistry of copper-alloys

**Author:** Dr. Peter, Bray, University of Oxford, Ruislip, United Kingdom (Presenting author)

**Keywords:** Chemical analysis, copper-alloys, Object life histories

**Presentation Preference:** Oral

The chemical analysis of prehistoric metal is one of the longest ongoing scientific experiments in the world. Beginning with the pioneers of organised chemistry and archaeology, around 100,000 artefacts from the European Bronze Age have now been investigated. These composition sets are typically interpreted through the lens of grand narratives: the provenance hypothesis, a broad sequence of alloys, statistically lumping analyses into groups, or simplistic routes of exchange. These schemes are increasingly at odds with current archaeological concerns such as the fine-scale performance of identity, value, and the agency of individual people and objects.

The grand narratives are beginning to become strained from a chemical perspective as well. Recent research at the University of Oxford has emphasised the subtle variations in chemical composition caused by a unit of metal’s unique story. Quants of metal can pass through a number of forms, merge with others, be reworked, used, and decorated over time. Many of these processes will leave chemical and isotopic marks that can be interpreted by comparison with contemporary artefacts. In short we are aiming to develop a system of relative chemical interpretation for copper-alloys. This paper will give a series of case studies where a fresh look at old data can reveal individual technological and social stories, within the broad sweep of European Early Bronze Age metal use. These include individual workshop choices, rare chemical signatures that demonstrate the production of small axes from recycled daggers in England, and strange local patterns that were caused by melting and recasting centuries old metal in the south of Ireland.

**TH3-08 Abstract 08**

A more efficient means for going backward? Animal husbandry as technology

**Abstract 08**

**Title:** A more efficient means for going backward? Animal husbandry as technology

**Author:** Dr. Frothtig, Ty, University of Leicester, Leicester, United Kingdom (Presenting author)

**Keywords:** Animal husbandry, Technology, Theory

**Presentation Preference:** Oral

Theoretical examinations of relationships between human and non-human animals in the past are few and far between. There is a clear scholarly focus on concepts such as “exploitation” of species, “disposal” of remains, and a generally unilinear approach to domestication. Past animal husbandry is broadly viewed as a component of agriculture, and conceptualised as temporally progressive, ever approaching an ideal economically-efficient means of production. When a trend in quantitative data fails to follow this model (as an example: a decrease in the size of cattle in Britain after the 5th century AD) it is reluctantly investigated and cultural factors may be implicated (e.g. Roman withdrawal from Britain). Whilst such factors may be partly responsible, certain types of archaeological evidence (sex ratios, mortality profiles, metrics) are employed to draw conclusions about activities and practices undertaken by a range of practitioners across a large and varied social landscape. Is it more likely that cattle became smaller after the Romans left Britain because the Britons lacked the skills to husband them in the most productive way, or that indigenous cattle breeders simply lacked the resources and connections to a network which had been available to them during the Roman occupation? Could there be other factors at work? Such questions cannot be addressed in a comprehensive and nuanced manner by comparing a few strands of quantitative data, and a more flexible theoretical approach is warranted. Technology has been part of the toolkit of archaeological thought for centuries, and does not merely equate to tool use. Manufacturing practices which leave a clear archaeological signature are recognised as technologies. Animal husbandry is no different in that it is a continuous process, a work of creation and amendment over time, which is subject to alterations in knowledge, skills, and practice. Approaching the idea of animal husbandry as a technology would allow for: the incorporation of multiple strands of evidence at different scales; a recognition of an array of activities as part of practical processes; inclusion of social, political factors such as gender, status, and identity; animals to be considered as potentially agentic; and the tantalising prospect of examining the dissemination of animal husbandry knowledge through systems of human networks.
TH3-08 Abstract 09
Digging democracy

Author: Svedberg, Stig, Kulturlandskapet, Fjällbacka, Sweden (Presenting author)
Co-author(s): -
Keywords: Cooking pits, Environmental archaeology, Sample strategies
Presentation Preference: Oral

Archaeology has been used as part of the history about the national state. Still today this story is being retold, many times uncritically. At the same time we as archaeologist must admit that we also often retell the big linear story. A mound is given higher priority than smaller more insignificant graves, a settlement area with longhouses more than a site with cooking pits but no postholes. By systematically choosing not to excavate peripheral sites, small sites, and temporarily used sites we create a history of central places and big men. This is an undemocratic way of conducting archaeology.

We propose a democratic archaeology, regarding methods, sites and people. In our scientific research programme we desist from the observation of the archaeological sites so that they can be a part of our history. This includes, for example, carefully choosing the excavation methodology, and to supplement the collection of finds with scientific analysis in order to actively search for the stories of the people that didn’t have the power to erect stones or mounds.

Before the excavation of the site Tanem 1821 a strategy for sampling the site and structures, especially cooking pits, was formulated. A sampling of the surface was performed in relation to the structures. From excavated structures the section was sampled by a continuous grid and consisted of ten to twenty samples from each structure. These samples were used for geochemical analyses, mainly phosphate, magnetic susceptibility, loss of ignition and lipid acids. These samples were supplemented by samples for macrofossil and radicarbon dating. The ratio between large and small fire-cracked stones were calculated.

By combining these analytical methods we can conclude that cooking pits are complex structures. The cooking pits on the site could be subdivided into three categories, of which one were used for processing grain. By combining these results with a landscape analysis, including other settlement sites, place names and natural preconditions, we could interpretate the site as an activity area used for the processing of grain.

The site can be interpreted as a peripheral site (now and then) but important for the society. Peripheral sites are also sites beyond control. In such a place can, for example, subversive thoughts and discussions be performed. This is sites were the activity area used for the processing of grain. By systematically choosing not to excavate peripheral sites, small sites, and temporarily used sites we create a history of central places and big men. This is an undemocratic way of conducting archaeology.

We want to tell other stories. To be able to do that we need to excavate more peripheral sites and use more diverse methods. More people of the past must be given a chance to be heard. Diversity and variety is an important part of a democratic archaeology. If all voices shall be heard we must also acknowledge them, in prehistory as well as today.

TH3-08 Abstract 10
Technological variability of pottery in long-term perspective: a case of the Neolithic settlement

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Keywords: modal mineralogical analysis, Neolithic, pottery technology
Presentation Preference: Poster

This poster comprises results of a technological analysis of pottery from the large Neolithic settlement site in Bylany, located in the Kuhna Hora district in the Czech Republic. This project is based on a complex methodology with the aim of identifying the degree of variability of the technological chains and of interpreting the relationship between the technology and social environment of the settlement. The technological variability is being examined in relation to the chronological diversity and the spatial patterns of the site.

Macroscopic analysis establishes a grid of categories into which the observed phenomena are sorted. By using this approach there will always be some specific groups of pottery. In many cases, however, we do not know the real nature of these groups. Are there different groups of pottery that reflect the distinctive technological traditions of specific chronological phases or are there only continnal variability together with one or two broad concepts regarding paste recipes? These are basic dichotomies that we cannot resolve without having the possibility to reliably quantify the differences.

The question is, what are our possibilities in regard to mapping the technological variability on a quantitative basis. The human senses represent very powerful analysers and their “feelings” can capture complexly based or subtle differences between the sensual qualities of observed objects. For validating these “feelings” we need accurate quantitative data. Standard thin-section petrography can only partially solve this problem. Semi-quantifications are either-time consuming or subjective - depending on the observer’s experience.

A possible solution to this problem lies in a new advance in scanning electron microscopy that enables automatic modal mineralogical analysis that constitutes an accurate estimation of the distribution and the volume percentage of a mineral within a thin section.
Late Neolithic settlement of Bhr, Syria. The settlement was extensively excavated by the German Archaeological Institute and represents one of the few explored sites of this period in the Northern Levant. It has a rich stratigraphic sequence which covers nearly a thousand years. So-called individual single-room houses consist of ‘special’ multiple-room buildings, singular grinding equipment with whole sets for ‘collective’ food processing, and isolated vessels with large storage rooms or buildings. The chronological sequence of the architecture and the contexts and evolution of grinding stones suggest a transition from individual to communal consumption and a possible coexistence of social behaviors related to food consumption. Furthermore, the very early production and use of pottery accentuates these processes.

TH3-09 Abstract 03
Review of social structure in the Late Neolithic through the ritual activities and related materials
Author - Dr. Erdem, Deniz, Middle East Technical University, Ankara, Turkey (Presenting author)
Keywords: Late Neolithic, Ritual, Social structure
Presentation Preference - Oral
The Late Neolithic Period is named as Halaf Period in North Mesopotamia (6000-5200 BC) and it falls between the Neolithic Transition (c.10500-7000 BC), and the Urban Transition (c.4000-2500 BC). Therefore, the time period is traditionally perceived as an important stage in the evolution of central authority and ritual and economic centralization that was the hallmark of the first city-states. The architectural structure and regional settlement patterns usually indicate a non-hierarchical organization that appears to be centered upon extended-households related through kin relations. Yet, it has been difficult to understand how these extended-household groups regulated their social relationships with other groups.

Within an alternative theoretical approach, this study reviews the space-object-person relations of the time period through analysis of the material culture, related ritual activity and settlement patterns in an attempt to draw a picture of social trends during that period. Following this, the significance of ritual activity is evaluated in context of these trends to understand the patterns of social change. At the same time, ritualized burial of artifacts, places and buildings may be a factor that prevents ‘alienation of objects’ and thus accumulation of personal or group capital. Such perceptions may have also been instrumental in the emergence of new alternatives for recording and manipulating social history.

TH3-09 Abstract 04
Food preparation, commensality and the formation of social cohesion in Late Neolithic Northern Greece
Author - Lymperaki, Maria, Democritus University of Thrace, Eleftheroupoli Kavala, Greece (Presenting author)
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Keywords: Food preparation, communal, Late Neolithic, pottery and spatial analysis
Presentation Preference - Oral
This paper focuses on the evidence for collective and domestic solidarity present in Late Neolithic settlements of Macedonia, Greece as revealed by the analysis of cooking pots and cooking facilities from two settlements, Staurotopoli (Thessaloniki) and Toumba Kremasti (Kozani). Focused on the typological characteristics of cooking pots, namely their size and shapes, in combination with the evidence of cooking facilities it is possible to define more clearly some close connections between groups or ‘households’. The use of cooking pots in Staurotopoli provide evidence for domestic production and consumption of food while in Toumba Kremasti Koliada the context of consumption of food must have been on a more public level. Subtle differences and similarities between houses underline the central role that food preparation holds in forming social ties. Furthermore, the regular presence of pottery in public consumption of food is connected to the formation of social cohesion within Late Neolithic communities. Pottery evidence, offers a powerful tool for understanding the extent to which food preparation and commensality contributes to the communal sense of belonging in Late Neolithic Macedonia, Northern Greece. The paper examines the spatial organization of material culture associated with preparation and consumption of food, as well as the close connections between groups or ‘households’. Based on pottery evidence for the preparation and consumption of food, cooking and commensality contribute to the development of a sense of belonging to a community or to smaller groups within a community. Furthermore, the location of cooking facilities in relation to houses will be taken as an indication of the role of the preparation of food in forming social relationships. Pottery, including cooking pots, and evidence of public consumption of food will be used to illustrate how eating could have contributed to the formation of social cohesion within Late Neolithic farming communities.

TH3-09 Abstract 05
Social cohesion among Tripolye populations: evidence versus hypotheses
Author - Dr. Dzianchenko, Aleksandr, Institute of Archaeology of the NAS of Ukraine, Kyiv, Ukraine (Presenting author)
Keywords: settlement hierarchies, social cohesion, settlement structure, household
Presentation Preference - Oral
This paper examines the evidence and hypotheses regarding social cohesion among Tripolye populations, discussing social interactions at the following spatial tiers: house and household, settlement, micro-region, region and supra-region. In this respect emphasis is placed upon Tripolye site hierarchies and settlement structures.

TH3-09 Abstract 06
The importance of collective aspects in megalith building in Neolithic Europe and recent Indonesia
Author - Wunderlich, Maria, Christian-Albrechts University Kiel, Kiel, Germany (Presenting author)
Keywords: Funnel-Beaker, Megalith building, Social Cohesion
Presentation Preference - Oral
One challenge of research connected to megalithic monuments is the inclusion of the concept of social cohesion into the social interpretation of given examples of the 4th and 3rd Millennium B.C. throughout different parts of Europe. Funnel-Beaker societies in Northern-Central Europe are providing a rich base of megalithic tombs, with a number of several thousand monuments built in the modern areas of Germany, the Netherlands, Denmark and Sweden. Megalith building traditions can be found in a number of archaeological, historic and recent societies scattered over Europe, South America, Asia and Africa. One of the last remaining places with a recent tradition of megalith construction is the island of Sumba in Indonesia. This ethnographic case study shows how collective efforts in building practices are shaped by and vice versa are influencing the social structure of communities. In this regard, also feasts play an important role. While there are mostly no social restrictions in the access to grave types, the distribution of graves and of their size show some clear patterns, with the anthropological case study and the archaeological test region in South-Eastern Schleswig-Holstein and North-Western Mecklenburg-Vorpommern suggest, that collective efforts are very important in monument construction. Based on the grave sizes, the required amounts and resources (e.g. workforce) for building might have been extremely high. Depending on the population of the settlements, cooperation between different settlements or communities must be seen as an important factor. An active use of such monuments for the display of status and economic success of individuals and a group as a whole are reasonable and important aspects. Possible principles of megalith building and the mechanism influencing it are analysed with regard to the collective character, which is reflected by different aspects of this specific tradition. The high economic expenditure, the ongoing reference to the monuments in connection with feasting activities and collective aspects indicate importance in the preservation of a felt sense of group membership and community structures.

TH3-09 Abstract 07
The Boyne Valley, eastern Ireland – the epicentre of a Neolithic ‘super-ordinate’ identity?
Author - McNeish, Thor, NUI Galway, Galway, Ireland (Presenting author)
Keywords: Bronze Age, Neolithic, Social cohesion
Presentation Preference - Oral
This paper explores the importance of the Boyne Valley Co. Meath, eastern Ireland in the construction and negotiation of group identities in the late 4th and mid-3rd millennium BC. The construction of substantial passage tombs at Dowth, Knowth and Newgrange indicates the potential significance of the Boyne Valley in the conception and mediation of large-group identities during the Middle Neolithic. It will be advanced, that the sources of materials utilized in the construction of these monuments and the distribution of contemporary sites across eastern Ireland provide information about the scale and geographical extent of the groups involved in these construction projects in the later 4th millennium BC. The act of building will be considered from the perspective of strengthening group cohesion prior to the occurrence of large-scale gatherings at calendarically significant times of year. Evidence for Late Neolithic Grooved Ware associated feasting at Newgrange confirms the continued significance of the Boyne Valley in the constitution of large-scale group identities during the mid-3rd Millennium BC. An overview of evidence supporting the theory that large-scale winter solstice associated feasting took place at the site will be presented. A working hypothesis about the phasing of the activity will be outlined and estimation of the numbers involved in feasting at the site will be advanced. The significance of different scales of feasting event will be considered, and finally, the importance of calendrically scheduled winter solstice gatherings in the reinforcement of group identities will be discussed.
Building and Burying Together to Stay Together

Author - Prof. Miller Bonney, Emily, California State University Fullerton, Long Beach, United States of America (Presenting author)

Keywords: collective, Crete, tomb

Presentation Preference - Oral

This paper argues that the construction of collective tombs at the beginning of the Bronze Age on Crete constitutes an example of building and burying to effect social cohesion. At the end of the Neolithic the early population of Crete dispersed across the island, yet evidence for durable settlements dateable to this period, with the exception of the major sites of Knossos and Phaistos, remains scarce. Rather the social cohesion of these clusters of people was promulgated through the construction of monumental collective tombs. With diameters of at least five meters the tombs were built of massive boulders the collection and transport of which to the site of the tomb required collaboration and social organization. The first tombs, which would have looked more like mounds than the cylindrical structures often portrayed in reconstructions, evoked the caves in which the Neolithic population lived and buried their dead and some of which remained in use during the Early Bronze Age. Having relocated to areas which lacked caves - and particularly to the south central part of the island - the settlers recycled their places of origin as a means of maintaining social unity. Although some have argued the tombs were built for the elite, burial goods were relatively modest - two to three pieces of pottery and perhaps a personal item - and the overall impression is that the mortuary practices were intended to bind the community together. There is no evidence in these early tombs for any individual receiving special attention. Instead it appears that every member of the group received the same treatment at the time of internment – deposition on the ground accompanied by a few objects. Bodies piled up over time, the desiccated remains swept to the side and locks selected while the rest were removed. Some 400-500 years after the tombs were constructed the population finally constructed more substantial settlements that nevertheless remained visually proximate to the cemeteries which continued to serve the role of enhancing social cohesion. This role persisted throughout the Early Bronze Age as the emergence of a more robust built environment evoked the addition of anterooms to pre-existing tombs and the construction of more architecturally defined new tombs. Only the emergence of a supposedly palatial culture at the transition into the Middle Bronze Age supplanted these tombs as an important mechanism for social cohesion.

Looking for a spa? A social cohesion at Santovka – case study

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Keywords: religion, Slovakia, springs

Presentation Preference - Oral

Santovka (formerly known as Magdrevoce) is an Early Bronze Age - tell type settlement at southwest Slovakia. It is surrounded by thermal springs which are famous for their salubrious qualities. An ongoing excavation project (2012-2018 with 8 excavation seasons) uncovered a medium-sized fortified site, with exceptionally high number of prestigious artifacts of exotic origin and clear evidence of extensive metalworking activities. Ceramic production and consumption is pretty much heterogeneous, with predominant elements of so-called marebore, encrusted wares and otomani culture ceramic traditions. The character of uncovered finds as well as geographical position of the site suggests, that Santovka was a place, where identities were to merge, transform as well as maintain their distinctive character. These processes were obviously dependent of proper social cohesion. We therefore welcome the topic of this paper, because we believe, that Santovka offers a nice example of a site, where theoretical models related to subject of social cohesion could be studied and applied. We suggest, that local thermal springs were a natural place of healing (solidarity) as well as religious (social integration) qualities and therefore of a supra-regional importance. If we accept the feasting as a background for social cohesion on subconscious level, than other shared ritualized activities are not so different. Moreover, exploiting hunting and grain storage could play a similar role. In this paper we will present the link in context. Our methodology for studying social cohesion will be based on theoretical models influenced by studies of R. K. Merton and his followers. We will use these models for postulating hypothesis based on artifacts and observed archaeological events and environmental conditions.

Collective harvesting at Százhalombatta-Fődör, Central Hungary: a material cultural perspective

Author - Halbrucker, Éva, Leiden University, Delft, Netherlands (Presenting author)

Keywords: Bronze Age Hungary, harvesting, sickle blades, chieftain, power-centre, collective activity, social relations

Presentation Preference - Oral

Investigating the sickle blades of Százhalombatta-Fődör yields information on social relations as they show harvesting to be a communal activity, carried out in the power-centre of the Bronze Age chieftain of the Barta valley. Százhalombatta-Fődör, Central Hungary is a Bronze Age tell settlement along the middle stretch of the Barta river. Bronze Age in Hungary is the period between 2800-2700 BC and 800 BC. From this period, Százhalombatta represent 2000-1400 BC. This archaeological site has important role in the research of Bronze Age in Hungary – and abroad. The excavation of the Early Bronze Age fortified settlement is carried out within the framework of an international programme that was set up in order to examine the differences, similarities and connections between three different regions of Bronze Age Europe. Százhalombatta-Fődör, due to its size and geographical position, can be considered the head of the Bronze Age chieftain in the Barta valley, according to the model proposed by Earle and Kristiansen (2010). However, detailed research of the site itself is challenging this view. Comparisons of the material culture with other sites show little indications of a difference in social hierarchy within each site. Hence, instead of political differences, they might be economical.

Sickle blades are common finds at the site of Százhalombatta-Fődör, where they are the main chipped stone tool type during the last major occupation of the settlement (1700–1400 BC). However, sickle blades are rare finds in other Bronze Age sites from the valley (Priskin 2014). This information suggests harvest was a centralised communal activity controlled by Százhalombatta-Fődör. Theyre, harvesting (and sickles) could have been organised among social relations, and could help to keep alive these associations.

The studies on Bronze Age Italy have underlined the existence of differences in the apparent social homogeneity of communities. The terramara society has been singled out as an example of social cohesion and homogeneity, thanks to its regular settlement pattern and repetitiveness of house sizes, but also to its “economic” funerary representation and to the widespread infrastructure investment in water channels and fields, as well as in material culture. On the contrary, Southern Italian communities have been described as more hierarchical and socially divided communities, exposed to the Mediterranean wind of inequality coming from the Aegean and the East.

Anyway, the patterns of social disintegration in reaction to the Late Bronze Age crisis show that the collapse of the terramara system was more radical and extreme than the limited rearrangement suffered by the Southern Italian societies.

It can be suggested that solidarity, identity and cohesion are indeed patterns linked to dynamic structures of power, strongly relying on a non-contradictory expression of power, which likely has its strength in a fait accompli structure of power.

Anyway, it is also interesting to destruct the view of (ancient) societies, in order to understand how far our research traditions have fossilized our understanding of the past.

Collective harvesting at Százhalombatta-Fődör, Central Hungary: a material cultural perspective

Author - Halbrucker, Éva, Leiden University, Delft, Netherlands (Presenting author)

Keywords: Bronze Age Hungary, harvesting, sickle blades, chieftain, power-centre, collective activity, social relations

Presentation Preference - Oral

The inherently, literally built-in segregative nature of Mycenaean palaces as the seats of political authority and the role of palatially organized feasting have been key topics of Mycenaean archaeology for the past two decades. The proposed paper seeks to further question the limits of the means to enhance it is suggested as a possible key strategy, ideally leading, from the palace’s perspective, to what might be termed ‘a competitive conformity’ of the ruled. Following a discussion of the nature of prestige, potential visual elements of every place organized by and/or associated with the palace are sought as possible correlates, i.e. physical and/or visual evidence, of such a palace-fostered discourse. Specific attention is paid to such potential elements which transpose iconicographic themes closely associated with the sociality exclusive architectural setting of the palace itself, e.g. themes in the canons of palatial wall-paintings, into different media and media of different degrees of exclusivity. Possible case studies include drinking vessels, chariot and hunting iconography as well as depictions of antithetical felines and griffins.
TH3-09 Abstract 15

Social cohesiveness as concept of habitus through the lens of archaeological record

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Co-author(s) - Uhl, Regina, Eurasia Department of the German Archaeological Institute, Berlin, Germany (Presenting author)
Keywords: 3rd Millennium, habitus, social cohesion
Presentation Preference - Poster

Social cohesion can be expressed, created and maintained through a variety of ritualized (and/or) performative events which can respectively involve different group constellations that constitute society. Following Bourdieu’s concept of fields and habitus, we choose to focus on the entanglement and juxtaposition of different group identities at different levels, expressed through distinctive sets of material culture and features. Our experimental approach shall be applied to various case studies of the 3rd millennium BC in Europe from a cross-border macro-level to a multitude of local micro-scale units.

TH3-10 Abstract 01

Linear Pottery houses and their social context

Author - Dr. Zych, Renata, Biegłowa Tyczynska, Poland (Presenting author)
Keywords: houses, Linear Pottery, society
Presentation Preference - Oral

The population of Linear Pottery culture constructed stone houses in a rectangular fashion. They were not only in large settlements, but small settlements as well, consisting of one house and few related utility features. The construction of the houses was noticeably uniform. The architecture of the houses depends on technical ability, but also on the cultural traditions of a given social group. The house is suited to people from that particular group, and therefore must materialize the group’s common thought images that form the basis of its identity. Outlined here is the problem of the house as a phenomenon of forming society. Subjects of study include Linear Pottery houses in the territory of Poland.

TH3-10 Abstract 02

Ancestral Homes: Household Biographies in Late Iron Age Scotland

Author - Dr. Baxter, Lindsay, University of Bradford, Halifax, United Kingdom (Presenting author)
Keywords: Biographies, Iron Age Scotland, Roundhouses
Presentation Preference - Oral

This paper presents the results of biographical and materiality approaches to the study of a group of well-preserved Late Iron Age houses at Broomhill in south east Scotland. The roundhouses display a variety of different forms and fabrics, and indicate the idiosyncratic nature of buildings which were far more than a passive backdrop to everyday life. Certain of the roundhouses, particularly those constructed in stone, demonstrate frequent and unusual developmental sequences and complex life histories, which were punctuated by special deposits. These modifications took place in a general context, and appear to have been concerned with the renegotiation of household identity with relation to previous generations and ancestors. Furthermore, the referencing of certain special deposits by others laid down several centuries later suggests the presence of...
TH3-10 Abstract 03

Household Archaeology in a small scale house in an early byzantine settlement

Author - M.A. Steinborn, Miriam, Römisch-Germanisches Zentralmuseum Mainz, Mainz, Germany (Presenting author)

Keywords: Byzantium, Excavation, Household

Presentation Preference - Oral

The early byzantine settlement of Caricin Grad in southern Serbia can be identified with the imperial city Justiniana Prima known from De Aedificiis of Procopius which existed for merely 90 years. Without any marks of earlier or later occupation, the excavations provide undisturbed insight into everyday life in the 6th century. Excavations in Caricin Grad take place since 100 years. The early campaigns concentrated on representative buildings like churches, while the emphasis nowadays is on the living quarters. Considering the concept and methodology of Household Archaeology, one single room house was excavated in 2014 and 2015 in high resolution with integration of archaeobiology and soil science. The finds indicate a habitational function. The interpretation of the building bases on the results of interdisciplinary research. The simple configuration of the house and the multiplicity of potential types of use in a single room structure challenge the examination. It raises the question whether it was a complete household or not. This is the crucial point where field work and the theories of Household Archaeology come together. Working with an elementary constructed house and a few objects connected with specific activities restrict the possibilities which houses with many rooms and outdoor-areas may provide. Therefore the preliminary results of the excavations will be discussed from the perspective of Household Archaeology.

It is necessary to examine the activities in- and outside the building to understand the function the household fulfilled in the settlement. This house and the people who belonged to an average or low social stratum. Taking their perspective on the settlement raises the question of their mentality and their everyday life. The household can be seen as the place where social roles are negotiated and thus as a social landscape which reflects the mentality of the dwellers. The analysis of installation and furniture helps to understand activities carried out in daily routine and how the domestic space may be used. The observation which things were left behind or even don't appear in the archaeological record allows statements about the end of occupation. Life in Caricin Grad took place in a time of far reaching cultural change. Written sources provide little insights in the situation of common life. In combination with the archaeological record they allow to delineate the possibilities of household- organisation for a specific historical situation.

The talk will examine if it is generally possible to work with the household concept if there are unspecific structures or if it is rather necessary to apply it to gain more information. With regard to cultural formation processes this also raises the issue to the possibility to depict pauperism archaeologically. For this purpose it will present the archaeological remains of a specific small house and compare it with the normal course of life in early Byzantium known from historic tradition.

TH3-10 Abstract 04

Pottery as personal belonging in a Clarisses convent in Vilnius

Author - PhD student Urbanaitė-Ubi, Miglė, Klėpėda University, Klėpėda, Lithuania (Presenting author)

Keywords: historic archaeology, household, pottery

Presentation Preference - Oral

Pottery is the most common artefact in excavations of historic sites. Due to vast number of fragments pottery is often identified as mass artefact. Nevertheless, some early modern period pottery in Europe can be associated with personal needs and usage. Pottery with scratched marks such as initials, religious abbreviations, letters or numbers or undeciphered scratches are found from Netherlands and Germany. These marks are assessed as a personal sign of the owner. Most of these marked pottery fragments are uncovered from monasteries and convents. This fact leads to an interpretation that nunns and monks possessed their own ceramic dishes while in most cases private property was forbidden. In a convent of Clarisses in Vilnius Old Town (Maironio street 11) 10 fragments of marked ceramic dishes from the end of 17th to beginning of 18th century were uncovered during the excavations in 1994 and 2007. These dishes had only marks of letters which were identified as initials of the nuns. Historic data of this convent allowed to identify few names and some initials were associated with two or more nuns.

It is known that no personal property was allowed in this convent as well as leaving the territory was also forbidden. This convent can be assessed as a private household with its own specific rules and domestic life. While no personal possession was allowed the presence of marked pottery is intriguing. These fragments can be interpreted as personal belongings. Dishes could be used for personal hygiene rituals or as a prevention of infectious diseases. There is also a possibility that some nuns had their specific diet requirements and some of the dishes could have been used for serving them food.

TH3-10 Abstract 05

House and Household – an archaeological approach

Author - PhD Tagesson, Göran, Swedish National Museums, Linköping, Sweden (Presenting author)

Keywords: early modern period, household, houses

Presentation Preference - Oral

The household is commonly identified as a fundamental element of social organization in past times. In archaeology, the household has often been regarded as an essential level of research, in order to bridge the gap between grand theories of cultural change and the practical archaeology on the ground. Theoretical discussions as well as analyses based on empirical observations now tend to take place in dynamic interactions where the household is understood not only as a specific social structure, but even as something much different from a specific social structure. New approaches tend to combine social organization and agency with spatial and material dimensions. The household as a unit for organizing property, production and consumption is confronted with the household as ideology, discourse and manifestation. The relationship between the physical house and the household as a social unit is no longer evident and has to be discussed.

In my paper I will discuss the possibilities to combine a vast bulk of archaeologically documented urban buildings from the 17th and 18th centuries in Kalmar, Jönköping and Linköping with detailed accounts of the households, the owners and the inhabitants. The relations between the households will be analyzed in comparison with the building structures within a theoretical framework of actors and agency. The main focus is how to develop the analyses and understanding of households as function and structure in past times, and the relationship between houses and households, as for example through deeper cooperation between historians and archaeologists.

TH3-10 Abstract 06

Houses, households, and workshops in early modern Swedish towns

Author - Prof. Lindström, Dag, Uppsala universitet, Uppsala, Sweden (Presenting author)

Presentation Preference - Oral

The historiography of the early modern household typically identifies the household as a well-defined and coherent unit of social organization, co-habitation and work. Recently more open and varied approaches towards house, family and household have been introduced. Interaction, permeability, and variation appear as important dimensions.

Relating to these new approaches and considering the material structure of houses and town plots, this paper discusses the organization of living space, households and work space in early modern Swedish towns. More precisely, it focuses on artisans households. It has been maintained that in early modern society the scene of labor was commonly the home, and that it was the development of wage labor that enforced the separation of work and dwelling. Concerning artisans, it is often taken more or less for granted, that artisans workshops in early modern towns were located in direct connection with their homes.

Evidence from 18th century Swedish towns displays a huge variation in size and structure of artisanal households. When the retrospective of cobation is combined with information about the spatial structure of houses and plots, complicated and varied patterns of social organization and social interaction appear. Analyses systematically combining information from written sources and archaeological evidence about artisans and workshops furthermore demonstrate a less evident connection between residence and workshop. These observations provide a more elaborated discussion on how we conceptualize what a workshop is.

TH3-10 Abstract 07

Single households and the meaning of household in 18th century Sweden

Author - PhD Student Panu Savolainen, Finland (Presenting author)

Keywords: household, towns, space

Presentation Preference - Oral

The concept of household is, despite its evident meanings of our everyday reality, enigmatic for historians and archaeologists. What ‘household’ or related terms meant in times past, or how various demographic sources or material settings of archaeological sites represent or reflect the past domestic everyday life? My paper tackles the issue from the standpoint of single households (household that comprises of only one person). Single households appear in the poll tax records of the town of Turku (Suomenkaupunki) in 1775 as the most common category of households. How often single households, however, lived in spatial terms ‘alone’ or formed an independent economic unit? Or more generally, how the administratively defined ‘household’ represented the reality of domestic everyday life?

I answer these questions using lower court (Suomenkylänkäärä) minutes, where the everyday patterns of domestic life and space often emerge in the testimonies. The comparison of the court records to the poll tax records (or censuses), offers interesting glimpse to understand, how the administratively defined households and individuals used the domestic space. Were single households really single, or did they share there spatial precincts with the adjacent households? Finally, the case-studies concerns wider questions about the question, how historians and archaeologists should handle the concept ‘household’: to define it from the modern premises, to try to trace the historical formation of the concept, or to put it aside?
TH3-11
ARCHIVES AND ARCHAEOLOGY – SOURCES FROM THE PAST, TOOLS FOR THE FUTURE

Saturday, 3 September 2016, 09:00-18:30
Faculty of History, Room 331

TH3-11 Abstract 01
Renovating practices in the history of archaeology
Author - Prof. Díaz-Andreu, Margarita, ICREA, Universitat de Barcelona, Barcelona, Spain (Presenting author)
Keywords: archives, history of archaeology, methodology, archives and archaeology
Presentation Preference - Oral

In this paper I will analyse my own experience of working in archives. I have been researching in archives on and off since 1995 and the experience gathered over the years has allowed me to refine several data compilation techniques. I have found that checking and cross-referencing the information I have gathered from archives over the years is one of the most challenging tasks. In a few cases, however, I have realised that looking at archives was not only a question of new methods, but also of how questions were posed. Initial questions had to be revised to be able to use the considerable potential of the newly found documentation. In my own research on how politics influences archaeology I found that most of the time the answers were much more complex than initially expected. Working with correspondence, for example, allows researchers to get a much more intimate knowledge of the individuals under study than with any other method (with the exception of oral history, which is only possible for most recent events). However, this privileged position makes us aware that overarching ideologies are put into practice in banal ways that are sometimes not easy to detect. I will illustrate my talk with examples from my own research in the archives of correspondence relating to archaeologists such as Gordon Childe, Christopher Hawkes and Luís Pericot.

TH3-11 Abstract 02
Archaeological archives – A deconstruction
Author - Frydenberg, Hilde Sofie, Museum of Cultural History, University of Oslo, Oslo, Norway (Presenting author)
Keywords: archaeological archives, archaeological processes, theory of science and methodology
Presentation Preference - Oral

In this paper, I propose a critical examination of the archaeological archive. Using my personal experience as an archaeologist working in the archives at the Museum of Cultural History in Oslo as a point of departure and a case study, I intend to explore the concept of the archaeological archive from two different angles:

1. In archaeological research, archaeological contexts are always being interpreted with a conscious and reflective view on past research paradigms and history of science. Archaeological practice however, is very rarely subject to the same meta-archaeological scrutiny. Nevertheless, archaeological archives are historical artefacts with complex conditions of production, which, in the same way that archaeological artefacts can be read and interpreted as remnants from prehistory, can be read and interpreted, both as a historical source for the context and provenience of archaeological artefacts, as well as remnants of the theoretical and societal circumstances and conditions that have, in different ways, influenced the archaeological processes.

2. What has changed and has not been documented and kept in the archaeological archives is a product of changing paradigms and selective memory, whether conscious or unconscious. Even so, because of the destruction and displacement caused by an archaeological excavation, the original documentation is the closest we will ever get to the original situation, and archaeological archives, in general, will offer a description of how and why it came into being. From the point of view of research, an archaeological archive will also be the least biased source of information, as every re-interpretation adds a new layer of preconceptions.

TH3-11 Abstract 03
History of the Museo Nazionale Romano: arrangement and management from the beginning to the 1930s
Author - Pietroletti, Irenne, University of Rome Tor Vergata, Roma, Italy (Presenting author)
Keywords: Museo Nazionale Romano, Terme di Diocleziano, museology
Presentation Preference - Oral

Through research in various Italian archives, it is possible to reconstruct the history of the first national museums of Rome in the nineteenth and twentieth centuries. Some collections of documents (like those of the Archivio Centrale dello Stato) allow us to understand the institutional events that the museum experienced in the course of its life. Some archaeologists (like that of Falco Bambaki, preserved in the Palazzo Venezia in Rome) contain personal correspondence that enables us to draw a profile of the scholars who directed the museum in different periods. Lastly, the photographic archives permit us to reconstruct an idea of the arrangement of the museum exhibits over the years.

The National Roman Museum was founded in 1889 when, in the climate of nationalistic pride that followed the unification of Italy, the new government decided to bring Rome to the level of other European capitals, providing it with a large state archaeological museum, which could compete with the famous collections of the Vatican and Capitoline museums and with foreign public museums. In addition to this intention, there was also a practical problem: finding a shelter for the thousands of finds that the digs put in place for the redevelopment of Roma Capitale progressively brought to light. The choice of where to build the museum fell on the Terme di Diocleziano, an archaeological environment of exceptional importance in the heart of the city, which however revealed its limits quickly. The legal status of the Baths, which was partly in the hands of private owners, and the areas unsuitable for exhibition of the works created enormous difficulties in the life of the Museum. The directors who took turns dealing with its management attempted large restoration projects to transform the archaeological ruins in the exhibition, but the technical difficulties and the lack of money prevented the realization of various projects. In this difficult situation, ordinances and arrangements of materials representative of the cultural climate of the different eras were proposed: from the environmental museology to the rhetoric and grandiose exhibitions set during the years of fascism. The archival material sheds light on the facts and character of a season that is emblematic for the creation of legislation for the protection of antiquities in Italy.

Furthermore, part of the research is dedicated to the heritage of the museum. I have digitally studied the inventories of the Museo Nazionale Romano, preserved in the scientific archive in Palazzo Massimo. As a result of this work, I have created a database that collects information about the provenance and excavation context of some 35,000 artifacts. Diagrams that analyze these data enable the study of the chronological evolution of the museum’s heritage and the reconstruction of the history of archaeological excavations in Rome during the late nineteenth and early twentieth century. This part of the research represents another possible use of the archival data to enrich a reconstruction of the museum’s history.
In this paper I want to develop a very simple linear line of thought about the significance of the archives and archival documentation. In one of his papers James Dzietz proposed that archaeological documentation, field reports and similar works should be treated as archaeography as seeing that they stand in a similar relation to ethnography as ethnography does to ethnomology. One could push this idea further and claim that archaeography, description of the artifacts, and not the artifact itself is the source of archaeological research. During fieldworks artifacts are collected, measured, described and interpreted, and only the result of this process and not the excavated object could be called an archaeological source. Site and artifact documentation published in various reports and papers is then applied to other papers and the process is repeated indefinitely. Adopting this notion should switch scientist attention to the archives as they hold not only the aforementioned sources, but also artifacts-objects, and thus provide the only context for reconstructing excavation process and reference point for the discourse. The nature of archaeological site allows full contact with the artifacts in its context, but as a price of being confined to the excavated area, so that the view upon explored culture or community is restricted only to the actual size of the site. Any additional information is obtained via archival sources, which makes properly maintained archives one of the most important factors for conducting studies. In my paper I will explore this inductive nature of the research by presenting the possibilities enabled by the introduction of joined archives for Greek painted pottery. Focusing on their main features like standardization of documentation, accessibility and others I will discuss benefits and drawbacks of archive-based research.

Archaeology and the archive occupy similar metaphysical space. Both are regularly invoked as specific modes of historical thinking (consider, e.g., Foucault 1969, Derrida 1999, Oliver 2008), not only for their cultural resonance but also for the particular practices that underlie both archaeological and archival work – preservation, organization, and so on. And recently, both have been portrayed as (more or less intentional) materializations of memory, as palimpsestic accretions, as memory practices (see, e.g., Lucas 2012, Shanks 2012). That archaeological practice quite literally entails the creation of an archive – that the archaeological process involves collecting, selecting, organizing, and preserving materials – will not be surprising to any of its practitioners. But, despite archaeologists’ familiarity with the archiving of archaeology – as palimpsestic accretions, as memory practices (see, e.g., Lucas 2012, Shanks 2012), that archaeological practice quite literally entails the creation of an archive – the archaeological process involves collecting, selecting, organizing, and preserving materials – will not be surprising to any of its practitioners. But, despite archaeologists’ familiarity with the archiving of archaeology – as palimpsestic accretions, as memory practices (see, e.g., Lucas 2012, Shanks 2012), that archaeological practice quite literally entails the creation of an archive.

TH3-11 Abstract 06
Archives and Archaeological Economy
Author: Gomes, Sérgio, Porto, Portugal (Presenting author)
Keywords: archaeological economy, archive
Presentation Preference: Oral
The concept of the archive came to me at different moments whilst I was investigating archaeology under the Estado Novo dictatorship in Portugal (1933–1974). In this research, I experienced archives “as a source” and “as a subject”. They were “a source” in the sense that archives were the “places” where I could find the raw materials to develop my work. They were “a subject” because, in picking up and ordering documents, I was constructing a “landscape” through which I was setting a research path: a “landscape” offering me clues and suggesting directions I hadn’t envisaged at the outset. This exploratory way of working was questioning me, led me to read Jacques Derrida’s Archive Fever (1998) to try to understand this experience. Derrida shows us the archive as a place of two principles: the principle of commencement, since the archive is the place of physical, historical or ontological origin; and the principle of commandment, because the archive is also the place from which laws are exercised. This made sense to me because I was experiencing archives both as a source and as a subject, a place of “origins” (of documents) and “laws” (to re-organize my research). But, more importantly, with Derrida’s notion of the archive, I realized how this experience of using archives in doing “history of archaeology” was so close to the experience of doing archaeology itself, and how Derrida’s work could be read while thinking about the conditions under which we do archaeology. This perspective on Derrida’s work became clearer after reading David Lucas’ Understanding the Archaeological Record (2012) where Lucas argues archives can be discussed as a translation process based on the interaction between “the site” and “the copy” (ibid.: 237–239). In this paper, I aim to look in detail at the intertwining of Derrida and Lucas’ ideas, with a view to discussing the limits and possibilities of the ways we shape our “archaeological economy” (ibid.: 231).
Albeit Cyrenaica, being one of the prominent regions of the Greco-Roman civilization, attracted the attention of scholars from the medieval period onwards, its political isolation after the Arab and later, Ottoman conquest, gave reason to the visible delay in the process of its recognition. Europeans could not visit it before the 18th century and, even in the 19th century, travels were still not numerous. Nevertheless, the travellers' accounts, only partially published, constitute an invaluable source for the research on history of archaeology. They reflect the increasing knowledge of the region and, at the same time, illustrate the archaeology in transition from its pre-scientific to the scientific stage. The first topographical identifications were successively complemented by descriptions of the undertaken excavations and considerations about the ancient art. The history of discovering Cyrenaica enables us to capture and follow significant stages in the evolution of archaeological interests, pursued by scholars active both on the sites and behind their desks. However, this story could not be fully understood if deprived of the broader, political and social perspectives. From the beginning of the 19th century, when archaeological activities ceased to be purely private ventures, public authorities used archaeological travels to achieve their own purposes, including non-scientific ones. The contemporary archaeology was not an end in itself; it was used to justify an expansion in North Africa and the Middle East, on the other hand – the results of archaeological exploration: artefacts enriching museum collections, testified the prestige of the state. This political context can be reconstructed thanks to the archive queries of unpublished documents kept in various state institutions, Archives Data, Historical Archives, Roman Architecture, Campus Martius. Since those documents reveal various undercover activities, their studies create an excellent starting point for further sociopolitical reflections not only on archaeology. The aim of this paper is to show several advantages of adopting different approaches to studying archive records in the British Museum and Musée du Louvre. Analysis of letters, notes about monuments, reports, minutes of the committee and other original papers allows making several observations concerning the development of archaeological methodologies. Apart from their obvious archaeological value, those documents allow also to reconstruct wider, political and social background of the journeys to Cyrenaica in the 18th and 19th centuries. Among the travellers, a special role was reserved for diplomats, for whom official activities created an opportunity to undertake their own research (e.g. Joseph Vattier de Bourville, George Dennis), and agents of the state institutions (e.g. Beechey brothers, Porcher and Smith). The support of the Admiralty or museums helped those travellers to fulfil both, scientific, as well as any other significant goals.

TH3-11  Abstract 11
Digging in the repository: finding the First World War in the University of Glasgow archives

Archaeologists and archivists share a material focus; our disciplines deal with the tangible past, the physical manifestation of history through objects, documents, and sites. Furthermore, we are drawn to our work by the tantalising promise of the thrill of discovery, bringing to light knowledge that has been forgotten or neglected in intervening centuries. Thus, the collaboration of archaeologists and archivists for Glasgow University’s Great War centenary commemoration project seems a natural fit. This paper reflects upon the experience of being an archaeological and historian working in an archive, specifically examining the intersections of these two distinct but related practices while undertaking research into the First World War. Firstly, it highlights our roles as arbiters of the past. As Pierre Nora (1989: 10) observed in Lieux de Mémoire, “To interrogate a tradition, venerable though it may be, is no longer to pass it on intact.” As archaeologists and archivists, we largely accept the interventionist nature of our work - we know that we must necessarily change, reorder, or otherwise destroy the past in the process of investigating it and preserving it for the future; furthermore we try to acknowledge our biases, our subjectivity, and our modern viewpoints. How then do we approach a topic as big as the First World War and the challenges of 20th-century archaeology and archives? It is apparent that, as archaeologists and archivists, we are well placed to talk about a war of overabundant materiality, the epilogue of González-Ruibal’s (2008) after Augé supermodern era. How do we deal with the material legacy of the supermodern, as well as what Nora felt was a modern society gone ‘archive-mad’ where we immediately historicise the present? Archaeologically, the First World War leaves us with millions of spent shells, millions of broken bodies, kilometres of trenches. Likewise it generated an astonishing amount of clerical paperwork: forms in duplicate and triplicate, millions of records, all filed away, some of which survive today. Today we continue to archive the supermodern – the seemingly limitless digital files created every day that take up real-world physical space, not in kilometers of shelving, but in computer servers. As Glasgow University’s Great War project has seen, however, the bureaucratic records of everyday life - often times astounding in banality - are of real value to later scholars. By thinking archaeologically about these archives, this paper offers a look at how interdisciplinary collaboration can enrich and enhance research, while making us think critically about our work.

TH3-11  Abstract 12
Archives and shipwrecks in the Baltic

The brackish waters of the Baltic hide thousands of shipwrecks from different eras. Most known wrecks of sailing vessels are from historical times and later than medieval. How can we compare and combine the sources from archives and archaeological data from shipwrecks to make their story complete and also scientifically valid? This paper reflects upon the experience of being an archaeologist and historian working in an archive, specifically examining the intersections of these two distinct but related practices while undertaking research into the First World War. Firstly, it highlights our roles as arbiters of the past. As Pierre Nora (1989: 10) observed in Lieux de Mémoire, “To interrogate a tradition, venerable though it may be, is no longer to pass it on intact.” As archaeologists and archivists, we largely accept the interventionist nature of our work - we know that we must necessarily change, reorder, or otherwise destroy the past in the process of investigating it and preserving it for the future; furthermore we try to acknowledge our biases, our subjectivity, and our modern viewpoints. How then do we approach a topic as big as the First World War and the challenges of 20th-century archaeology and archives? It is apparent that, as archaeologists and archivists, we are well placed to talk about a war of overabundant materiality, the epilogue of González-Ruibal’s (2008) after Augé supermodern era. How do we deal with the material legacy of the supermodern, as well as what Nora felt was a modern society gone ‘archive-mad’ where we immediately historicise the present? Archaeologically, the First World War leaves us with millions of spent shells, millions of broken bodies, kilometres of trenches. Likewise it generated an astonishing amount of clerical paperwork: forms in duplicate and triplicate, millions of records, all filed away, some of which survive today. Today we continue to archive the supermodern – the seemingly limitless digital files created every day that take up real-world physical space, not in kilometers of shelving, but in computer servers. As Glasgow University’s Great War project has seen, however, the bureaucratic records of everyday life - often times astounding in banality - are of real value to later scholars. By thinking archaeologically about these archives, this paper offers a look at how interdisciplinary collaboration can enrich and enhance research, while making us think critically about our work.
to start the research in archives. Sometimes an archival source – a document like an accident report or an announcement in the newspaper – leads to a systematic search for a possible place of wreckage. As archaeologists, we must learn to read both the material culture and archival sources, which possibly relate to each other. In this paper, two cases from Finnish waters will be presented, which have both archaeological findings and written sources associated with them.

The first case is that of a remarkable medieval maritime accident with quite a lot of written documents telling its story. The possible site of the accident is in the brackish waters of the Gulf of Finland. How might we interpret the scattered pieces of a wreck in the area, and how might we reconstruct the accident from the late 15th century?

The other case is related to two shipwrecks of 18th-century merchant ships. Would it be possible to combine written documents, like toll and salvage records, to find a shipwreck? Is it possible to identify a shipwreck, and what methods should be used in the archaeological research process?

TH3-11 Abstract 13

The relationship between archive documents and archaeological material of a naval conflict

Author: Mäkinen, Johanna, University of Helsinki, Sipoo, Finland (Presenting author)

Keywords: naval conflict, wreck sites, written documents

Presentation Preference - Oral

This research questions the role of archive documents in conflict archaeology. The second naval battle of Svensksund took place on 9 July 1790 on the south coast of Finland, outside the modern city of Kotka. The battle was part of the Russian-Swedish War (1788–1790), and it is the largest naval battle ever fought in Northern Europe. The focus of this research is the apparent contradiction between archival documents about the battle, and existing archaeological material. The general view, based on written sources, is that a large number of the vessels of Russia's rowing fleet shipwrecked near Lehmäsaari Island, on the east side of the naval battle area, after being disadvantaged, partly due to weather conditions. However, only eight wreck sites have been located so far in the vicinity of Lehmäsaari Island. The small number of the wrecks has been explained by site formation – especially non-cultural – processes, but no comprehensive research has been published about this subject. The aim of this paper is to study this imbalanced area, after being disadvantaged, partly due to the growth of urban areas and the development of infrastructures.

The Aerofototeca, founded in 1958, is a historical photographic archive of the ICOM – Istituto Centrale del Catalogo e Documentazione – part of the Italian Ministry of Culture (MBACT).

The archaeological Dr. Adamesteanu was the first director of the Aerofototeca. He organized the first body of archival materials and designed the archive as an instrument for the collection, preservation, cataloguing and study of aerial photographic records. The Aerofototeca is an essential source for archaeological research and the safeguarding of our heritage. The author of this paper, during an 18-month internship at the Aerofototeca, followed by field research, worked on the rearrangement of a group of more than 4,000 slides. The new ‘fondo Adamesteanu’ (a focus on a selection of those slides) was published on the periodical Archeologia Aerea VI, 2012. The aim of this paper is to show a few examples of this archive as a fundamental source for understanding the development of our fast-changing landscapes and as a tool for the safeguarding of Italian archaeological sites.

In particular, starting from the pioneering 1908 aerophotographic survey of a stretch of the Tiber River, some areas along the river will be analyzed on the basis of the materials available at the Aerofototeca, retracing phases of ancient and recent history of the landscape.

TH3-11 Abstract 14

Analysing Archived Material to Unravel Wheelhouse Chronologies in the Western Isles, Scotland

Author: Dr. Kvas, Anthony, University of Glasgow, East Kilbride, United Kingdom (Presenting author)

Co-author(s): Brown, Lisa, Historic Environment Scotland, Edinburgh, United Kingdom

Co-author(s): Goldberg, Martin, National Museums Scotland, Edinburgh, United Kingdom

Keywords: Archaeological Analysis, Bayesian Chronological Modelling, Scottish Iron Age

Presentation Preference - Oral

The site of Bruthach a Tuath on the Isle of Benbecula was investigated as part of rescue excavation which was undertaken in 1956 and 1957 in advance of the building of a Rocket Range in the Uists; the results of which were never published. In the 60 years since, the finds material and paper archive has found its way into the collections of a number of different institutions, including the National Museums Scotland, Kelvingrove Museum, Historic Environment Scotland, and the National Archives. Collation and analysis of this fragmented record has brought to light previously unrealised information about the excavated features, showing the presence of at least two wheelhouses and numerous related features. Details for the excavated deposits were lacking, although the location of the artefacts and the date they were found recorded on the finds boxes; consequently, a finds matrix formed the basis for interpreting the stratigraphy on site. A radiocarbon dating program was undertaken to identify the timing and sequence of activity related to the wheelhouses. Twenty-six radiocarbon measurements were taken from single-entities of wood charcoal, animal bone, human bone, and pottery residue. A Bayesian approach that considered stratigraphic contexts and feature formation processes was used to estimate the site chronology and for refining archaeological interpretations. Similar approaches could be taken to help maximise the potential of old archives that may be incomplete or not recorded according to modern standards.

TH3-11 Abstract 15

The Aerofototeca Nazionale di Rome: a photographic archive for the study of Italian heritage

Author: Foa, Lisa, Roma, Italy (Presenting author)

Keywords: aerial archaeology, Adamesteanu

Presentation Preference - Oral

Today, with the use of commercial drones, aerial pictures of archaeological sites and landscapes can be easily obtained, and thanks to more or less user-friendly software, easily processed – as it was recently discussed at the 2nd International Aerial Archaeology Conference that took place in Rome in February 2016 – and present-day records can be compared with “pre-economic boom” images to better understand what has changed in our landscapes and single sites.

Since its creation, the Aerofototeca Nazionale, based in Rome, has acquired several different collections of aerial photographs. Today it houses aerophotographic materials that date from the very end of the 19th century (e.g., the images taken by G. Boni during his excavations in the Roman Forum to recent years. The core of the collections are the thousands of images taken by the Allied air forces while surveying war zones during WWII; despite their often precarious preservation state, those images depict several areas of the Italian Peninsula that look totally different today, due to the growth of urban areas and the development of infrastructures.

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The author of this paper, during an 18-month internship at the Aerofototeca, followed by field research, worked on the rearrangement of a group of more than 4,000 slides, the so called “fondo Adamesteanu”, a focus on a selection of those slides was published on the periodical Archeologia Aerea VI, 2012. The aim of this paper is to show a few examples of the potential of this archive as a fundamental source for understanding the development of our fast-changing landscapes and as a tool for the safeguarding of Italian archaeological sites.

In particular, starting from the pioneering 1908 aerophotographic survey of a stretch of the Tiber River, some areas along the river will be analyzed on the basis of the materials available at the Aerofototeca, retracing phases of ancient and recent history of the landscape.

TH3-11 Abstract 16

Endangered Archaeology in the Archives: utilizing historical aerial photography to assess heritage

Author: Banks, Rebecca, University of Oxford, Oxford, United Kingdom (Presenting author)

Keywords: aerial photography, databases, heritage under threat

Presentation Preference - Oral

The Endangered Archaeology of the Middle East and North Africa (EAMENA) project aims to locate, document and monitor archaeological sites and any damage to those sites in an online platform for the Middle East and North Africa region utilizing remote sensing and networks of professionals. The threat to archaeological sites due to political and social upheaval in the MENA region has drawn much attention and is being effectively monitored remotely by a number of projects, but the more gradual threats to sites from development and agriculture over the last century are less well documented. Historical aerial imagery collected from the first half of the 20th century are a fantastic resource that has captured landscapes and sites before modern development, population increase and conflict drastically changed the region and accelerated heritage loss. The collections however are scattered between institutions and many are poorly documented. The paper will present how EAMENA with the Aerial Photographic Archive for Archaeology in the Middle East (APAME) has begun working with these collections to not only utilise a fantastic resource for the documentation of heritage, but to digitise and facilitate knowledge sharing of what these collections hold.

TH3-11 Abstract 17

Another kind of archive: on the preservation of publications and born-digital material

Author: O’Riordan, Emma Jane, Society of Antiquaries of Scotland, Edinburgh, United Kingdom (Presenting author)
The Society of Antiquaries of Scotland has been publishing since 1782 and has produced the journal Proceedings of the Society of Antiquaries of Scotland (PAS) annually since 1851. These volumes provide a record of research excava- tions, rescue excavations, archaeological surveys, studies of objects, overviews of historical records, publication reviews and more. Physical copies of the Proceedings are sent every year to Fellows of the Society as well as to libraries and institutions across the world. In 2001, the Society began scanning our PAS archive and since 2003, PDFs of papers more than a year old have been available to view freely online via the Archaeology Data Service (http://archaeologydataservice.ac.uk/archives/view/pas/index.cfm). Since 2011, users have downloaded PAS articles more than 386,000 times. We also host the full text of our out-of-print monographs and Scottish Archaeological Internet Reports (SAIR) with the ADS. The sheer amount of archaeological knowledge that our publications provide makes it indispensable resource for anyone studying the history of antiquarianism and archaeology in Scotland, as well as a treasure trove of detailed information on archaeological sites and artefacts. As these publications cover hundreds of years of research, thousands of different objects and sites and hundreds of authors, their single common link is often the Society itself. How can the Society best use its own heritage and archives to inform future work? One of the research projects of the Society is the Scottish Archaeological Research Framework (ScARF). This free-to-use online resource (www.scottishheritagehub.com) summarises what the acknowledged experts in their fields – not only archaeologists but also those in related disciplines such as geosciences, environmental sciences, history and museums – thought about Scottish archaeological knowledge at the time of the first reports in 2012. The work is divided by time period and each period ‘panel’ made a series of recommendations for future research. Now, in 2016, the panels are beginning work on the next version of these reports. This will mean that the 2012 reports become, in effect, an archive themselves. One of the challenges moving forward will be to ensure that as the first set of questions posed are answered, that the archaeological information that led to them are not forgotten or archived so that in the future, contemporary trends and lines of thinking can be studied. It is planned that the new reports will contain links to more of the raw data and archives used in their creation and it is possible that many of these data and archives will be available online. However, the ability to view these will only be a useful addition if they are openly accessible. The Society has a privileged position from which to think about the long-term survival of our archaeological heritage as it has been around since 1780 and, as long as there Fellows with an interest in Scottish archaeology and history, will remain for the decades and centuries to come. How can we ensure that our rich history and archives will remain visible and relevant for as long as they are needed?

**TH3-11 Abstract 18**

Ancient inscriptions and digital archives: offering an undeciphered script to the public

Author: Dr. Tomas, Helena, University of Zagreb, Zagreb, Croatia (Presenting author)

Keywords: 3D scanning, ancient inscriptions, digital archives

Presentation Preference - Oral

Creating databases with digital archives of ancient inscriptions has become customary over the past decade. Digital databases of cuneiform tablets are particularly popular, and thanks to advanced digital technologies, especially 3D scanning, thousands of cuneiform inscriptions can now be freely browsed through by both specialists and non-specialists, meaning that they have become easily accessible to anyone interested in studying them. Yet, there are many inscriptions in other ancient scripts that still await a similar treatment. One such script belongs to the realm of the earliest European literacy: Linear A, used during the Minoan civilisation and still undeciphered. A digital archive of clay tablets inscribed with this script is still non-existent, but hopefully such a state of affairs is soon to be changed. By taking Linear A tablets as a case-study, the paper presents various aspects of how our understanding of ancient inscriptions can be improved by using their 3D images. Previously used plaster casts, photographs, drawings and text copies of tablets have not proved accurate enough, especially when it comes to analysing various physical features of tablets. For decades clay tablets were treated as secondary to inscriptions they carried, and it is fairly new to approach those documents as archaeological objects themselves and pay full attention to their physical properties. Studying those physical properties is nearly impossible from conveniently published corpora, whereas access to actual tablets is limited to a small circle of specialists (and even they sometimes face obstacles, such as the fact that relevant inscriptions may be scattered around the world, musealised, either displayed behind glass in museum galleries, or locked away in museum storage rooms). Digital archives of 3D images have been changing this situation rapidly, and they in addition allow interdisciplinary research, for example a study of finger-prints of scribes. The paper will provide an overview of various aspects of improvements in our understanding of Linear A tablets and will reflect upon how such a digital database could draw a much greater interest of public to this undeciphered script. For the simple reason of inaccessibility to its tablets, crowdfunding is automatically excluded from the field of Linear A studies – an important thing to keep when reminding ourselves that a successor to Linear A – the first known Greek script called Linear B – was deciphered by a non-specialist.**

**TH3-11 Abstract 20**

Archival sources and archaeological research: documents for rediscovering antiquity

Author: Dr. Rustico, Letizia, SS-Col, Rome, Italy (Presenting author)

Keywords: Archaeology, Archive, Reconstruction

Presentation Preference - Poster

The documentary material held in historical archives is a vital starting point and accomplishment for scholars wishing to carry out research on archaeological topics and especially on ancient topography. For the city of Rome the valuable evidence in archives reflects work to safeguard antiquities, started in the 16th century by the Papal State and continued by the various institutions that succeeded one another in this institutional task. The available sources – writings, drawings and photographic images distributed among different archives – document the archaeological remains discovered during the intensive activities of urban transformation. Sometimes they are the only clues for reconstructing ancient and no longer extant contexts, allowing to recover important information. Today information technology allows us to incorporate this type of information into Geographical Information Systems with a good degree of approximation, to map it and support the use of data through structured databases and specially developed graphic models. To illustrate this we will show some examples from the Aventine hill archaeological sites, rediscovered thanks to archival research: a stretch of the Servian Wall in Via Icilio; the frescoed domus in Largo Arrigo VII, s.c. Casa Ballezza; tuff quarries; remains underneath the FAO building.
TH3-12 Abstract 02
The many meanings of Archeological Education: field schools in archaological heritage management

Author - Dr. Perez-Juez, Amalia, Boston University, Madrid, Spain (Presenting author)
Co-author(s) - Dr. Elia, Ricardo J., Boston University, Boston, United States of America

Keywords: field school, heritage, training

Presentation Preference - Oral

Archaeological Education is going through either a crisis or an expansion; through revision or agony. It very much depends on the observer and the field from which he or she comes. In Europe, archaeology used to be taught solely in History departments. In the United States, it is part of Anthropology or Classics Department. Archaeological Science is becoming increasingly relevant, and techniques in which no digging is involved are preferred by researchers. What about Archeological Heritage Management (AHM)? What is its specific weight and role in this new higher education landscape? AHM is frequently treated as an appendage to traditional research rather than an essential element to be planned for from the beginning. It is also taught in the final semesters of a degree, as it traditionally reflects something done at the end. Interestingly enough, a good number of graduates in archaeology find jobs related to AHM: museums, historical societies, international organizations, cultural tourism, etc. This disconnection between what we are teaching our students and what awaits them in the outside world needs some attention. Over the past several years, the authors have been incorporating AHM as an integral part of our curriculum, both in the classroom and the field, on campus, and in study-abroad programs. We have also developed and implemented a field school that goes beyond traditional training in practical skills of surveying, excavation, recording, and artifact processing, and deals primarily with the idea of heritage management and the reals problems that it faces today. In this paper, we describe our experience in developing an archeological and heritage management field school on the island of Menorca (Spain) from 2009 to 2016, which started as a traditional field school but evolved to an “only-heritage” experience. We teach archeology from a holistic perspective that incorporates the theory and practice of archeological stewardship: preservation, interpretation, management, and public outreach of archeological resources. We want to share the reasons for this shift, and the challenges we have faced to make it work.

TH3-12 Abstract 03
How to improve the offered preparation and avoid the risk of “fake” field school

Author - Vecchiet, Costanza, Durham University, Trieste, Italy (Presenting author)

Keywords: Archaeology, Field school, skills

Presentation Preference - Oral

Field school seems to be a compulsory “step” every future archaeologist is required to attend to form and train his/her skills, useful for any future career. However, over the past decades - especially the last two - a steadily increasing lack in number of sponsors and fundings opened the access to excavation areas to volunteers and non technician, in love with this job, holding partials or no skills at all, but available to help and enjoy the digging experience in change, sometimes, only of accommodation and meals. Surely, to some extent, the contribution volunteers gave to archaeology has been wide and important in order to carry on some excavation valuable tasks. But it is safe, both for security and carefulness of the work, replace in the hand of not paid and not formed specialist the work that should be led by professional archaeologists? Universities are the first bodies allowing to test our abilities, training our skills and checking our work during the whole excavation session. Otherwise, especially in certain countries were the practices of field school on “real” excavations are opened the access to excavation areas to volunteers and non technician, in love with this job, holding partials or no skills at all, but available to help and enjoy the digging experience in change, sometimes, only of accommodation and meals.

This paper is aiming to analyze both the academical and the private sector, trying to outline fixed points and guiding lines the two of them should use when offering an amazing, but truly worthy, field school experience.

TH3-12 Abstract 04
Through the thin mesh - Bucket flotation in EcoPilis project: 2015 fieldwork

Author - Monteiro, Patrícia, (I)AEHB/University of Algarve, Faro, Portugal (Presenting author)
Co-author(s) - Matias, Roxana, Núcleo de Alunos de Arqueologia e Paleoecologia da Universidade do Algarve, Faro, Portugal
Co-author(s) - Pereira, Telmo, (I)AEHB/University of Algarve, Faro, Portugal
Co-author(s) - Carvalho, Vínia, Câmera Municipal de Leiria, Leiria, Portugal

Keywords: Field work, drift core analysis, paleo-environmental reconstruction

Presentation Preference - Oral

In EcoPilis project: 2015 fieldwork

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Keywords: Field work, drift core analysis, paleo-environmental reconstruction

Presentation Preference - Oral

From Office to Field: Developing University of North Georgia's Sicilian Archaeological Field School

Author - Prof. Balco, William, University of North Georgia, Dahlonega, Georgia, United States of America (Presenting author)

Keywords: Engaged archaeology, Field school, Instructional research

Presentation Preference - Oral

Archaeological field schools are the primary means to expose students to their first excavation and to train future generations of professional archaeologists. During these programs, students are engaged in experiential learning, critical thinking, and cultural experiences. Likewise, the development of an archaeological field school often engages university administrators and faculty in a similar manner, introducing them to the nuances of scientific archaeological fieldwork in diverse settings. This paper discusses the challenges faculty and administrators must face together when developing an international archaeological field school. Such programs break the mold of a traditional study abroad program by involving complex logistics, risk management strategies, site locations, course schedules, and learning outcomes. University of North Georgia’s Sicilian Archaeological Field School serves as a case study for the development and implementation of a new international program requiring close collaboration between university, civic, and regional partners. This program blends instruction with research to provide students with a holistic perspective of archaeology. The delicate balance between project goals, pedagogical strategies, logistical challenges, and program costs are explored, proposing a strategy to keep costs low and learning outcomes high. When offered as a study abroad program, such instructional research projects afford students with the skills necessary to pursue careers in archaeology as well as valuable cultural experiences translatable to a broad variety of careers.
The flotation method to process archaeological sediments is proved to be the most efficient way to recover plant macroremains. Although the importance of flotation of sediments for a successful sampling, it is still not always applied systematically, biasing the further representation and interpretation of archaeobotanical remains. Many are the reasons that have been holding back its application and most are linked with logistical issues. The development of the Bucket Flotation by Dorian Fuller has allowed to apply this method in a simple and efficient way, even under conditions where limited access to water is a problem. The aim of the project is to characterize the occupation of Middle and Upper Palaeolithic in the Lis Basin (Learia, Portugal), applying the most new methodologies for field and lab work, towards an high-resolution archaeological record. As well as scientific goals, our project intends to provide formation as field school for students that participate in the excavations, allowing them to contact with all the methods and techniques applied in this project. Here we present the first results from the flotation field-lab work with students, applying the Bucket Flotation method to the total sediments excavated from the site Abrigo do Pogo. The processing of all samples from Abrigo do Pogo were measured in both volume and time to understand how expedite the task and how the students are able to do it. The students were measured in both volume and time to understand how expedite the task. The formative experience and engage the local communities, bearing in mind the financial issues. The Alberese Archaeological Project provides two different types of training schools. Both of them are run by the Department of Prehistory and Archaeology, University of Algarve, and have the aim to train the students in the role of a supervisor and what are the tasks of this key figure: especially regarding teaching/learning and health & safety requirements. The paper draws its conclusions upon the importance of the training schools, not only in terms of improving the participants’ knowledge and skills, but especially in terms of the learning environment and career network development they contribute to the combination of university and non-university institutions, leading and organizing the schools and their related activities, represents a plus in the experience of the participants. Moreover, a point will be made on the opportunity offered also to young specialists and scholars to develop their own teaching experience, helping them to enhance their future careers in academia or in professional archaeological units.

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**TH3-12 Abstract 06**

**Training the future generations of archaeologists at Alberese**

**Author:** Dr. Sebastiani, Alessandro, University of Sheffield, Sheffield, United Kingdom (Presenting author)

**Keywords:** Archaeology, Field-schools, Training

**Presentation Preference:** Oral

This paper aims to describe the nature of the field and lab schools directed under the umbrella of the Alberese Archaeological Project in south Tuscany (Italy). Moreover it intends to show how the schools were built up to train the next generation of archaeologists and fulfill their expectations, in terms of enhancing their future academic or commercial archaeology careers. The Alberese Archaeological Project provides two different types of training schools. Both of them are run by the Department of Archaeology at the University of Sheffield, in collaboration with John Cabot University, the University of Queensland, Michigan State University, the British School at Rome and a local company of commercial archaeology. The archaeological fieldwork school attracts students and early career scholars from all over Europe and North America. They join a learning environment through the excavation of a Roman maritime site, set along the Tyrrhenian coast. The format process consists in the traditional teaching of fieldwork techniques and a first analysis of the material culture recovered on site. Moreover, a day per week, the participants are guided through a series of nearby Roman to Late Antique archaeological sites to help them to understand the excavated settlement in a micro-regional context. The fast-track school aims to train the participants in the archaeological methods, and professional archaeologists and specialists (being them academic or non-academic scholars) share their knowledge and teach the students to approach the modern debates in Classical Archaeology. The aim of the paper is to present, firstly, what are the issues (i.e. health & safety, students’ satisfaction, visits on site, dangers (i.e. funding, conservation, post-exavcation projects) and threats (i.e. high fees), that this Field school dealt with from 1996 to 2014; secondly, the opportunities and positive results achieved in terms of employability, career development, site management, engagement with local community and visitors. The aim of this paper is to propose means of creating the base for improving this fairly new way of doing Archaeology, which does not only answer the academic research questions but to provides students their first chance of gaining field-working experience and engage the local communities, bearing in mind the financial issues.

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**TH3-12 Abstract 07**

**Silchester Insula IX Town Life Project. A good example of management, training and public engagement**

**Author:** Edwards, Bedin, UCL, London, United Kingdom (Presenting author)

**Keywords:** Field-School, Silchester, Students

**Presentation Preference:** Oral

Archaeological Field Schools have been for many years now seen as the suitable environment in which archaeology students can be exposed to become professional archaeologists. In the last decade Field Schools have become very popular and are no longer exclusively run by Universities but are increasingly run by private institutions. This paper is based on the author’s experience at University of Reading Field School Silchester Insula IX: Town Life Project (2011-2014) and it is to present through the analysis of detailed data, interviews with former participants, personal experiences the field school organisation and learning process which transformed (some) students into Silchester Insula IX supervisors and professional archaeologists. It will describe the author’s participation – first as overseas student and then the path he had to follow in order to become one of the trench-supervisors – responsible for a group of 15-25 students and volunteers. What is the role of a supervisor and what are the tasks of this key figure? especially regarding teaching/learning and health & safety, site documentation, site management, site supervision and archaeological reports are some of the points that will be discussed. The second purpose of this paper is to present, firstly, what are the issues (i.e. health & safety, students’ satisfaction, visitors on site, dangers (i.e. funding, conservation, post-exavcation projects) and threats (i.e. high fees), that this Field school dealt with from 1996 to 2014; secondly, the opportunities and positive results achieved in terms of employability, career development, site management, engagement with local community and visitors. The aim of this paper is to propose means of creating the base for improving this fairly new way of doing Archaeology, which does not only answer the academic research questions but to provides students their first chance of gaining field-working experience and engage the local communities, bearing in mind the financial issues.
One of this could be and, in the daily scenario, must honestly be an attempt to self-sustaining by the excavations and of the cultural projects themselves. It is in this renewal air and management reorganization that new Master and specialized courses were born. They are born because of the sector specialists having realized how important it is for the survival of archaeology and free management find a way to make culture more accessible, not a slave to political austerity. Several can be the ideas an archaeological site could develop in order to achieve its “freedom”: paid guided tours, small gadget for visitors, open days/weekends for families during which could be asked a small contribution for excavation maintenance. Everything it is up to the archaeologists and their skills in understanding what people really want, and what people are really keen and available in paying for. Certainly, also enriching the staff with one or two specialized managers could be a good idea, but why not not making archaeological and managing knowledge all in the hands of ones who really run the excavation and its activities? These, obviously, are just some suggestion. Thus, analyzing and comparing experiences tested already, the present paper will try to give an overview about the current status of archaeology and its future opportunities and possibilities if well managed.

TH3-12 Abstract 09
Site management and business plans, conservation and public engagement issues and opportunities

Author - Edoardo, Bedin, UCL, London, United Kingdom (Presenting author)
Keywords: Financial self-sufficiency, Site Management, Sustainability
Presentation Preference - Oral

Archaeological projects have been for many years now considered enterprises run mainly by public funding. Additionally, in many countries it is a commonly accepted notion that supporting heritage will automatically mean money loss and the need for extra funding is a constant “curse” for many site managers. In particular cases insufficient funding precludes the management of the site from running even basic maintenance work, consequently causing bad publicity, as less areas become accessible for visiting, and reducing the opportunities to improve the site facilities. The primary purpose of this paper is to explore through case-studies what are the key aspects of a successful management plan and business plan and what are the major financial, political issues encountered during the development of projects and how to handle these issues. It will also highlight the importance of involving different stakeholders as means to increase the chances of the success of site management, its conservation and valorization.

The second purpose is to explore limitations in achieving financial self-efficiency while managing an archaeological site and demonstrating the need to change the approach to Italian Heritage in order to “rescue” it from the risk of abandonment due to lack of funds. If a site can reduce the reliance of public funds it will protect the site from possible conservation and valorisation issues due to funding cuts as a consequence of economical crisis like it has occurred since 2008. The last goal of this paper is to explore what actions can be taken to reach a much wider public, including those that would not naturally come to visit the site, and understand the possible threats of the rise of visitor numbers, while investigating the possible benefits in terms of job creation within the site and in the buffer zone. The final question which will be tried to answer is: are all sites potentially sustainable or is it necessary to consider the closure of some to preserve them until more funds become available?

TH3-12 Abstract 10
Drama - Merdzhumekia: German archaeological field-school in Bulgaria

Author - Valchev, Todor, Regional historical museum - Yambol, Yambol, Bulgaria (Presenting author)
Keywords: archaeological field-school, Drama - Merdzhumekia, German methodology
Presentation Preference - Poster

The prehistoric settlement mound Merdzhumekia was situated near the village of Drama in the Tundzha municipality, Yambol district. It has been completely excavated during the Bulgarian-German project from 1983 to 2011. The joint project was undertaken by Sofia University “Sv. Kliment Ohridski” in Bulgaria and Saarland University in Germany. The international project was led by prof. Alexander For, prof. Jan Lichardus, prof. Francesca Bartemes and Iliya Iliev.

The aim of this poster is to present the methodology used by German scholars during the archaeological excavations in the village of Drama. The system permitted students to participate in all aspects of the project: archaeological excavations, graphic documentation and processing of ceramic materials and finds. During the international project, more than 300 students and University assistants participated from Bulgaria, Germany, Czech Republic, Slovakia, Hungary and Luxembourg. Some of them are now leading archaeologists and University professors in Bulgaria, Germany and England.
Theoretical and methodological perspectives in archaeology

In this presentation I would like to tell you all about the excavation, but I will not. This presentation will instead be your introduction to the concept of pinboard-archaeology, and during a short workshop I will let you all be a part of excavating the local community through a pinboard at the venue.

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**TH3-13 Abstract 02**

The Archaeology of Pinboards – the future and the past in ads and posters

Author: Archaeological Grahn Danielson, Benjamin, Picea kulturarv, Fors, Sweden (Presenting author)

Keywords: Community, Future Archaeology, Pinboards

Presentation Preference - Oral

One ice cold day in the middle of March 2015 I was standing at the mainstreet of the small town Kopparberg, wondering what I was up to? In less then two hours a group of artists, artmakers from all over the world, some locals and national television would arrive to participate in the excavation of the pinboard right where I was standing. Two days earlier I had launched the idea of excavating a public pinboard, as an archaeological method of finding the essence of Kopparberg, the future of the society, or at least what people where doing here. Because when asking the locals, no answers were given. Most common answer was “nothing”, or just vague answers about going to school, work, church or just going away to Örebro (the nearest city) when every change was given...Archaeology can provide information about the contemporary life in a small town, and give another picture. In this case, national media was telling a story about Kopparberg as a depressing place: nothing happens there, the unemployment rate and the number of inhabitants is the highest in Sweden, everyone wants to move away and the municipality will be the first to disappear in the country. But in fact, archaeology provided a totally different picture, a picture about people and a struggling community.

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**TH3-13 Abstract 03**

Creative archaeology of modern Moscow

Author: Doctor Beloss, Leonid, Institute of Archaeology of RAS, Moscow, Russian Federation (Presenting author)

Keywords: archaeological monuments, creative archaeology, modern Moscow

Presentation Preference - Oral

In Russian historiography there is still no custom to regard archaeological excavation as a place for creative extrascientific activity, as well as an archaeological finds obtained in the course of excavation still haven’t been regarded as a piece of art. However, they certainly are. Archaeology spontaneously induces the appearance of art objects, starting with the temporal (video and performances at the sites) and space objects (carefully planned out and methodically deepening excavations that are treated by the viewers and even by the participants themselves as a complex three-dimensional installations) and finishing with more traditional photos, sketches and drawings. In all these cases, archaeologists or the members of their team are making every effort to organize the excavation area, achieving the best light, locating the characters and generally working either as scriptwriters, or as a directors and cameraman, and certainly more often as a common draftsmen.

Finally, in modern cities the archaeologist daily come in contact with the challenge of incorporating the remains of the discovered antiquities into the urban context, also doing his best as a designer. As is well-known, similar forms of correlation of the art and science have been existed before: in the history of Russian archaeology of the XIX-XX centuries there are plenty of examples of cooperation between the archaeologists and artists. The study of these examples could in time become an important direction of the special art-research.

In the report the results of the author’s observations on the creative approach to the archaeological monuments in Russia would be demonstrated.
Archaeological field schools are viewed as the first port of call for students aspiring to become archaeologists. On top of this, they are often major research outlets for universities and archaeological organizations, and often come to represent the sector on television and in publications. Their position and importance in the sector is well developed and, until now, viewed as well understood.

When starting research on field schools in the UK, confused responses were given to simple questions on definition, curriculum, length, cost, demographic and standards. I subsequently set out to start to answer some of these questions over three stages. The first developed the context, looking at how training in practical archaeology had developed over the last 50 years in relation to the economy, government legislation and the archaeological sector in general. The second addressed the issue of definitions, comparing the different terms used for practical training – field school, course, dig, fieldwork, excavation, etc. - and seeing where the term ‘field school’ belonged and, importantly, who belonged within it. The balance discussions from sections 1 and 2, the final section looked to real data. Drawing from the first database of archaeological field schools in the UK and from a qualitative survey of individuals who attended field schools recently, they offered an insight into the current situation of field schools in the UK today. The response demonstrated a broad confusion over the definitions and expectations of field schools, fuelled by a lacking regularity on the length, demographic, cost and curriculum on offer.

What this research shows is a fundamental area of the archaeological sector which, in the UK and contrary to its academic counterpart, has failed to develop in a way which caters to the demands and regulations required by its participants. In light of the economic difficulties field schools are facing, they are being forced to compromise and develop. It is therefore a perfect opportunity, albeit well overdue, to develop field school as strategic assets for the sector and wider cultural heritage, as well as a fairer environment for those taking part. The data produced and topics discussed in this paper hope to mark the start of this process.

TH3-13 Abstract 08
Let Archaeology be Archaeology and Art be Art - and let them tell a story side by side
Author: Bangaba Disega, Nina, Municipality of Skanderborg, Skanderborg, Denmark
Co-author(s): Purup, Marianne, Visit Skanderborg, Ry, Denmark
Co-author(s): Høist-Madsen, Lene, Museum Skanderborg, Skanderborg, Denmark
(Presenting author)
Keywords: Art, Collaboration, Cultural Tourism
Presentation Preference - Oral

We strongly believe that the archaeological discipline benefits from interdisciplinary approaches. We believe in co creation and equality between art and archaeology but still that the different disciplines theoretical framework should be respected. We have made a concept called eScape. Our approach is not theoretical but based on practical projects made on site. The concept eScape is all about combining art, archaeology, past and present - creating and telling art on sites with strong archaeological evidence in combination with the scientific archaeological excavations.

The location and the landscape is the raison d'être of the project - and locals as well as tourists are given the opportunity to experience landscape storytelling combined with world history interpreted by modern art.

eScape brings out art and cultural heritage “on location”, away from the walls of the museum, creating a phenomenological space where nature, art and cultural heritage meet and communicate with one another, giving visitors unique and unexpected experiences.

Collaboration between specialists in Tourism, Art and Archaeology and combining the three parts on equal terms is crucial, as well as participation from locals and children. Turning people who stare into people who care – and people who care and share.

TH3-13 Abstract 09
Layers of living in layers of time
Author: PhD Symnestvadt, Anita, University of Gothenburg, Gothenburg, Sweden (Presenting author)
Keywords: art and archaeology, heritage, theory and practise
Presentation Preference - Oral

In 2013 the largest urban archaeological excavation ever undertaken in West Sweden started in the area of Gamlestaden in Gothenburg. The town of “Nya Lödöse”, which lay here between 1473 and 1624, is being exhumed. The area is set to undergo major transformations. New construction activities with buildings, a new hub for public transport, walkways and bike lanes will transform the urban landscape. The archaeological dig is done behind fences. You can have a glimpse of what’s going on, peeping through little openings, but it’s hard to understand – what is happening? You can go for a guided tour, but do you see the connection between now and then? Do the archaeologists care about what’s happening outside the fence while they are digging? What is present, what is past? How can we explore the environment when space is money? In a workshop arranged in May 2015 archaeologists, musicians, artists and students investigated the environment in Gamlestaden with the aim discovering stories and contexts in the many layers of time. This investigation resulted in a video: Layers of living in layers of time. The purpose and the outcome of the video will be discussed in the presentation.
SETTLEMENT VARIABILITY AND SOCIO-ECONOMIC PROCESS

TH3-14 Abstract 01

Farms, hamlets, villages and towns: Settlement variability in Early Modern Scandinavia

Author - Dr. Rosén, Christina, Arkeologiska SMIHM, Tölöjärvi, Sweden (Presenting author)

Keywords: Early Modern, Scandinavia, Settlement

Presentation Preference - Oral

TH3-14 Abstract 02

Areas reserved for rich and populated by poor or melange of many factors?

Author - Dr. Sappânen, Liisa, University of Turku, Turku, Finland (Presenting author)

Keywords: socio-topography, layout, Turku, early modern, urban settlement

Presentation Preference - Oral

In this paper, the relation between research, settlement and the socio-economy of the city is discussed with an example of Turku, which is the oldest town of the present-day Finland and was one of the most important towns of the medieval and early modern period in Sweden. The first presentations on the layout of the city are from the 1630s and were within 300 years of the establishment and settlement of the town. It took more than 100 years before a map was made in the 1750s with the list of the plot owners including information about their professions and site values.

Tracing the earlier settlement history and socio-economic topography of the town is like trying to compose comprehension about the picture by piecing an old puzzle with only a few pieces that have been spared. The information from the 17th century and beyond is valuable as such, but how much this information has labelled the concepts and interpretations about the socio-topography of the town in earlier periods and on what grounds? The city is a living organism with variable elements transforming the character and dynamics of different parts and remoulding the relations between them on a different scale and bearings. The paper presents answers for the following questions: What elements formed the settlement of Turku in the 16th century and what was the relation of this settlement to earlier as well as to later inhabitation of the town? What kind of picture of events and socio-economic topography can we create with the help of evidence available by now? What was the relation between the reconstruction, extension and regeneration of the town? Still, the picture cannot be completed, but could it be made more comprehensible with correlations with other cities?

TH3-14 Abstract 03

Norrköping and Kalmar: A spatiotemporal analysis of two early modern Swedish towns

Author - Agnesten, Sofia Andrine, Gothenburg university, Gothenburg, Sweden (Presenting author)

Keywords: Early modern time, Settlement variabilities, Spatio-temporality

Presentation Preference - Oral

During the early modern time, one of the most extensive phases of city transformation in Europe occurred in Sweden. This spatiotemporal analysis explores settlement variabilities and social dimensions in the two Swedish towns Norrköping and Kalmar during the time period. These were, from a Swedish Early Modern perspective, rather large towns with both having major ports on the east coast of the Baltic Sea. However, from a utilitarian and functional perspective they differed in many aspects and because of these differences they help illustrate some of the urban settlement variabilities of this dynamic period. The space analysis is performed on several levels, where the spatial dimensions are examined in the towns as a whole, but also in more detailed contexts, at block level and even more thorough at plot level. The temporal part of this analysis focuses on exploring various time related processes that follow different rhythms and the possible impacts these had on the lives of the town residents. Some processes are slowed down by the inertia of society while others are more rapid, such as seasonal changes. The data from about two hundred archaeological field reports together with a theoretical orientation helps to unfold a more diverse picture of the Swedish early modern town.

TH3-14 Abstract 04

Same name, same background, same function? Similarities and differences of the Scandinavian Husebyer

Author - Dr. Lemm, Thorsten, Stiftung Schleswig-Holsteinische Landesmuseen Schloss Gottorf, Schleswig, Germany (Presenting author)

Keywords: cultural-historical background, royal administration, royal farm

Presentation Preference - Oral

Since the early 20th century the more than 130 hamlets or farms in Scandinavia and the Orkneys known by the name Huseby, Husaby, Husby, Husby, Husaby etc. have been a relevant topic in historical, archaeologica-l and onomastical research, closely linked to the discussion of kingship and political administration. Espe-cially the highly frequent use of the place-name Huseby, their uneven distribution over Scandinavia, and the use of husaby) as an appellative in some early written sources led to the understanding of a great majority of the Husebyer as places with a royal background. As such the Husebyer have in many cases been a substantial argument in the study of the administrative and economic structure of royal power in the Viking Age and the early Medieval Period and in theories about the early state formations. However, recently conducted detailed analyses of their cultural-historical backgrounds give reason for a much more differentiated view on the Husebyer. There are certain similarities and differences that can be observed between these sites and there must be reasons for that. Were different historical and/or chronological backgrounds responsible for the diversity of the Husebyer? And how does this affect the widely accepted interpetation of these sites? These questions will be addressed by the paper and hopefully discussed during the session.

TH3-14 Abstract 05

Settlement variability in Early Modern Scandinavia

Author - Lorenz, Jörgen, Swedish School of Theology, Uppsala, Sweden (Presenting author)

Keywords: Early Modern, Settlement variability

Presentation Preference - Oral

Settlement variability in Early Modern Scandinavia is a relevant topic in historical, archaeologica-l and onomastical research, closely linked to the discussion of kingship and political administration. Espe-cially the highly frequent use of the place-name Huseby, their uneven distribution over Scandinavia, and the use of husaby) as an appellative in some early written sources led to the understanding of a great majority of the Husebyer as places with a royal background. As such the Husebyer have in many cases been a substantial argument in the study of the administrative and economic structure of royal power in the Viking Age and the early Medieval Period and in theories about the early state formations. However, recently conducted detailed analyses of their cultural-historical backgrounds give reason for a much more differentiated view on the Husebyer. There are certain similarities and differences that can be observed between these sites and there must be reasons for that. Were different historical and/or chronological backgrounds responsible for the diversity of the Husebyer? And how does this affect the widely accepted interpretation of these sites? These questions will be addressed by the paper and hopefully discussed during the session.
TH3-14 Abstract 05

**Material, Socio-Economics and Outcome in the Medieval Baltic: A Triadic Model of Settlement Analysis**

**Author:** Thoeming, Alix, The University of Sydney, Forest Lodge, Australia (Presenting author)

**Keywords:** early medieval, outcome triad, settlement analysis

**Presentation Preference:** Oral

One of the great challenges inherent in archaeology is the fact that what humans say, and what they do, are very often different things. In the same way, as similar material forms may correspond to different socio-economic phenomena, so may the reverse be true. Deterministic approaches to either as a direct informant of the other are not only reductive, they can often more than not be a logical error. Settlement analysis would more adequately serve by the introduction of a triadic model proposed by Fletcher, in which settlement success is measured not only by a relationship between material form and socio-economic situation, but also by the outcome of their relationships. The case study for this paper will be the initial urban development which took place in the Baltic region during the early medieval period. New and unusual settlements of very similar form, albeit with varying emphases on elements such as ritual, royal power, politics and trade, appear across the landscape between the 7th and 9th centuries CE. This development comes ostensibly in response to the changes happening in Europe after the fall of the Roman Empire, and the establishment of new trade routes from the north is seen as a significant contributor both here and in the North Sea region. These Baltic settlements - for which terminology has proven notoriously difficult - mostly exist in their initial form for no more than a quarter of a millennium, before transforming into a more recognisable, high medieval town-like form. This process, however, is variable in its execution. The settlements, among other outcomes, experience destruction, abandonment, conquest, and re-use in conjunction with a younger settlement close by, revealing this particular space-time context as incredibly valuable in exploring the social-material-outcome triad.

TH3-14 Abstract 06

**Did socio-economic developments change the landscape of Ireland?**

**Author:** Tighé, John, Trinity College Dublin, The University of Dublin, Castlebar, Co. Mayo, Ireland (Presenting author)

**Keywords:** Agriculture, Early Medieval Ireland, Economic Development

**Presentation Preference:** Oral

The two greatest influences to the socio-economic landscape of Ireland in the early medieval period were the coming of Christianity and then the raiding and subsequent settling of the Vikings in the coastal empires, such as Dublin and Waterford. But how did these events shape the socio-economic changes at this point? I hope to show that these events were in themselves, the catalysts, rather than the instigators of change.

In the aftermath of the Late Iron Age lull, which ended c.AD300, there was an increase in crop production, the growth is seen in stark contrast to the previous five hundred years or so, which it seems was a time of stagnant growth. The increase of crop cultivation, as well as the introduction of new technologies, such as the water-mill and the plough, increased production, allowing specialisation and creating a surplus, furthering a division of labour and exchange networks.

When talking about the early medieval period in Ireland, one instantly thinks of the ubiquitous ringforts, of which it is now estimated, there was as many c.70,000. Despite Stout’s estimation that they went out of use after c.AD900, there is no other type of secular settlement found in all areas of the country to populate the landscape. It is possible that although ringforts did not change in morphology after this period, many being re-occupied in the later medieval period, its possible location echoed a change in their function, away from being a cattle-pen to being one used to control and exploit the agricultural producers. While some have attributed the inception of souterrains as refuges from Viking raiders, I would view them as drier storehouses for grain.

Consequently, there was a significant retrofitting in term of settlements pattern and territorial organization, to the point of generating a large number of depopulated villages. In the same vein, a reassessment of populations and a growing process of segregation and marginalization of the rural world is observed, which led to a violent confrontation between old and new Christians.

TH3-14 Abstract 07

**Socio-economic changes in northern Granada between Medieval and Early Modern Ages**

**Author:** Dr. García-Correas Ruiz, Guadix, University of Reading, Reading, United Kingdom (Presenting author)

**Co-author(s):** Martínez Añanías, Cristina, Universidad de Granada, Granada, Spain

**Keywords:** Early Modern Ages, Late Middle Ages, Suburban landscape

**Presentation Preference:** Oral

Granada was the capital of the Nasrid Kingdom, the last Islamic emirate in Iberian Peninsula during the 13th-15th centuries. By the end of the Middle Ages, this town grew and changed its appearance due to both, the increasing of the number of people arrived from other parts of the Peninsula and the political, economical and ambiental decision about how to manage its surrounding area. According with the written sources, the northern part of the city, outside of the walls, was a very productive area in where some farms and almunias were built, partly thanks to the water management. It was known as “Cármenes de Ayamadar” and was described as an area with rich houses and farms, vineyards and the passage of one of the most important water channels of Granada: the ditch of Ayamadar.

Granada was conquered in 1492, date that marked the end of the Christian conquest of the whole Peninsula. After that, at the beginning of the 16th c., parts of these lands in northern Granada were given to Carthusian order to build a monastery. Since then, in addition to the construction of a monumental monastery, the monks became owners of a large space replacing the previous Muslim owners, and they decided to change the production system, creating dry crops in terraces and wailing all domains, transforming the landscape.

At the present time this area houses part of the university campus of Granada. In different excavations, it had documented here a long sequence of occupation beginning in prehistoric times and continues in Roman times when a area of pottery and ceramics workshops existed. However, the period of the Late Middle Ages and the consequences of the Christian conquest remains non well-known up to the last years.

During 2013 and 2014, was carried out a great work of renovation of roads that has permitted us to conduct a great archaeological intervention among the university Campus. The remains documented in these works, along with other previous excavations and the information from written sources will serve our objectives. Our aim is to show how the suburban landscape was transformed following the Castilian conquest and the Christian colonization in the last lands of al-Andalus.

TH3-14 Abstract 08

**Changes in crop and livestock management practices in the Kingdom of Granada**

**Author:** Prof. Matilde Cuello, Antonio, Universidad de Granada, Granada, Spain (Presenting author)

**Keywords:** Depopulated villages, Rural Archaeology, Settlement pattern

**Presentation Preference:** Oral

The conquest of the Kingdom of Granada means radical changes in the management of natural and agricultural areas. Consequently, there was a significant retrofitting in term of settlements pattern and territorial organization, to the point of generating a large number of depopulated villages. In the same vein, a reassangement of populations and a growing process of segregation and marginalization of the rural world is observed, which led to a violent confrontation between old and new Christians.

TH3-14 Abstract 09

**A multi-proxy approach on identifying stabilizing patterns in prehistoric times**

**Author:** Ebner, David, Free University, Berlin, Germany (Presenting author)

**Keywords:** animal husbandry, spatial analysis, stabilizing

**Presentation Preference:** Oral

The identification of changes in prehistoric settlements often depends on exceptional preservation conditions or geochemical analysis of sediments. But it is possible to determine patterns of archetypical features, particular objects and landscape use leading in the same direction? This presentation is dedicated to a multi-proxy approach to establish a method enabling the identification of different strategies of animal husbandry and stabilizing. The initial approach is based on excavation examples with extraordinary preservation conditions especially from the northern sea or lake sites with proof of existing or non-existing stabilizing features. But also settlements with inferior preservation can hold evidence of stabilizing that can be proven by various scientific methods. Finally, it will be tested whether it is possible to evolve these results on different settlement concepts and periods.
TH3-14 Abstract 10
Islands on lakes – life and rituals of Slavs in Pomerania during the pogan-christianity transition

Author - Prof. Chudziak, Wojciech, Nicolaus Copernicus University, Torun, Poland
Co-author(s) - Dr. Kazmierczak, Ryszard, Nicolaus Copernicus University, Torun, Poland
Keywords: Pomerania, Islands, Religion, Slavs

In the following paper, the authors will present the selected questions concerning the interpretations of this place according to the religious, social and economic contexts. The results of the research conducted in several such places. The Island of Żółta, located on the lake Zarańsko, belongs to the better examined ones. In the following paper, the authors will present the selected questions concerning the interpretations of this place according to the religious, social and economic contexts. The results of the interdisciplinary archaeological and bio-archaeological research will be the basis of their considerations.

Keywords: Pomerania, Islands, Religion, Slavs

Presentation Preference: Oral

TH3-14 Abstract 11
Spatio-Demographic Structure and Social Organization: A Linear Trajectory or Overlapping Trends?

Author - Zubrow, Ezra, SUNY at Buffalo, Buffalo Ny, United States of America (Presenting author)
Co-author(s) - Dr. Dachkenco, Aleksandri, Institute of Archaeology of the NAS of Ukraine, Kyiv, Ukraine
Keywords: demographic development, settlement, social complexity

The approach of the spatial and temporal distribution of settlement, hoards, burial patterns (n=701 sites including isolated objects) and grave goods. This case study of Northern Württemberg introduces a new idea about of structure and organisation of society at Ha A2/B1. Furthermore, it briefly presents a previously unpublished cemetery of the transitional Ha A2/B1 period at Erlenbach "Käppelesäcker" (district Heilbronn, Germany). Settlement patterns suggest a society whose patterns followed natural resources while settling in close proximity to the most important rivers of the region, the Neckar and Tauber. Although hilltop settlements exists no correlation with settlement accumulation or clusters could be detected. Therefore it is hypothesised that the patterns of settlement were governed by exploitation of natural resources of the lowland and access to larger rivers. The importance of rivers is stressed by the pattern of hoards as they mainly appear in the Neckar region. Burials follow the settlement pattern and imply the preference of rivers and suitable soils for agriculture.

Trade had to be an important factor of the North-Württembergian societies as they never developed distinct types of metal artefacts. No export objects are known but agricultural products and salt are both possible ideas. The ability to trade suggests production and possibly the existence of a vertical social structure.

As cremation was the prevailing burial practice vertical organisation and its impact on individuals can only be inferred by the analysis of grave goods. Early and early middle urnfield culture graves usually do not exhibit dissimilar "wealth" through grave goods. But at the cemetery of Erlenbach "Käppelesäcker" the grave of a child (7-10 years) yielded a small golden wire ring, a rare imported broken bronze bracelet, other metal objects and pottery. This finding might suggest a heritable form of social status but no other rich graves were detected in the necropolis. It is hypothesised that some individuals could accumulate more imported objects than others and some form of vertical organisation existed.

The study concluded that the data of the transitional Ha A2/B1 period suggests a society in flux. First obvious differences in grave attire start to exist but the settlement pattern does not suggest any interregional forms of rulership. Instead social organisation on a smaller scale, governed by economic success could have been the starting point, leading to the later presumably hierarchical societies of the Iron Age.

Keywords: demographic development, settlement, social complexity

Presentation Preference: Oral

TH3-14 Abstract 12
Settlement and Process in Colonial Encounters

Author - Professor Cornell, Per, University of Gothenburg, Västra Frölunda, Sweden (Presenting author)
Keywords: Colonialism, Settlement, Socioeconomic

Discussing two cases from the Americas, the question of settlements and the socio-economic will be addressed in relation to a colonial context, the European conquest of the continent. One case addresses developments in what is today Quintana Roo, Mexico, and the other a case from the Calchaqui river system in today’s Northern Argentina. Questions of relationism and encounters will be addressed, but in particular the relation between settlement organisation and the socioeconomic. The potentials of the concept of mode of production, in a new revised version, will be tested.

Keywords: Colonialism, Settlement, Socioeconomic

Presentation Preference: Oral

TH3-14 Abstract 13
Society in flux: Evidence from the middle/late Northern Württembergian Urnfield Culture

Author - Girotto, Chiara, University of Durham, Durham, United Kingdom (Presenting author)
Keywords: Northern Württemberg, stratification, Urnfield Culture

Up to date the society of the Untermain Swabian-group of the middle/late Urnfield Culture has never been analysed by a combined approach of the spatial and temporal distribution of settlement, hoards, burial patterns (n=701 sites including isolated objects)
Theoretical and methodological perspectives in archaeology

Friday, 2 September 2016, 14:00-16:00
Faculty of Philology, Room A7

Co-author(s) - O Riaqim, Russell, Ruprecht-Karls Universität, Heidelberg, Germany

Theoritical and methodological perspectives in archaeology

Keywords: Atlantic, Landscape, Networks

Presentation Preference - Regular session

Taking Europe's Atlantic seaboard as an area of study is by no means adopting a novel perspective, even if the majority of the scholarship on its constituent parts has been of a narrow spatial perspective, usually focussing on either a single region, or on immediately adjacent regions. Where a broader spatial remit has been adopted, it has usually been within a contingency paradigm, with designations such as 'Atlantic Fringe' bearing the imprint of a mixture of Classical bias and more modern social evolutionism. Conversely, the temptation of adopting a neo-Romantic exceptionalist approach to the wider region, emphasizing its uniqueness and unity of shared traits must also be avoided. Therefore, this session will adopt a via media. Papers are sought examining regional similarities and differences, responses to environmental and the movement of people, ideas and things within the arc. Furthermore, papers are also sought addressing the ways in which different areas of the arc interacted with their inland neighbours, both with social mega-configurations such as the Roman and Frankish Empires and on a more micro-political level, either affecting or not affecting cultural change and identity shift.

Multidisciplinary papers treating these issues are particularly encouraged, as are papers adopting a comparative perspective, utilising case studies from across the Atlantic Arc. The focus will primarily be on the first millennium AD, but papers may also be accepted from beyond this chronological timeframe, so as to provide further insight by setting the main temporal remit in its broader contextual parallel. Similarly, papers dealing with areas adjacent or otherwise connected to the session's spatial remit might also be accepted to set the Atlantic Arc in its wider geographical context.
TH3-15 Abstract 05

Europe of the Regions? Sailing between Scylla and Charybdis on Europe’s Atlantic Arc

Author - Ó Ragain, Russell, University of Cambridge, Heidelberg, Germany (Presenting author)

Keywords: Early medieval Europe, Multiscalar perspectives, Theoretical archaeology

Presentation Preference - Oral

This paper will explore the epistemological and ontological validity of taking the various territories along Europe’s Atlantic seaboard as an area of study in the first millennium AD. It draws on some the insights gained thus from an on-going wider collaborative research project on the Atlantic Arc in the first millennium AD with Patrick Gleeson, University of Newcastle, and Álvaro Carvajal Castro, University College Dublin. In keeping with the overall theme of the session, an attempt will be made to steer a course between various extremes usually portrayed as a series of binary oppositions, as evinced in the various particularist/generalist, -emic/-etic, structure/agency, micro-/macro- and exceptionalist/universalist debates across the social sciences, archaeology included. Different poles have attracted varying numbers of adherents in recent decades, as archaeology – and indeed the social sciences in general – lurched from one paradigm to the next. It is argued here that there is no single way of thinking about historical problematics our current (purportedly) epistemologically-anarchic academic milieu. None of these oppositions are as stark as might often be implied, rather they occupy the extreme ends of various spectra, more related to issues such as the spatial, temporal and/or evidential parameters of a scholar’s area of study, or to individual bias. The death of the grand narrative was proclaimed more than three decades ago, however, very little has been offered up as an alternative for scholars interested in change over time and/or on broad geographical scales.

Using the Atlantic Arc as a broader test-case, and more specifically my own multidisciplinary research on settlement in Ireland, Scotland, England and Norway within this wider area, a via media is proposed here. This ‘middle road’, adopted from post-structuralism, might be best termed might the ‘aggregate narrative’, a mediating, empirically-grounded collaborative approach, which brings together the work of several scholars working on smaller spatiotemporal scales or utilising different categories of evidence. This helps mitigate not only against the issues inherent in macro-level generalist approaches, but also those associated with over-adherence to the sorts of micro-level, particularist and exceptionalist approaches associated with the national archaeologies of various regions of Europe. It also helps mitigate against issues such as the relationship between nationalism/regionism and archaeology on the one hand, and on the other, the epistemological dissonance brought about by the use of different systems of classification.

TH3-16

TOWARDS DIGITAL INFRASTRUCTURES FOR OPEN, PARTICIPATORY, PUBLIC ARCHAEOLOGY

Thursday, 1 September 2016, 14:00-16:00

Faculty of History, Room 329

Author - Dallas, Costis, University of Toronto, Canada (Presenting author)

Co-author(s) - Degreave, Ann, Brussels Capital Region - Heritage Direction, Brussels, Belgium

Co-author(s) - Fernie, Kate, 2Cultures Associates Ltd., United Kingdom

Keywords: CARARE, digital archeology, Europeana

Presentation Preference - Round table

The Amersfoort Agenda of the European Archaeological Council, developed during its 15th annual symposium, identifies the need for concerted action to meet the objectives of the Council of Europe’s Framework Convention on the Value of Cultural Heritage for Society (Faro Convention) to secure the rights of people to access, participate, and benefit from cultural heritage and cultural life, and contribute towards its enrichment. This round table, taking stock of the insights from digital infrastructures such as Europeana and its CARARE network of archaeological and architectural heritage archives across Europe, will explore and debate how aggregated digital archaeological resources and the infrastructures supporting them can best serve the needs of a truly participatory and open social archaeology, enhancing and unlocking their value to foster citizenship, innovation, economic growth, employment and social cohesion. Understanding the potential value of digital archaeological infrastructures for diverse stakeholders including young people and children, the needs and opportunities they may offer for archaeological land management, education, tourism, research and the creative industries, as well as the promises and challenges of integrating social media, open curation, crowdsourcing, and semantic enrichment to enhance social access and participation to archaeological sites and data, will be among the topics to be discussed.
In scientific literature the term “Baltic region” is often used in either of two meanings: as the geographical region around the Baltic Sea, and as a cultural region of the Balts.

This conference theme on the Archaeology of the Baltic Region seeks interconnections of both meanings of the term “Baltic”. The remains of material culture and toponymical forms demonstrate that the influence of the Baltic cultures covered the territories from contemporary Moscow to the Oder river, and from contemporary Latvia to the Ukraine and overlaps with geographical region around the Baltic Sea. Cultural and technological interactions between these two regions were important factors in the formation of Northern, Eastern and Central Europe throughout the period of the 2nd millennium BC to the 16th century AD. However, various roles played by different cultures in the development of the region remain problematic, and were heavily influenced by the nationalistic narratives of the 20th century.

Fundamental questions about the formation of the both “Baltic regions”, the interconnections between Baltic, Slavic, Fino-Ugric, Germanic cultures and the rest of Europe; the impact on formation of medieval Lithuanian, Russian, Polish, German, and Swedish states will be discussed in this Theme.

This Theme is dedicated to Maria Gimbutas (1921-1994), the world-renowned Lithuanian scholar who contributed immensely to the studies of the Balts as a part of the wider Indo-European phenomenon of the “Old Europe”.

Archaeology of hillforts in the Baltic

Thursday, 1 September 2016, 14:00-18:30
Faculty of Philology, Room 107

Author - Sebastian Messal, German Archaeological Institute, Berlin, Germany (Presenting author)
Co-author(s) - Baen, Timo, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany
Co-author(s) - Bitner-Woźniewska, Anna, Państwowe Muzeum Archeologiczne, Warszawa, Poland
Co-author(s) - Zabiela, Gintautas, Klaipėdos universiteto Institute of Baltic Region History and Archaeology, Klaipėda, Lithuania

Presentation Reference - Regular session

Hillforts resp. strongholds are most famous and recognizable monuments of ancient societies in the northern part of Europe. From the region east and south of the Baltic Sea altogether about 1.700 hillforts and strongholds are currently known, dating from the Early Metal Age/Bronze Age to Medieval times. Numerous investigations within several decades of archaeological research have provided various information about the occupation layers, functions and chronology of the hillforts/strongholds. Nevertheless, new information can be gained under the application of interdisciplinary methods. Such approaches provide new results regarding the settlement history and function of the sites, but also the reconstruction resp. transformation of the surrounding cultural landscape.

The purpose of the session will be to present a comprehensive overview of the current state of research of hillforts/strongholds in the region east and south of the Baltic Sea. Therefore we invite researchers to submit papers which will present archaeological, historical and interdisciplinary investigations of hillforts/strongholds. The session’s preferably spatial focus is on the Eastern Baltic area, but we also welcome papers dealing with fortifications outside of this region to enable a necessary comparison of approaches, methods and results of the archaeology of hillforts/strongholds.

SH4-02 Abstract 01
The continuity of hillforts in long-term perspective: a case study from south-eastern Estonia

Author - Dr. Valk, Heiki, University of Tartu, Tartu, Estonia (Presenting author)
Keywords: chronology, hillforts, long-term perspective

Presentation Preference - Oral

Hillforts have often been regarded just in the context of some definite time period – as power centres and important centres of the settlement pattern. However, not much attention has been paid to the network of hillforts as a phenomenon from a long-term perspective. The paper sheds light upon the question on the basis of a case study concerning the hillforts of south-eastern Estonia; there problem-based small-scale excavations with the aim to establish the chronology of sites were carried out on 31 hillforts, i.e. on almost all the sites, in 2015-2015.

Until the late 20th century it seemed quite clear that hillforts emerged in south-eastern Estonia only since the beginning of the Viking Age. Archaeological excavations, both radiocarbon dates and finds, have, however, fully disproved the suggested model. It appears that hillforts emerged in the pre-Roman Iron Age already and were used in different time periods. However, the network of sites has greatly changed in the course of time. Many of the sites, especially those of the Early Iron Age, were of short-time use, sometimes also re-used. Only in a few cases the site was used over a long time period. The case of south-eastern Estonia enables one to suggest that dates and chronology of hillforts, based on only external features, and not proved by results of archaeological excavations, may be most misleading.

SH4-02 Abstract 02
The evolution of hillforts in Lithuania according the C14 data

Author - Ass. prof. Zabiela, Gintautas, Klaipėda university, Klaipėda, Lithuania (Presenting author)
Keywords: C14 data, hillforts

Presentation Preference - Oral

About 200 hillforts (from about 900 known) were investigated in Lithuania until 2015. According to the data, got in time of these excavations, was made the general evolution of hillforts. The main stages of development of fortifications were designed in basis of typological dating of archaeological artefacts. Until the last decade of this century the C14 data in Lithuania were seldom
and mainly in old LSC method. Now we possess new series of these data, made in AMS mode. They allow us to correct some aspects in development of hillforts in Lithuania. Between them are the time of origin of hillforts and this development in Roman and Migration periods of Iron Age. C14 data permit to precise some aspects in this development, but not change the general schema. The new C14 data, given from hillforts in neighbouring countries also estimate for creating the modern model of development of hillforts in South-East Baltic region.

TH4-02 Abstract 03
The application of geophysical investigations in Baltic hillforts

Author - Dr. Messe, Sebastian, German Archaeological Institute, Berlin, Germany (Presenting author)
Co-author(s) - Dr. Krenke, Ivan, Institute of Baltic Region History and Archaeology, Klaipeda, Lithuania
Keywords: Baltic Hillforts, Geophysics, Noninvasive methods
Presentation Preference - Oral

Since 2010 several archaeological sites have been geomagnetically surveyed in Lithuania. In the framework of this collaboration also several hillforts (Taurapilis, Opatnica/Opština, Jaka) have been investigated. In almost all sites features and structures could be detected that enables some initial statements on the structure and dimensions of the architectural monuments. For some sites the surveys also provided very precise and hillforts unknown information about the settlement context like in Taurapilis and Opatnica/Opština (fortification ditch/es) or Jaka (submantine, stone wall fortification). These new results clearly show the potential of noninvasive, especially geophysical methods for archaeological purposes, not just for archaeological research, but also for cultural heritage management. The geophysical data can be used differently as basis for specific archaeological investigations – which have for example already been conducted in Taurapilis – and for the development of future concepts and strategies for the protection and preservation of these sites. The paper focus on the most exciting results of these surveys which will be presented and discussed during the talk.

TH4-02 Abstract 04
Signals of subsistence economy as revealed by pollen data: a case study from Lithuanian hillforts

Author - Dr. Stancikaité, Miglė, Nature Research Centre, Vilnius, Lithuania (Presenting author)
Keywords: hillforts, Lithuania, pollen data
Presentation Preference - Oral

Recently pollen investigations were conducted in the territory of Impiltis (Late Iron Age -the Middle Ages), Skomantai (Early Iron Age-Migration Period and the mid-13th c; mid-14th c. AD), Jaudonys (the early Iron Age – the Early Middle Ages) and Petraišiūnai (1st-3rd century AD – Historical times) hillforts or in the closest vicinities of mentioned monuments. In addition to the late Holocene sediments associated with human activities, well-preserved organic sediments with reliable radiocarbon dates 8000-10000 BP were found in the floodplain of the creek near the hillfort. Pollen analysis allows us to reconstruct the local environmental conditions at the boundary of the Peatmoor and Holocene: the gradual transformation of a shallow freshwater reservoir in the marsh and than in the fen, while pine forests dominate the surrounding landscapes.

TH4-02 Abstract 05
The environment of the Sambia hillforts according to the pollen studies

Author - Enrova, Ekateryna, Moscow State University, Moscow, Russian Federation (Presenting author)
Co-author(s) - Krenke, Nikolay, Institute of Archaeology RAS, Moscow, Russian Federation
Keywords: environmental archaeology, land use, pollen analysis
Presentation Preference: Oral

A large number of paleoarchaeographic reconstructions based on pollen data were made for the coast of the Baltic Sea by European and Russian scientists. However, such reconstructions for Sambia Peninsula are still lacking. Archaeological studies of the Sambian expedition (A RAS, 2005, 2010-2013) in the area of the village of Ruklovo (Kringitten) have identified a number of natural and man-made objects that are suitable for palynological studies. These are cultural layers, pits and moats fillings, arable soils, buried under the deluvial sediments, as well as small peatlands. All of these objects have been dated using archaeological or radiocarbon methods. Pollen analysis of the sediments allowed us to reconstruct in general the vegetation changes of the North of the Sambian Peninsula over the past 2000 years. It is shown that prior to the intensive agricultural development prominent coniferous-deciduous forests with spruce, pine, oak, linden, hornbeam, elm were widespread, along with black alder forests in the lowlands. The mass extermation of upland forests was associated with Roman time (about 1800 BP). In the following, Prussian, period (about 1300 BP), pollen data indicates a continuation of deforestation - decrease or complete disappearance of the black alder, which is a result, apparently, of the amelioration of lowland swamps for pastures and fields. Pollen indicates the absolute predominance of open agricultural landscapes also during the subsequent periods, until the 20th century. Some features of the land use of different epochs, such as the cultivation of various crops, have been revealed. Also, pollen studies allowed us to identify some local episodes of vegetation changes associated with the history of individual archaeological sites.

In addition to the Late Holocene sediments associated with human activities, well-preserved organic sediments with radiocarbon dates 8500-10000 BP were found in the floodplain of the creek near the hillfort. Pollen analysis allows us to reconstruct the local environmental conditions at the boundary of the Peatmoor and Holocene: the gradual transformation of a shallow freshwater reservoir in the march and than in the fen, while pine forests dominate the surrounding landscapes.

TH4-02 Abstract 07
Drilling the past - New approaches in dating hillforts in the Baltic region

Author - Dr. Ilsen, Timo, ZBA, Schleswig, Germany (Presenting author)
Keywords: C14 dating, hillforts, Kaliningrad Region
Presentation Preference: Oral

Though most of the more than 2500 hillforts in the Baltic Region are mapped and discussed on a military-strategic background since the beginning of the archaeological research in the 19th century the number of intensively investigated monuments until now is surprisingly low. Especially the northern part of former East Prussia, nowadays Kaliningrad Oblast a part of the Russian Federation, shows a significant lack of data. For instance, for the Sambian peninsula we know approximately 90 hillforts, from which only 22 have been examined by surveys and only 7 have been partly excavated. In addition only a few excavation results have been comprehensively published.

In particular, the dating of the monuments is mostly based on theoretical considerations and studies of written sources of the Teutonic order, which only give evidence for their late existence, but not for their time of their construction. The existing typological models are confronted with the same problem of missing of absolute dates. Precise dating supported by natural sciences such
as Radio-Carbon-analysis are available only for a few monuments in Poland, Lithuania and Latvia, but they are absolutely absent for the Kaliningrad Region.

In the context of a bigger project on settlement archaeology, conducted by the Centre for Baltic and Scandinavian Archaeology in Schleswig and the Museum of Prehistory and Early History in Berlin and financed by the Academy of Sciences and Literature Mainz, the author developed a new strategy for the dating of hillforts. Using a motor driven drilling equipment for sampling datable material, especially for Radio-Carbon-analysis, the rams of several hillforts in Lithuania and Russia have recently been investigated. The paper gives an overview on the methodology and presents first results of the recent investigations.

TH4-02 Abstract 08
Reconsidering early hillforts in the East Baltic: conflicts and metallurgy

Author - Podelius, Vytenis, National Museum of Lithuania, Vilnius, Lithuania (Presenting author)

Keywords: behavioral archaeology, early hillforts, spatial analysis

Presentation Preference - Oral

Recent research of archaeological finds and new discoveries in the Lithuanian museums encourage reconsidering the cultural phenomenon of emergence of hillforts in the Late Bronze Age. The basic assumption of this paper is that the emergence of hillforts is a behavioral expression of prehistoric conflicts. A contemporaneous process of appearance of locally executed metallurgy in the East Baltic region concentrates in hillforts as well. Thus making the two practises comparable.

With application of behavioral archaeology theory, the research of the formation processes of Narkūnai “Dibys” hillfort is presented as a case study with spatial analysis of household and technical ceramics, bone ashpits and spearheads, and metal finds. Results suggest abandonment of the northern building with the concentrated sherds’ nests and bone finds. The analysis of aforementioned groups of finds is compared to recent research and spatial analyses by Latvian and Estonian archaeologists of archaeological context of Asva, Rifala and Krivotais hillforts. In addition, distribution of early hillforts and eastwards migration in the East Baltic region and its chronological character are analyzed.

Typologically most of the earliest finds from the hillforts are attributed to PNV-VI, with exception to the bone pins with nail-shaped head and Majdów type bronze pin that indicate a possible end of PIII. Casting moulds for socketed axes from Narkūnai, Gaučiškis, Šiauliai, Naujikas and Brikuti hillforts, and casting molds for spearheads from Asva, Brikuti and Krivotais hillforts are one of the earliest evidences, dated to PNV-VI, of locally executed metallurgy in East Baltic region. The historiographical classic route of Daugava river seems to attract most of the early metalworkers. Casting moulds for Māla type socketed axes are an indication of appearance of metallurgical activities in the hillforts. The latter casting moulds, like the rest of the technical ceramics types, are scarce, with similar amounts in Narkūnai and Krivotais and one newly found in the National Museum of Lithuania from Gaišanai hillfort. However, the Māla-type bronze axes are not specific to the East Baltic region, on the contrary the axes are mostly found in Scandinavia or in Upper Volga region of the inseparable Azinovo-type axes. Furthermore, spatial analysis of Narkūnai hillfort technical ceramics indicate that the Māla-type bronze axes have been cast on two different occasions, therefore making some ground for the itinerant metalworkers’ hypothesis. The aim of the paper is to reconsider the emergence and character of early hillforts in the East Baltic region in the spatial analysis of bone, ceramic and metal artefacts, and the emergence of locally executed metallurgy as a relatable process.

TH4-02 Abstract 09
Late Bronze Age hillforts in Pomerania: an overlooked problem

Author - Niedźwiecki, Kamil, University of Gdańsk, Gdańsk, Poland (Presenting author)

Keywords: hillforts, Late Bronze Age, Pomerania

Presentation Preference - Oral

Although hillforts identified with Lusatian culture, from the end of the Bronze Age and beginning of the Iron Age appear in vast areas of the Central and Northern Europe, less is known about their settlement in Pomerania, besids Lower Oder region. This scarcity is surprising, especially taking into account relatively numerous appearances of hillforts in Great Poland that is a region directly neighbouring with Pomerania from the south. On the other hand, investigations conducted in the 1960s to verify Pomeranian hillforts described as originating from Early Medieval and Medieval Period resulted in detecting at least at a dozen sites with materials from the latter Bronze Age. The aim of this paper is to introduce the problem of alleged presence of Lusatian culture hillforts in the central part of Polish Pomerania. It is highly probable that this kind of settlements played an important role in interregional contacts between Eastern and Western parts of Pomerania, together with Great Poland. In wider perspective their role in the course and working of the Amber route at the end of the Bronze Age should also be taken into account and investigated. It seems that new tools available for archaeologists like GIS software and LIDAR data may bring a new opening and new perspectives in researching this case study.

TH4-02 Abstract 10
Moving forward in the understanding of medieval ring-forts in Central Poland. Rozprza case study

Author - Dr. Sikora, Jerzy, Institute of Archaeology University of Lodz, Lodz, Poland (Presenting author)

Co-author(s) - Dr. Krzto, Piotr, Department of Geomorphology and Palaeogeography, Faculty of Geographical Science, Lodz, Poland

Co-author(s) - M A Wroniak, Piotr, Independent researcher, Warsaw, Poland

Keywords: archaeological prospection, Early Middle Ages, ring-forts

Presentation Preference - Oral

Medieval ring-forts in Central Poland were a subject of archaeological interest since the 1930’s. Twelve features included in our projects were previously either partially excavated. These studies despite gathering new data regarding stratigraphy, chronology and material culture usually failed in bringing forth definite understanding of the ring-forts functioning in the landscape. Since the 1990’s along with the rapid advance of non-invasive methods new possibilities were opened up for the study of ring-forts and their landscape contexts. In 2013-2015 three projects based on combinations of non-invasive and geoarchaeological methods were undertaken. Multiple methods such as magnetic gradiometry, earth resistance, aerial prospection, phosphate prospection with a simplified field method, analysis of archival aerial data, airborna laser scanning, intensive analytical field walking, RTK GPS and Total Station surveys and geomorphological surveys along with geological mapping were carried out in order to provide possibly comprehensive and complementary data sets without archaeological excavations. All results were integrated in a digital environment based on open source GIS software. The project methodology allowed the collection of vast and significant new datasets such as previously unrecorded information about the spatial structure of fortification features: additional rampart lines in Chelm, the course of not preserved ramparts in Wirow and Rójnik, a developed moat system in Rozprza, a previously unknown second, smaller ring-fort in Stare Bloiszew. Traces of open settlements were also detected in the close vicinity of the strongholds. In each case the applied methodology helped to specify environmental determinants of settlement’s situation. The studies in Rozprza (ca. 60 km south from Lodz) were a prime example of new data categories that non-invasive approaches bring forth. Field was excavated in 1960s but revaluation of previous knowledge is now necessary. Remains of the Rozprza ring-fort defensive system are poorly preserved but still visible in the field as earthworks. Currently, the site occupies an area covered with meadows and fallow fields situated between the contemporary main channel of Luciąża and Rajaska river in the central part of valley floor, but on the Piszowski aluvial terrace remnant. Non-destructive surveys of the ring-fort surrounding were carried out in 2013-2015. In 2015 the small-scale excavation phase began, combined with complex palaeo-environmental research. It helped to detect the presence of a developed system of moats and ramparts which appeared to be a palimpsest composed mainly of elements of late medieval and early medieval periods, respectively, which replaced an older, early medieval motte-and-bailey system. The surface mound the earthen and timber ramparts as well as moats with a depth of up to 1.4 m with organic till of gyttja and peat and partially inorganic deposits with rich remains of wood as well as organic materials. The results correspond to various geophysical anomalies and crop marks documented during aerial reconnaissance.

Acknowledgments. This research project was financed by three one-year grants from The Ministry of Culture and National Heritage No. 0161913/FPK/NID (2013), 4962/14/FPK/NID (2014), 4962/14/FPK/NID (2015) and by a grant from the National Science Centre based on the decision No. “DEC-2013/11/B/HS3/03785” (2014-2017).

TH4-02 Abstract 11
Is Hollenstein the Carolingian Holstenburg from 804 AD? New contributions to an old controversy

Author - Dr. Schneeweis, Jens, Institute for the History of Material Culture RAS, Saint Petersburg, Russian Federation (Presenting author)

Co-author(s) - Dr. Brandt, Jochen, Archäologisches Museum Hamburg/Helmuseum, Hamburg, Germany

Keywords: Carolingian Border, ceramics, dendrochronology

Presentation Preference - Oral

The stronghold „Alte Burg“ near the village of Hollenstein is an Early Medieval fortification, which was long-interpreted as the place where Charlemagne met representatives of the Danish king Godofrid in AD 804. It was partly destroyed and then excavated in the late 1960s and 1970s. Since that time there is no consensus about the dating and the related interpretation of the site, which is ranging between the early 9th and 10th c. AD. This question is of major importance not only for the historical interpretation of the site but especially for the understanding of the ceramical finds. The excavations at Hollenstein revealed a unique complex of pottery showing both Saxonian and Slavonic influences. The solution to the dating problem can establish Hollenstein as a reference site for those „hybrid“ ceramics. In autumn 2014 recent research including excavation and geophysical investigations provided new data that are presented in this paper. They prove the erection of the fortification not earlier than in the late 9th c. AD. Moreover, the data require a re-interpretation of the whole situation, described with the passage "... in loco, qui dicitur Holstenburg" in the Royal Frankish Annals in 804 AD.
Spatial analysis of the system of fortifications of the Iron Age hillforts Dyakovo culture

Author: Chauxin, Sergey, Institute of Archaeology Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)

Keywords: Hillforts, Iron Age, Spatial analysis

Presentation Preference - Poster

The study deals with the sites of the early Iron Age in the area between the Oka and Volga (East European Plain). This area was inhabited by tribes of the so-called Dyakovo culture. The remains of the fortifications of these settlements are the ramparts and ditches located on the residential area and the perimeter of the scarp - construction settlements on the slopes. Number of lines of fortifications on each settlement varies. Usually it is 1-3 shaft and ditch. With the help of GIS analysis to determine the spatial patterns of the fortifications on the location of the ancient city. This study is to determine the functionality of the ramparts and moats, define local cultural centers. The research considered the organization of space in the settlements Dyakovo culture from the 8th century BC to the 7th century AD. The beginning of D'yakovo culture hill-forts dated to the end of sub-boreal climatic period which is characterized by climate cooling, compared with the previous, and the change of deciduous forests with fir. This period continuous to 500's BC and covers the first phase of life in the hill-fort. Next climatic period Subatlantic characterized by even more cooling and moistening climate. It is falls on top of the second and third stages of life on the hill-forts. All settlements were divided into three layers corresponding chronological periodization. Stage 1 - 8th century BC - 6th century BC; stage 2 - 5th century BC - 2nd century BC; stage 3 - 1st century - 7th century AD.

THE MATERIALITY OF CULTURAL CONTACT. THE BRONZE AGE IN THE BALTIC SEA REGION

Thursday, 1 September 2016, 09:00-13:00
Faculty of Philology, Room K. Donelaičio

Author - Lang, Valter, University of Tartu, Tartu, Estonia (Presenting author)
Co-author(s) - Merkevicius, Algimantas, University of Vilnius, Vilnius, Lithuania
Co-author(s) - Martinsonsson-Wallin, Helene, University of Uppsala, Uppsala, Sweden
Co-author(s) - Sperring, Uwe, Freie Universität Berlin, Berlin, Germany

Keywords: Bronze Age, cultural contacts, materiality

Presentation Preference - Regular session

The Baltic Sea region has been viewed as a maritime network of contacts implying a well-developed infrastructure of communication and transport. However, the cultural (pre)history of the Baltic is not just a maritime one; as it goes for the Bronze Age, societal interaction was certainly not restricted to the Baltic coasts and islands but embraced much wider inland regions and river systems. Bronze Age studies have, to a certain extent, always been (social) interaction studies. That is mainly because of geographical distribution patterns of material culture attributes, indicating to expanded networks. Particularly the nature and extent of exchange and transmission are the most discussed topics in Bronze Age research. Metalwork production and circulation, for instance, have been prominent issues ever since because the widely travelled objects and materials turned scholar’s attention to their value, meaning and reception in the particular social milieu.

Metals and production remains are just one of the many material sources of social interaction, just as rock art (as visual culture) or pottery from either domestic or funerary contexts. In spite of recent achievements in Bronze Age research we have, however, to admit that materialities of different kind may lead to different perspectives of connectivity. That is why the studies of any object’s social biography or cultural value demand theoretically well-informed approaches when identifying or interpreting social transformation and reception processes.

The session welcomes papers dealing with any aspect of material expression in regard to cultural contact or cross-cultural transmission in a wide context of a Baltic Bronze Age, in order to introduce the various archaeological and scientific approaches to Bronze Age networks and related key issues (scale, chronology, materiality).

The role of Estonia within Baltic Sea network during the protohistory

Author - Dr. Abbate, Stefano, Independent Researcher, Roma, Italy (Presenting author)

Keywords: Cultural interactions, Estonia, local identities

Presentation Preference - Oral

In the human-environment interactions, the analysis on the shifting dynamics of the trade routes represents a key for understandings patterns in which humans behave, organize and perceive themselves and their world.

In Baltic Sea, Estonia is localized in prosperous geographical position: its north-western coastal areas and islands on one hand and its south-eastern land borders on the other have contributed positively to the definition of cultural transmissions, widely well-evidenced by circulation of goods, ideas and traditions as early as Bronze Age.

Funerary archaeology has traditionally been one of the main research topics useful to define the social identities and demography; in fact, by means of analysis of spatial distribution, grave goods assemblages, funerary architecture and anthropological data, the social structures and rituals of the protohistoric human communities can be reconstructed.

This project will focus on the active role of Estonian communities and on their capability to assimilate and to adapt to local traditions all those elements included in the long and complex prehistoric experience. Through some case studies (e.g. Kaseküla), it is possible to identify evidences connected with ancestor cult, expression of a remarkable sense of belonging to the past.
There are over a thousand cairns on Gotland that has been discussed as burial sites belonging to the Bronze Age time and around 200 of these have monumental dimensions, ranging from 20 to 50 meter in diameter and 2.5-7 meter high. Only a few of these structures have been partly excavated and only one have so far been totally excavated with archaeological scientific methods. These cairns have so far only been discussed as burial sites but due to our recent archaeological excavations in relation to three of the largest cairn environments on Gotland (Oggergården, Djurarn and Hägården) and re-examination of the material excavated at Kauparveraj new knowledge about these places have been generated. Our investigations show that these monuments go beyond the function as only burial sites. This paper present a new approach to analyse and discuss the ritual practices indicated by our recent excavation at these sites that allow us to understand them both as burial and ritual sites in a changing physical and mental environment during several thousand years.

TH4-04 Abstract 03
Patterns or randomness? Contextualising Estonian Bronze Age bronze stray finds on the landscape
Author - Pavel, Kristina, University of Tartu, Tartu, Estonia (Presenting author)
Presentation Preference - Oral

From Estonia, most large Bronze Age (1800–500 BC) metal items such as axes and spearheads have been found from non-settlement, non-burial context as single stray finds. In contrast, bronze finds from settlements and burial sites are small and of personal nature – tweezers, razors or clothing-related items such as buttons. The connection of stray bronze finds with coeval settlement sites has been assumed on a few occasions. A couple of items have been associated with possible deposition in water bodies. The possibility of these stray finds being deliberate depositions on the landscape, as identified in large parts of Europe, including the Baltic, has until now been systematically unexplored. This phenomenon has been interpreted from different perspectives: sacrifice, conspicuous consumption, mundane safe-keeping, memory practice and the removal of valuables or objects with powerful life-histories from circulation. Seeking patterns in Estonian material required characterising the original deposition environments of individual find locations. To do so, I combined archive materials, topography, shore displacement data and information on soil properties. The results point to observable patterns in artefact distribution, with a preference for water bodies, wetlands and slopes. This implies not random losses, but wilful deposition activity.

TH4-04 Abstract 04
Digital re-construction of a Bronze Age stone wall enclosure and the landscape at Lina Mire, Gotland
Author - Associate Prof. Wallin, Paul, Uppsala Universitet, Visby, Sweden (Presenting author)
Co-author(s) - Martinosson-Walhn, Helena, Uppsala Universitet, Visby, Sweden
Co-author(s) - Wahlén, Joakim, Dala Museum, Falken, Sweden
Co-author(s) - Sandelin, Anders, Sandelin Animation, Stockholm, Sweden
Keywords: Bronze Age, Re-Construction, Wall enclosure
Presentation Preference - Oral

The aim of the project was to digitally re-construct the stone wall enclosure at Gotheshammarm and to understand its location in the surrounding landscape. Excavations into the feature uncovered its internal construction details, as well as, dateable materials from domestic animals and charcoal. Fifteen AMS dates gave a clear and somewhat unsuspected age of the structure to the mid Bronze Age ca. 900-700 BC. The northern end of the wall is to be found at the end of a steep cliff, and since the southern end of the wall ended in an open slightly slanting terrain it suggested that it might have ended at the sea level when built to demarcate a point in the landscape. We therefore reconstructed the water level using LiDAR data indicating that the former sea level at mid Bronze Age could be set at about 10 m above the current sea level in this area. To place the wall enclosure in its Bronze Age context we also plotted other features tied to the same time, such as stone ship settings, cairns, other wall enclosures, and known hoards into the re-constructed landscape. It then became quite evident that points, small islands, and the coastal locations was of great importance for the location of these monuments and that Lina mire must have been an important “port” for Bronze age communications, internal as well as external, and Gotheshammarm was strategically located at the entrance of this water system.

TH4-04 Abstract 05
Between Social Dynamics and Cultural Constancy. Case Study of the Trzciniec Culture
Author - PhD student, Agne, Zīlnskalna, Vītnus University, Vītnus, Lithuania (Presenting author)
Keywords: Bronze Age, pottery, Trzciniec Culture
Presentation Preference - Oral

The appearance of the Trzciniec Culture (Trzciniec Cultural Cycle) in Lithuania and its role in the formation process of Bronze Age cultures is still a controversial question at the present stage of research. The investigation of this culture started only a few decades ago even though Trzciniec culture artefacts have been known in Lithuania for a long time. The archaeological material of this culture is known from almost 20 sites in current Lithuanian territory. Individual pots, clusters of pottery and artefacts are usually found on these long-term lived sites. The ornamental motifs on the pottery in all the groups of Trzciniec Culture are the most important criterion for identification. However, the conspicuous influence of neighbouring simultaneous cultures can be seen in this pottery. Its background was no doubt Globular Amphora and Corded Ware Cultures with influences of the Narva and Nemunas Cultures in Lithuania. There are more individual sites which scattered over the northern area far from the main Trzciniec Culture territory (Lithuania, Latvia, Kaliningrad district). One may reasonably ask how these finds should be evaluated as ‘islands’ of Trzciniec culture (1), as a reason to include Lithuania in the Trzciniec culture’s range (2) or as the result of the influence or penetration of cultures linked to this culture (3).

Therefore, the Trzciniec culture in Lithuania’s territory could be treated as one of the most influential phenomena of the Middle Bronze Age. This paper analyses various aspects of the concept and chronology of the culture and presents a history of the research in the culture’s territory. Priority is given to archaeological pottery, the main indicator for cultural identification. In addition, this paper analyses the Bronze Age cultural situation in the Eastern Baltic region and raises the question of whether the Trzciniec culture existed in Lithuania and in what form.

TH4-04 Abstract 06
Coastal and northern Lithuania in the Late Bronze Age – communication networks and interactions
Author - Assoc. prof. Merkevičius, Algimantas, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: Bronze Age, cultural contacts, materiality
Presentation Preference - Oral

The Late Bronze Age, from around 1200 BC, was a time of significant cultural changes in Lithuania and in the whole East Baltic Region, especially in the coastal zone and around Daugava River. A new culture elements, such as some type of graves, pre-Celtic fields, cup-marked stones, stone enclosures, metal artefacts (Mörby axes, miniature daggers and others) shows contacts and interactions in the Baltic sea region. Some of new culture elements are the result of external influences from coastal zones of the western and southern Baltics. Distribution of new type of sites and artefacts suggests communication networks in the Baltic sea region. One of the trade route was established at the beginning of the first millennium BC and worked between central Sweden, Gotland, east Baltic Region (Daugava route) and northeast Russia in the first half of the first millennium BC.

The aim of the paper is to discuss communication networks and nature and scale of interactions in the Baltic Sea Region in the Late Bronze Age.

TH4-04 Abstract 07
Materialised and non-materialised contacts in Bronze-Age Eastern Baltic
Author - Professor Lang, Valter, University of Tartu, Tartu, Estonia (Presenting author)
Keywords: Bronze Age, Fins–Baltic contacts, long-distance contacts
Presentation Preference - Oral

Archaeology as an academic discipline studying material culture can easily follow contacts between people from different regions if some evidence has been left behind – usually something material which can be studied by scientific means. There are numerous examples of bronze artefacts found, for instance, in what is today Estonia that demonstrate long-distance contacts with the mid-Volga region, the Caucasus, Scandinavia, etc. We know about these contacts because of some materialised witnesses. There is no doubt that each item of foreign origin must be carefully studied in order to avoid the trap of a novice detective – everything that seems evident at first sight need not be true. The presentation will discuss several artefacts with the purpose of analysing the probable nature of contacts that yielded those items.
But what about those contacts that did not leave any material evidence behind? Actually, archaeology can sometimes be quite inefficient in trying to describe the wholeness of contacts between two neighbouring (ethnic) groups. For instance, there is not much preserved materialised evidence to prove close contacts between Finnic and Baltic communities in the Bronze Age. Yet, linguistic evidence in the face of numerous so-called unnecessary or luxury Baltic loanwords in Finnic clearly shows that the contacts between two groups from different language families were really dense and long-lasting, and even mixed settlement with bilingual everyday communication must have been widespread. This circumstance provides every good reason to think that material cultures of Finnic and at least one part of the Baltic-speaking populations were not distinguishable from each other. The presentation is an attempt to search for such a period, region, and material culture that could correspond to linguistic – that is, non-material – evidence of a mixed bilingual population. It seems rather plausible that the fortifications, iron (battle-)axes, and shepherd’s crook pins reflect different aspects of the same process, which most likely involved troubles and even some military impact. It is likely that some groups of invaders of Indo-Iranian or Balto-Slavic origin may have infiltrated into the Finnic population during this period.

TH4-04 Abstract 10
Crown Torque from Jamlitz
Author: Vorotinskaya, Larissa, The State Hermitage Museum, St.Petersburg, Russian Federation (Presenting author)
Keywords: Germany, Kronenhalsringe, spectral analysis
Presentation Preference: Poster

The State Hermitage keeps the crown torque from Jamlitz, Lkr. Beeskow, north-eastern Germany. It had been found by accident while plowing a field, then bought in 1925, and subsequently kept by the Berlin Museum (Staatliche Museen zu Berlin Ni II 10965).

Today, the torque is one of the so-called Kronenhalsringe, mainly found in Denmark and Northern Germany. The few findings of such crown torques are known to have been made in Poland, Romania and Ukraine. An accumulation of at least seven items was discovered in the area of Leski and Grabya villages in Podolseny, Chernigov Region. Nearly in all cases, the findings were made in swampy areas and were apparently of votive nature. Apparently, these items belong to the German Jastorf Culture that existed in Northern Germany and Denmark. In Eastern Europe, such findings are probably due to the relocation of the Germans to the east.

The Jamlitz crown torque is type IV according to Jochen Brandt’s classification and probably dates back to Step C1 according to M. Schulté (i.e. the last quarter of the 3rd century BC – first half of the 2nd century BC). According to Björn Rauchfuss, the torque belongs to shape 2. Crown torques with an oval, almost quadrangular cross-section.

Parts of the Jamlitz torque and the pivot pin were cast from wax models. The handle for the pin was made in the wax model and subsequently refined on castings. The casting was followed by further finishing. Obviously, this torque was originally defective, since the lock does not close, and parts of the lock are poorly fit to each other. The torque opens up and cannot be used for its designated purpose. This is characteristic of the Jamlitz torque. Similar items from Podolseny close perfectly, and the lock keeps the parts of the ring together.

The Department for Scientific and Technical Examination at the State Hermitage carried out spectral analysis of the Jamlitz crown torque’s metal using a Bruker ArtTAX X-ray fluorescence spectrometer. The torque is made of tin bronze with a considerable admixture of lead.

This data is consistent with that of the analysis of the crown torques from Zalesye (Ternopol Region, Ukraine), Lichtenau (Pavlovsk, Kaliningrad Region) and Meeckelburg, with the ratio between the main elements used in the metal alloy (copper, tin and lead) varying to a rather large degree.
Tarand graves spread in Estonia and around the Baltic Sea during Early Iron Age (500 BC – AD 450). This grave type was the most preferred one during a long time in the area of nowadays Estonia. The overall type of grave changed only slightly during these centuries, but the exact construction and contents of the grave varied regionally as well as temporally. Nevertheless, aside the differences, there are numerous similarities that allow the researchers to group the graves and see their evolution through time.

In the Pre-Roman Age, tarand graves were the most common in Estonia and the adjacent parts of the Baltic Sea. They are characterized by their simple construction, usually consisting of a pit in the ground. The items included were often of everyday use, such as tools, weapons, and personal ornaments, and were placed according to the sex and age of the deceased. The emphasis was on practicality and the availability of items rather than luxury or status.

**TH4-05**  
**SKETCHES OF FIRST MILLENIUM RURAL COMMUNITIES: INTEGRATING DWELLING SPACES AND THE DEAD**

**TH4-04 Abstract 12**  
**Pre-Roman Age tarand graves - trends and specialities**

**Author**: MA Kivi, Anu, University of Tartu, Tartu, Estonia (Presenting author)  
**Co-author(s)**: Olli, Maarja, University of Tartu, Tartu, Estonia  
**Keywords**: Burial rituals, Pre-Roman Iron Age  
**Presentation Preference**: Poster

Tarand graves spread in Estonia and around the Baltic Sea during Early Iron Age (500 BC – AD 450). This grave type was the most preferred one during a long time in the area of nowadays Estonia. The overall type of grave changed only slightly during these centuries, but the exact construction and contents of the grave varied regionally as well as temporally. Nevertheless, aside the differences, there are numerous similarities that allow the researchers to group the graves and see their evolution through time and both internal and external influences of the Early Iron Age society.

The poster will concentrate on a handful of case studies of Pre-Roman Age tarand graves and intends to map the influences and trends that have lead the mourners to build these monuments, bury their dead either cremated or inhumed, and to choose and place the items suitable for the grave.

**TH4-05 Abstract 01**  
**Extraordinary in death – the Hoby graves**

**Author**: Dr. Blankenfeldt, Ruth, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany (Presenting author)  
**Keywords**: High status graves, Local communities, Settlement  
**Presentation Preference**: Oral

A richly furnished inhumation grave dating from the Early Roman Iron Age was discovered in 1920 at Hoby, Western Lolland, Denmark. The extraordinary ensemble of grave goods encompasses tableware and a drinking set of Italian origin, two unique silver beakers showing scenes from Homer’s Iliad and Germanic items made of bronze and precious metal. Another find from a comparable property is a bronze vessel dated to the final part of the Pre-Roman Iron Age which was submitted in 1897 to the National Museum. Inside the vessel lay burnt bones and parts of an iron scabbard. It turned up during gravel extraction but unfortunately the exact find site is not recorded in the archives.

The preparation and equipping of a grave happened according to certain patterns and standards – especially in such an outstanding case like the famous Hoby grave. An analysis of such burials is therefore closely linked to cultural and social as well as individual dimension of the deceased and the interring community. Hints to simple graves or a burial site from the Old Roman Iron Age are still lacking in the area around Hoby. However a contemporary settlement site has been located in close proximity to the grave. Thus a good basis is created to investigate the social and structural connection between an unusual grave complex and a nearby settlement.

**TH4-05 Abstract 02**  
**Extraordinary in Life - the Hoby Settlement**

**Author**: Curator Klingenberg, Susanne, National Museum of Denmark, Copenhagen, Denmark (Presenting author)  
**Keywords**: Activity area, Settlement structure  
**Presentation Preference**: Oral
In Holy on Lolland, a chieftain’s grave from the Early Roman Iron Age was found in 1920. The grave is one of the richest dating back to this period from Northern Europe. In 1999, pottery and black soil were observed in the area NW of this rich grave, and more excavations in the following years revealed a settlement from the same period as the richest graves in the area. In the period from 2010 to 2015, larger excavations have been carried out in the settlement and activity area. These investigations have been carried out in collaboration between the Museum Lolland-Falster, Center for Baltic and Scandinavian Archaeology (ZBAS), and the National Museum.

The settlement and activity area cover an area about 100x150 meters (328x492 feet), and about a third of this area has been excavated up until now. On larger parts of the Holy settlement, culture layer is preserved in a thickness of up to 0.6 meters (1.9 feet). It contains large amount of pottery and preserved animal bones besides the remains of clay floors. The preliminary studies show that the building at Holy represents a larger community/village. The long houses are located in EW rows. To the North, the settlement is bordered by an activity area with a large water-filled pit surrounded by numerous smaller pits, deposited bone remains and debris. The activity area and the house constructions are contemporaneous.

In this present paper, the settlement will be presented, and the current state of our research concerning settlement structure, economy and cultural perspectives will be presented. Finally, the results are compared to some of the contemporary settlements from current Danish territory.

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TH4-05 Abstract 03

Rosenholmvej a central site in Middle Jutland

Author - Olsen, Martin, Rinther, Museum Midtjylland, Herning, Denmark (Presenting author)

Keywords: Central settlement, Lübsowgraves

Presentation Preference - Oral

Central settlement and hinterland - life and death in the 1 Century AD. A complex of rich graves, farms and villages. In the central part of Jutland.

Museum Midtjylland has excavated a number of sites that all relate to an extraordinary rich site, Rosenholmvej. This central site is a settlement that covers most of the period from 500 BC through 200 AD, but with a “highlight” in period B1a. At this time a grave yard is constructed which includes a number of extraordinary rich grave with gravegoods and constructions that place them in the Lübsow horizon. It links them to other regional groups in Denmark, Europe and to the political turbulence we see in those years. At the same time, this group of people expresses their status in the construction of a “farmstead” that is in every respect extraordinary, with features that both illustrate their social, regional and international status.

Additionally, we do have a number of sites in the “hinterland”, some are excavated and others known through geophysical surveys. This group includes both settlements as well as graveyards. Hereby we get an insight into an organization that is highly synchronized.

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TH4-05 Abstract 04

Studying the Iron Age Settlements in Lithuania: Current Issues and Future Directions

Author - Dr. Vingalis, Rokas, Lithuanian History Institute, Vilnius, Lithuania (Presenting author)

Keywords: prehistoric settlements, settlement pattern, survey

Presentation Preference - Oral

The research in the Iron Age Lithuania (which is dated to the 1st millennium AD. according to the periodization of this region) was focused only on the ethno-history for a long time and that was the reason why the attention of archaeologists was directed to the studies of the burial sites. Because of such trend we could say very little about communities of that period, except for their ethnicity. There was some knowledge about the social structure, trade directions and ideology as well, but practically there was no information about the subsistence, the economy, settlement patterns and other themes. In recent decades this trend begins to change little by little – researchers begin to take interest in topics which were not analyzed before and at the same time the attention is drawn to the fact that the material which we collected up to now does not allow to analyze the newly emerging issues.

This report presents the research problems concerning Iron Age settlements in Lithuania and provides the examples of how these studies, though still sparse, significantly change the understanding of these communities. This report presents the results concerning in attempting to analyze the intra-site structure of settlements, as well as settlement patterns, since there is a significant backwardness in settlements research in Lithuania. For example, intra-site analysis is faced with problems, such as chronology, pottery typology and its correlation with chronology, identification of buildings, etc. This report presents an example from a reference settlement which shows that we can obtain valuable data applying new methods by re-analyzing the material of research from previous decades. The application of spatial analysis shows quite different settlement structure than was thought previously – the settlement was not solid but consisted of segregated farmsteads, which changed their location over the course of time. Such data allows to draw some conclusions about the social structure of communities, subsistence, economy etc. and raise further questions for future research. Considering settlement pattern analysis, the main problem is associated with the representativeness of archaeological sites. Until now, no one ever conducted purposeful survey looking for the settlement sites in Lithuania and only several of such sites were registered. Settlement pattern was basically reconstructed by burial sites, therefore the impression of a very sparse settlement of that period became dominant. The recent survey, which focused on the search for settlement sites in Kernave region, indicated that in fact the situation was quite different. The recent survey showed that the settlement pattern was at least several times denser. This now provides reasons for future research. In order to achieve tangible results, the wide range of information is needed to identify some type of sites must be used.

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TH4-05 Abstract 05

An attempt to define ratio of barrow cemetery and settlement site in term of community size

Author - Dr. Strimatiene, Andra, Lithuanian History Institute, Vilnius, Lithuania (Presenting author)

Keywords: barrow cemetery, rural communities, settlement site

Presentation Preference - Oral

The material culture of the Iron Age represented by the artefacts coming from burial monuments is relatively well known for the archaeologists; however, information on the local communities which left this legacy is rather scarce. One of the main characteristics describing any human community is its size. Usually, the size of the community is identified on the basis of the data derived from the burial monuments. However, there are other methods of establishing the size of the community on the micro-level, as well; for instance, they include area estimates or dwelling-based estimates. In ideal cases, data derived from different sites forming archaeological complexes should be correlated for the demographical analysis.

The region of eastern Lithuania is an area with very frequent occurrence of barrow cemeteries of different size, ranging from one to tens and hundreds of mounds, which suggests (apart from being impeded by destruction) the communities of different size. On the contrary, the number of known settlement sites is rather low. The settlement research is still very fragmented and limited to small-scale excavation producing small and biased samples. At best, only the location of a settlement site can be identified approximately. For example, if one is going into the national research we see that in the east Lithuanian region, the total site space remains un-established for most cases. As a result the ratio of barrow cemeteries and settlement sites has been rarely investigated not only in terms of community size, but even how to mutually interpret the overall pattern of evidence. This presentation attempts to contribute to the issue of estimating the size of rural communities not so much addressing the absolute index, but rather seeking to prompt the comparative studies of data from different types of archaeological sites. To illustrate the approach, the archaeological complexes consisting of a barrow cemetery and a settlement site were distinguished in the Eastern Lithuanian Barrow Culture and one relatively well preserved and excavated complex was chosen for the further case study. Analytical tasks were as follows: 1) to define the possible extent of the settlement site by combining tradition archaeological methods with geo-archaeological research data and micro-topography, 2) to assess the resultant area against the density coefficient, deriving this coefficient: a) from the data of excavated settlements with well-defined structural pattern from neighbouring countries.

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TH4-05 Abstract 06

Relation or isolation? Spaces of the living and the dead in the Iron Age East Lithuania

Author - Dr. Kuria, Laurynas, Lithuanian Institute of History, Vilnius, Lithuania (Presenting author)

Keywords: barrow cemetery, East Lithuania, hillfort

Presentation Preference - Oral

The cultural landscape of the Roman period – Viking age (or the Iron Age, c. 3/4th-11/12th centuries AD) East Lithuania is represented mainly by barrow cemeteries and hillforts. Presently, over 500 barrow cemeteries and over 350 hillforts are known in the territory of the so-called East Lithuanian barrow culture (this is only in the territory of the present-day Lithuania, as precise data about Northwestern Belarus are lacking), and there had been many more in the past.

Both barrow cemeteries and hillforts have received a great deal of attention in Lithuanian archaeology, but until now they are viewed as isolated rather than related to each other. In other words, the spaces of the living and the dead are perceived as two different worlds rather than an arena of permanent interaction. The fact that very few flat settlements of this period are yet known does not contribute to research, but this can be advanced only by large-scale surveys, and this is a task for the future. Another barrier is the lack of research on a microregional level aimed at complexes of hillforts and barrow cemeteries. Rather rare instances of barrow cemeteries being located near hillforts have suggested a stereotype that spatial distributions of both types of the sites are rather independent.
The presentation will aim at the analysis of spatial distribution and spatial relation of the hillforts and barrow cemeteries in East Lithuania. The Register of Cultural Properties data with some author’s additions, different GIS map layers, LiDAR data, etc. will be used for this. The task of the inquiry will be to search for the regularities in the location of the hillforts and burial sites in respect to each other (e.g. visual contact), their setting on the terrain, water bodies connecting or separating them, etc. It will be attempted to identify agents relating hillforts and barrow cemeteries in the landscape or, vice versa, separating them. Special regard will be paid to those agents which can be considered as attending to the perceptions of the afterlife and the relations of the worlds of the living and the dead (e.g. being visually connected or “hidden” from each other, separated by water or not, etc.). Such approach is expected to set a background for deeper insights into ideology and cults practiced by the societies which left the above-mentioned sites.

TH4-05 Abstract 07
Searching for links between artefacts from areas of prehistoric dwelling sites and burial grounds

Author – Dr. Banyte Rowell (Rowell), Rasa, Lithuanian Institute of History, Vilnius, Lithuania (Presenting author)
Keywords: burial grounds, dwelling sites, Roman Period
Presentation Preference - Oral

This paper surveys categories of finds that were found in Roman Iron Age dwelling sites and in burial grounds in Lithuania. Grave-goods belong to the sphere of sacrum where property donated for the dead might reflect a distorted picture of reality. Grave-goods are the result of creative activity performed in “real life”. Therefore finds from dwelling sites have great importance for connecting artefacts from burial grounds back to sphere of profanum.

We can seek answers to where the production of tools and ornaments took place. Another interesting question is whether the regional shapes/types of artefacts, usually placed on maps according a database of burial sites are distributed in a similar way in the settlement pattern of the same territory. Such a comparison raises the question of whether regional ornament styles were created under the influence of “the regional taste” of several artisans of a particular region and that process reflects the existence of a regional identity. Or perhaps these regional features had a more practical origin - the distribution of particular types in particular regions was outcome of network of trade and range of influence of production centres on the market.

West Lithuania was an area where Roman coins were placed in graves during the Late Roman period (end of phase C1a – phase C1b). This tradition testifies to the importance of the Lithuanian coastline for the maintenance of far-flung contacts with the Roman provinces. It is interesting that Roman coins have been found in the cultural layers of hillforts and settlements in Žemaitija and Central, Southern and Eastern Lithuania while the tradition of placing Roman coins in burials is almost absent. The latter finds testify to the circulation of Roman coins in all regions of Lithuania and such finds in dwelling sites leads us to consider their function in everyday life. Roman-Iron – Age finds in dwelling sites in Eastern Lithuania have especial importance because the database of burial sites from this period is still small. They reflect the fact that Eastern Lithuania, despite its location in the Balt hinterland, was a region where various cultural influences from neighbouring areas and the European Barbaricum made an impression upon local traditions.

Summarising, it is possible to state that a comparison of finds from dwelling sites and burial grounds may provide new insights into the prehistory of the Balts during the Roman period. Therefore it is important to integrate the databases originating from the spheres of sacrum and profanum.

TH4-05 Abstract 08
A changing community in north-east Estonia from 400 BC to 900 AD

Author – PhD student Oili, Maarja, University of Tartu, Tartu, Estonia (Presenting author)
Presentation Preference - Oral

Aakre Kivivare complex is an interesting archaeological site in north-east Estonia which was settled continuously over 1000 years during the Iron Age. There is a monumental stone grave, at least two settlement sites, a hill-fort with two stages and a possible flat cremation cemetery very near each other from different time periods.

It is possible to study the change of burial customs, cultural and trade contacts as well as pieces of everyday life of the prehistoric community from the Pre-Roman Iron Age until the end of the Viking Age based on the Aakre Kivivare complex. Because most of the sites have been excavated, it can be assumed that the place was the centre of a bigger region during 1300 years. Therefore assumptions of a larger society of the time periods can also be made.

The chronology, characteristics of the monuments as well as items excavated from the sites will be discussed. Based on that, assumptions of the changing identity, religion and cultural and trade contacts of the community will be made.

TH4-05 Abstract 09
Brothers-in-arms. Interregional contacts of the Balt warriors in the Roman and Migration periods

Author – Dr. Hab. Kontry, Bartosz, University of Warsaw, Warszawa, Poland (Presenting author)
Keywords: Balts, Roman Period, weapons
Presentation Preference - Oral

The paper deals with the weapons from the West Baltic cultural circle showing their parallels and foreign inspirations. Basing on the archaeological grounds the author presents the general model of the Balt weaponry with its specific traits (axes, socketed axes, possibly wooden shield bosses) and further on tries to find its elements in non-Balt regions, e.g. Scandinavia. This phenomenon is then observed on the cultural background, i.e., wars, migrations and changes in cultural structure in the Baltic Sea area. This leads to the conclusion that the Balts participated in particular international military events which was favorable for exchange of technical solutions as well as in the field of tactics and symbolism.
**TH4-06 Abstract 02**
**The affect of Landscape Scale Forcing Factors on the Earliest Neolithization in the Baltic Basin**

*Author*: Trooksky, Christopher, University at Buffalo, Cheektowaga, United States of America (Presenting author)

*Keywords*: Climate Change, Cultural Interaction, Neolithization

*Presentation Preference*: Oral

Understanding the underlying mechanisms for the “Agriculturalization” of Mesolithic Hunter Gatherer cultural groups has long been one of the great problems to be solved in Northern European Neolithic studies. This problem is especially difficult to deconstruct in the Baltic Region where traditional explanations of migration, diffusion, feasting and demographic pressures break down in the face of exceptionally slow temporal development of the Neolithitic Paradigm Shift in culture across relatively small geographical distances.

In this paper a modification is made to Marek Zvelebil's Homo habitus model, were used to verify the hypothesis that for the case of the formation of the Funnelbeaker (TRB) on the Kajavian Plain the substitution phase of archaeological adoption is short relative to the phases of agricultural availability and agricultural consolidation because it was triggered by landscape level forcing events of various intensities and durations.

Furthermore it is posited that the contemporary dissolution of the Lengyel complex in the region resulted from greater affect due to culturally specific vulnerabilities with respect to these forcing factors than their hunter-gatherer counterparts. This can be seen in the distribution of intercultural agency markers in the material culture and settlement systems of the local TRB fusion group composed of a mix of the remnants of the Lengyel complex and neolithized hunter gatherers.

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**TH4-06 Abstract 04**
**Pottery traditions and cultural processes in the Gulf of Finland region in the 3 mil. BC**

*Author*: Postgraduate Khotkina, Margarita, Saint-Petersburg State University, Saint-Petersburg, Russian Federation (Presenting author)

*Keywords*: Gulf of Finland, Late Neolith - Early Metal Period, Pottery

*Presentation Preference*: Oral

The eastern part of the Gulf of Finland region is rather important for the study of cultural and historical processes of the end of IV - III millennium BC. This territory from the ancient time was located in a contact zone among the areas of different archaeological cultures and pottery traditions. During the mentioned period, which in Russia is usually called the Early Metal Period (EPM), bearers of Comb and Corded Ware pottery traditions coexisted here. The area was peripheral for the both of them. Current study is devoted to the reconstruction of cultural and historical processes, reflected in ceramic material. Among the sources of the study there were fragments of more than 200 vessels from 36 archaeological sites from the eastern part of the Gulf of Finland region.
Comb Ware pottery tradition is deeply rooted in the local Neolithic. As a result of coexistence with groups of population from some closed regions new components appear within this tradition. Among them the temper of attentiveness concerned with thin walls of the vessels and shallow ornamentation, typical for Karelia and south-eastern Finland. Another component is organic temper (leather with shield) and mostly comb ornamentation which is most probably characteristic for the upper Volga region. Interactions of contacts during the EM period resulted in a variety of Comb Ware tradition - and the relative ease and speed of the spread of these traits is an evidence of probable relatedness of their bearers.

In the III millennium BC Corded Ware tradition appears in the eastern part of the Gulf of Finland region. It also seems to be homogenous. There are some “typical” vessels, which have a wide range of analogies in Eastern Baltic and even in so-called “Europe in Asia” (“A. horizon”). At the same time there are some “hybrid” vessels, that have some features of Comb Ware: imprints of comb stamp and pits, decorated and cut inside rim. This is probably the case when Corded Ware tradition was influenced by the local one - and this can be seen in exterior imitation on the vessels. Wherein it is worth to mention, that different variants of Comb Ware tradition are very close to each other in one of most conservative aspects of the pottery tradition - in modelling of the vessels. They are almost all formed by coiling technique. At the same time, vessels made in Corded Ware tradition are modelled from small separate patches of clay. The difference of the two processes of forming vessels proves the fact that Corded Ware was just slightly influenced by the Comb one - so we can conclude that groups of people, bearers of these traditions, did not have such close contacts as those of Comb Ware.

TH4-06 Abstract 05
Changing Perspectives- Neolithic pottery on the Åland Islands and the Baltic
Author - Dr. Bronson, Torbjörn, Ceramics Studies, Sweden, Nyhamnsläge, Sweden (Presenting author)
Co-author(s) - Stenbäck, Niklas, Societas Archaeologica Upsaliensis SAU, Uppsala, Sweden
Keywords: Åland, Pitted ware, Kiviksia Comb ceramics, Pottery
Presentation Preference - Oral

The Åland islands location in the Baltic Sea has been of importance for movements of people and ideas throughout prehistory. This is reflected by the material culture and pottery traditions on the Islands. Based on typologies and their respective areas of spread, the Åland-Comb tradition has traditionally been explained by ethnicity and migration.

This study challenges the traditional interpretations by examining if there is a local craftsmanship and technology in the different types of ceramics on Åland. The methods used are ICP analyses and analysis of thin sections of the clay in the vessels. The study includes early (Ka I) and late (Ka II) Comb ceramics, Jetelbe I and II type of Swedish pitted ware and Kiviksian ceramics, which are represented as mixed with influences from both comb- and pitted ware, representing the succession between traditions. It is important to study the technology of the mixed pots and if they e.g. were tempered with limestone. Preliminary results show that there is a local technological continuity in the Neolithic ceramic traditions on Åland, visible in the preferred clay. A chronological difference in the use of temper suggests different cultural preferences. Limestone as temper is more or less synonymous with pitted ware, and it is important to analyse if there are limestone in the ware in the pots belonging to the other cultural groups for comparison and contextualisation of the results. The ICP analyses have given us answers that some of the artefacts, as e.g. a clay figurine seems to have been of non-Åland origin, and the question is if this figurine originates in mainland Finland or Sweden.

The Åland ceramics have been compared to ceramics from mainland Sweden and Finland and we will present the results of this study at the conference.

TH4-06 Abstract 06
Three Anthropomorphic Clay Figurines from Vantaa Jokiniemi, S. Finland
Author - MA Fast, Jan, University of Helsinki, Espoo, Finland (Presenting author)
Keywords: Baltic Sea region, Comb Ceramic Culture, Settlement interaction
Presentation Preference - Oral

In July of 1990 an extremely detailed and realistic head torso of an anthropomorphic clay figurine was found during excavations conducted by Hureauka the Finnish Science Centre at the large stone-age dwelling site in Jokiniemi, Vantaa, S. mainland Finland. Two years later in 1992 another fragment (the lower part of a head) was found at the same site. In 2015 another head torso was reported, this one had been found already in 1989 but kept secret by the finder for 25 years. These three clay figurines represent the oldest realistic anthropomorphic stone-age human clay figurines in Finland and are remarkable finds even in a northern European context.

The typological similarities of the Jokiniemi clay figurines as compared to anthropomorphic clay figurines found in the Baltic states and on the Åland islands suggest that contacts in the Baltic Sea region in the subneolithic (pre agrarian) period were limited not only to trade in amber but that also cultural and ritual influences were transmitted in the region.
TH4-06 Abstract 10
Genomics of the people of the Baltic Sea region 4000-2300 BC
Author: Dr. Malinström, Helena, Uppsala University, Uppsala, Sweden (Presenting author)
Keywords: Corded Ware, Funnel Beaker, Pitted Ware
Presentation Preference - Oral

The general picture that has emerged from genomic pre-historic human data indicates a larger portion of differentiation between different groups than previously anticipated. One early example was the genomic differentiation observed between hunter-gatherers and Neolithic farmers. Scandinavian individuals from a Funnel Beaker farmer context were genetically closer to early farmers, as well as more similar to the broadly contemporary people from the Pitted Ware hunter-gatherer context. In this case, genetic variation seems to mirror subsistence strategies and material culture more closely than geographical proximity. It is well in accordance with previously published stable isotope data indicating differences in the dietary patterns between the two groups. This implies that the hypothesis of Corded Ware hunter-gatherers being descendants from the Funnel Beaker population is highly unlikely, considering that the two groups are as differentiated as the most distant populations of Europe today. Recently, it has also been shown that the Corded Ware culture is not the cultural bridge between hunter-gatherers and Neolithic farmers, but rather a cultural complex with a wider regional distribution. The Corded Ware culture is characterized by a distinctive style of pottery, as well as a variety of other material culture traits, which may have contributed to the genomic differentiation observed between the two groups.

The picture of the pre-historic genomic landscape in the Baltic Sea region is still quite rough and will benefit from increased amounts of genomic data from wider geographical areas and chronologies. Our knowledge about variation within the different groups has been increased if stable isotope information could be coupled to individuals that are genetically characterized. I will review the current status of the genomics of the people of the Baltic Sea region ca 4000-2300 as it stands at the time of the conference and aim to open up for cross-disciplinary discussions of the results.
TH4-07 Abstract 01
Looking for patterns in prehistoric diets – is there an objective approach?
Author: Meadows, John, Centre for Baltic and Scandinavian Archaeology, Germany, Germany (Presenting author)
Co-author(s): Bčirčić, Valdis, Institute of Lithuanian History at the University of Latvia, Riga, Latvia
Co-author(s): Lidén, Kerstin, Centre for Baltic and Scandinavian Archaeology, Germany
Co-author(s): Zagośka, Ilga, Institute of Lithuanian History at the University of Latvia, Riga, Latvia
Keywords: diet reconstruction, stable isotopes
Presentation Preference - Oral
In recent years several programs have been developed and refined to reconstruct individual diets on the basis of stable isotope data, typically in terms of consumption of two or more isotopically distinct food groups. Instead of simply looking for statistically significant patterns in human stable isotope values, therefore, we may attempt to test whether food consumption patterns varied over time, geographically, between sexes or age groups, according to mortuary ritual, within an individual’s lifetime, etc. Such attempts often meet with scepticism because they require the relevant food groups to be defined, and appropriate values applied to parameters that cannot be measured directly, such as fractionation between diet and human isotope values. The identification of human groups for comparison (e.g. defining appropriate regional or chronological samples) is also subjective. Rather than ignore these questions, we investigate how sensitive our interpretations are to factors such as the software and parameter values used, periodisation, sample size, and statistical testing criteria. We use new and previously published isotopic results from prehistoric burials at Lake Burtneks, Latvia, to show which of the informed choices we have to make have the greatest impact on the final narrative.

TH4-07 Abstract 02
Mesolithic diversity in the Baltic region
Author: Dr. Eriksson, Gunilla, Archaeological Research Laboratory, Stockholm University, Stockholm, Sweden (Presenting author)
Co-author(s): Lidén, Kerstin, Archaeological Research Laboratory, Stockholm University, Stockholm, Sweden
Keywords: Mesolithic, Motals, stable isotopes
Presentation Preference - Oral
Taking the two Mesolithic sites in Motals – Kanaljorden and Strandvägen – as a starting point, stable isotope data from a wide range of Mesolithic sites both east and west of the Baltic Sea will be discussed. The large variability in carbon, nitrogen, sulphur and strontium isotope values reflect not only the diversity in available resources, but also differences in mobility patterns and cultural choices, as well as chronological change.

TH4-07 Abstract 03
New Stable Isotope Analysis from Lake Lubans Stone Age sites, South-eastern Latvia
Author: Lēzina, Dainis, Institute of Lithuanian History, University of Latvia, Riga, Latvia (Presenting author)
Co-author(s): Lidén, Kerstin, Archaeological Research Laboratory, Stockholm University, Stockholm, Sweden
Co-author(s): Lee-Thorp, Julia, Research Laboratory for Archaeology and the History of Art, Oxford University, Oxford, United Kingdom
Keywords: animal bones, stable isotopes, Stone Age
Presentation Preference - Oral
A long-standing systematic archaeological research at the Lake Lubāns valley have revealed the region to be an area with a number of significant Stone Age settlements and burial grounds. So far, 27 Mesolithic and Neolithic sites have been detected, and in all of them archaeological excavations have been conducted. The excavations, starting from mid-20th century up to nowadays have provided a rich and diverse animal bone material from settlements, as well as human burials. However, there have been no previous attempts to approach the material with stable isotope analysis method. In this paper we present animal bone carbon and nitrogen stable isotope analysis results from different sites and introduce a discussion about the local isotope ecology of the Lake Lubāns valley.

TH4-07 Abstract 04
How close is close?
Faunal baselines in the Eastern Baltic region
Author: Törv, Mari, University of Tartu, Tartu, Estonia (Presenting author)
Keywords: faunal baseline, hunter-gatherers, Eastern Baltic, stable carbon and nitrogen isotopes
Presentation Preference - Oral
Stable isotope analysis of carbon (δ13C) and nitrogen (δ15N) of human and faunal bone collagen from archaeological contexts is an established method to address questions of past diets, and mobility patterns. In the context of the Estonian Stone Age, only human bone collagen has been systematically targeted for stable isotope analysis. However, to comprehend and analyse the isotope ratios of human bone collagen any particular site in detail, it is important to know faunal isotopic composition to provide a relevant paleotemporal baseline. It is not a novel statement, but the question of “how close is close enough” still remains.
In the paper I will examine both the spatial and temporal requirements for a faunal baseline. The theoretical discussion will be complemented by examples from my own research on Estonian hunter-gatherers and published data from other hunter-gatherer sites in the Eastern Baltic.

TH4-07 Abstract 05
Diet and childhood residential mobility at Rinnukalns, Latvia, in the 4th millennium cal BC
Author: Meadows, John, Centre for Baltic and Scandinavian Archaeology, Germany, Germany (Presenting author)
The fresh-water shell middens at Rīņņukalns, at the outlet of Lake Burtnieks in northern Latvia, is a regionally unique site type, which apparently reflects the intensive use of local freshwater resources in the late Mesolithic to early Neolithic period. The fish remnants are preserved in the bacterial mats, which cover the time period from the Preboreal to the Subboreal (c. 9500 to 2000 calBC).

Presentation Preference - Oral

TH4-07 Abstract 07

The Neolithization of the north European lowlands: Archaeometric results on human remains

Author - Dr. Plezonka, Henne, German Archaeological Institute, Berlin, Germany (Presenting author)

Co-author(s) - Prof. Dr. Terberger, Thomas, Lower Saxony State Office for Cultural Heritage, Hanover, Germany

Co-author(s) - Lüth, Friedrich, Archaeological Institute, Berlin, Germany

Keywords: 13C/15N isotopic analysis, Neolithization, North European lowlands

Presentation Preference - Oral

In northern Central Europe, the advance of the Neolithic way of life halted at the northern margin of the loess distribution for almost an entire millennium, before in the late 5th and 4th millennia cal BC, the farming economy started to spread into the northern lowlands. The Funnel Beaker Culture plays a key role for the question of an intermingling of the last hunter-gatherers and the southern farmers: There are indications that in the north, local forager communities continued to exist alongside the newly arrived farmers for centuries. Further east, the foraging way of life formed the basis of subsistence even longer.

The last decade saw increasing progress in the analysis of human remains by archaeometric methods. Here we present results of systematic stable isotope (13C/15N) studies on Stone Age human remains from northern Central and Eastern Europe. The individuals cover the time period from the Preboreal to the Subboreal (c. 9500 to 2000 calBC).

By determining information on the diet of the sampled individuals and linking it to chronological information, the data set sheds light on changes in subsistence economy against the background of cultural developments and absolute chronology. The results of the isotope analyses show a considerable consumption of fresh water resources during the Mesolithic and (early) Neolithic. It is interesting to notice that a major shift towards farming economy in northern Central Europe is visible not before the 3rd millennium calBC.

TH4-07 Abstract 08

Zedmar Culture in the Light of 14C dates - Relating to Sub- and Neolithic Cultures in the SE Baltic

Author - Kozicka, Magdalena, Nicolaus Copernicus University in Toruń, Iława, Poland (Presenting author)

Co-author(s) - Geochronology, Institute of Geology, Tallinn, Estonia

Keywords: Luminescence Dating (IR-OSL), Middle-Upper Palaeolithic, MIS 3

Presentation Preference - Oral

The territory of the south-eastern Baltic region might be described as lying on the margins of the classical Paleolithic world. No Middle and Upper Palaeolithic sites have been found so far in this part of Europe, and on the basis of available data the initial colonization of the region has been related to the Bugian warming or Greenlandian interstadial sub-stage GI-4a, which began in northern Europe at about 14.7 cal ka BP. The recent discovery of traces of human occupation at the Ryadino-5 archaeological site in Estonia provides a new challenge for this view. The dates obtained for the culture-bearing horizon place the Ryadino site among the most ancient sites of the transitional period in the early Neolithic (c. 9000–8900 cal BC) and the Corded Ware cultures in 3200/2700 cal BC. However, that does not mean that new evidence cannot be obtained in the future, if direct AMS dating of plant and animal remains from Subneolithc contexts is to be continued, and if systematic macrobotanical analyses would eventually be made on samples from settlements in higher elevations, and not only from lakeshore settlements and fishing sites.

TH4-07 Abstract 09

Human occupation of the SE Baltic region: first trends from the middle-upper paleolithic transition

Author - Dr. Drusinski, Olga, Vytautus Magnus University of Music and History, Kalingrad Oblast, Russian Federation (Presenting author)

Co-author(s) - Molodkov, Analyt, Research Laboratory for Quaternary Geochronology, Institute of Geology, Tallinn, Estonia

Keywords: Luminescence Dating (IR-OSL), Middle-Upper Palaeolithic, MIS 3

Presentation Preference - Poster

The territory of the south-eastern Baltic region might be described as lying on the margins of the classical Paleolithic world. No Middle and Upper Palaeolithic sites have been found so far in this part of Europe, and on the basis of available data the initial colonization of the region has been related to the Bugian warming or Greenlandian interstadial sub-stage GI-4a, which began in northern Europe at about 14.7 cal ka BP. The recent discovery of traces of human occupation at the Ryadino-5 archaeological site in Estonia provides a new challenge for this view. The dates obtained for the culture-bearing horizon place the Ryadino site among the most ancient sites of the transitional period in the early Neolithic (c. 9000–8900 cal BC) and the Corded Ware cultures in 3200/2700 cal BC. However, that does not mean that new evidence cannot be obtained in the future, if direct AMS dating of plant and animal remains from Subneolithc contexts is to be continued, and if systematic macrobotanical analyses would eventually be made on samples from settlements in higher elevations, and not only from lakeshore settlements and fishing sites.

TH4-07 Abstract 10

Deconstructing the conception of pre-Neolithic farming in SE Baltic

Author - Dr. Piličiauskienė, Giedrė, Vilnius University, Vilnius, Lithuania (Presenting author)

Co-author(s) - Kisielienė, Dalia, Nature research centre, Vilnius, Lithuania

Co-author(s) - Piličiauskienė, Gytir, Lithuanian institute of history, Vilnius, Lithuania

Keywords: SE Baltic, Subneolithic, Subsistence

Presentation Preference - Oral

This paper is a critical evaluation of zooarchaeological, microbotanical, palynological and archaeological data and their earlier interpretation in Lithuania, which served as the basis for constructing the concept of pre-Neolithic or Subneolithic low intensity agriculture and/or animal husbandry in the Eastern Baltic region. In addition, the paper presents the first direct AMS dates on remains of domestic plants and bones of domestic animals found in the Lithuanian Subneolithic and Neolithic settlements. According to the latest research, the substantial part of, or even the whole of the earlier “evidence” was wrongly forged because of the mistakes in the identification of plant and animal species and imprecise dating. The mistakes in dating were largely due to the ignorance of fresh water reservoir effect when dating bulk samples of lacustrine sediments, unrecognized of the impacts of bioturbation and palimpsest on the formation of the archaeological strata, and low attention paid to stratigraphic and spatial documentation during very extensive excavations carried out in the second half of the 20th century. So far, there is no reliable evidence that domestic plants and animals were adopted in Lithuania prior to the appearance of the Globular Amphora and
Loose human bones from cultural layers at Zamostje 2, central Russia (c.6500–4000 cal BC)

Author: Törn, Mari, University of Tartu, Tartu, Estonia (Presenting author).
Co-author(s): Meadrows, John, Center of Baltic and Scandinavians Archaeology, Foundation of the Schleswig-Holm Society, Schleswig, Germany.
Co-author(s): Lozovskaya, Olga, Peter the Great Museum of Anthropology and Ethnography (Kunstkamera), Russian Ac. St. Petersburg, Russian Federation.
Co-author(s): Moiseyev, Vyacheslav, Peter the Great Museum of Anthropology and Ethnography (Kunstkamera), Russian Ac. St. Petersburg, Russian Federation.
Keywords: loose human bones, radiocarbon dating, stable isotopes, Zamostje, central Russia.
Presentation Preference: Poster.

Only 18 fragmentary human remains have been identified at Zamostje II (c.6500–4000 cal BC), despite the excellent quaternary-like conditions for organic preservation, and the recovery of millions of animal bones from the five cultural layers. Aside from a woman’s humerus, the human remains are all fragments of the cranium, maxilla, mandible, or isolated teeth, including naturally shed deciduous teeth, representing at least 5 and perhaps as many as 18 individuals, ranging in age from 0 to 70 years. Two cranial fragments have been dated by radiocarbon to the Late Mesolithic (aceraemic) period (c. 6500–3900 cal BC), although one of the dated fragments was found in the Early Neolithic (Upper Volga ceramic) layer. Radiocarbon dating also allowed the measurement of dietary stable isotopes, which suggest only limited consumption of aquatic resources, despite the abundant artefactual and archaeozoological evidence that fishing was a central element of the Mesolithic subsistence economy, both at Zamostje and at other sites of this period.

One cranial fragment bears clear cutmarks demonstrating deliberate post-mortem removal of soft tissues, possibly in order to use it as a bowl or cup. Isotopically this individual shows no sign of having consumed aquatic species. Without a Mesolithic cemetery at Zamostje, it is unclear whether the culturally modified loose human bone belonged to an atypical individual, or whether the excellent preservation of fish remains and fishing structures gives an exaggerated impression of the importance of aquatic resources at this site.
Keywords: Construction, Fortification, Kalmar
Presentation Preference - Oral

The town Kalmar is situated in the southeastern part of Sweden and was connected with Gotland and Jönköping to the most important
outposts in the early Great Power period. As decisions were made in 1640, the town Kalmar to a new and strategically
more beneficial location, the town would also be surrounded with a modern fortification. Several archaeological excavations have
been made in the last years on one of the nine bastions, Carola Norus (Charles IX). In addition contemporary maps have been
studied describing the work in progress. This has concluded that the work on this bastion alone progressed over the three decades
and it took more than 50 years to finish the whole fortification. This puts questions on an efficient defense for the town, its population
and administration. The studies revealed solutions to problems regarding the construction, and also the development over the
years to keep up with modern types of the construction of bastions.

TH4-08 Abstract 04
The bastions of Christian 4th

Author - MA Simonsen, Rikke, Copenhagen Museum, Copenhagen V, Denmark (Presenting author)
Keywords: Baltic region, Fortifications
Presentation Preference - Oral

Christian 4th is considered one of the most influential Danish kings. From 1598-1648 he ruled the kingdom Denmark-Norway,
which included the southern part of Sweden and the islands of Gotland and Saaremaa. This gave Christian 4th control of the
waterways to the Baltic Sea and a huge profit on the Sound toll – an important factor in the king for fighting for the Baltic Sea
dominion and engaging the country in several wars. Christian 4th made great effort to modernize the fortifications of the realm introducing the bastioned fortification on a big scale. He built more than 30 fortresses and fortified towns within today’s Denmark, Norway, Sweden, Germany and Estonia.

This paper wants to look into what concerns influenced the king’s strategy of building fortifications which had a strong focus on the Baltic region. Was the king demonstrating a general plan for the safety of the realm or was he reacting to sudden and changing threats? Many plans were made for building new fortifications and renovating old ones. Why were the plans carried out in some places but changes given up in others? Were finances, incompetence, enemy threats or international politics responsible for the fate of the fortifications?

TH4-08 Abstract 05
The Early Modern Fortifications of Halmstad

Author - Lena, Bjuggner, Regional Museum Halland, Halmstad, Sweden (Presenting author)
Keywords: early modern, fortifications
Presentation Preference - Oral

Halmstad, situated in the former eastern part of the Danish kingdom, was from the beginning of the early 14th century a simply fortified town built on royal ground. Had a strategic position by the mouth of the river Nansen and the important road that led to the Swedish town Jönköping. Halmstad was also situated in a province that was bounded by Sweden. Several times during the
15th and the beginning of 16th centuries the town was forced to open the gates for the Swedish army. Halmstad was reinforced in the middle of 16th century and a new fortification was erected between 1588-1605 under the leadership of the Dutch master builder architect Hans van Steenwinckel and after his death in 1601 succeeded by Wilum Cornellsen. The layout of the new fortifications system made it possible for the Danish king Christian IV to rebuild the town with a renaissance plan after a devastating fire in 1619. The defensive works was reinforced during the following decades. Through the Peace Treaty in Brömösund 1645 Halmstad and the province of Halland became Swedish. The fortifications were maintained during the end of 17th century but started slowly to disappear and was demolished in 1735 by the military.

The first part of the paper will be a short presentation of the early modern fortifications put in the contemporary political situation and exposed position in the two kingdoms (Denmark and Sweden). The second part will present a chronological examples from the Danish period. The investigations during the last years have proved that the defensive works had an immediate impact on the medieval townplan in certain areas. Old structures have also been integrated and given new functions. Even if the inhabitants have been better protected the fortifications created practical problems and forced people to change their habits.

TH4-08 Abstract 07
Kuressaare fortress (Estonia) as an example of the transformation of bastion fortifications

Author - Nurk, Ragnar, Tallinn University, Aruküla, Estonia (Presenting author)
Keywords: 17th century, Baltic Sea hegemony, bastion fortifications
Presentation Preference - Oral

Recent archaeological investigations have revealed, that the development of the bastion fortifications of Kuressaare fortress was more complicated than has been presumed. Kuressaare, located on the Saaremaa Island in the Baltic Sea, is one of the few medieval fortresses in historical Livonia where the modernization of the fortifications continued also after the Livonian War (1558–83). It was a foothold, in succession, of Denmark, Sweden and Russia.
Kuersna was a small fortress – four bastions located at the corners of the medieval fortifications were sufficient for its defenses – but its command was essential to maintain the power on the island and carry out the ambitions of the Baltic Sea hegemony.

The general design of bastion fortifications, which was regular from the beginning and thus well consistent with the ideal of the period, persisted throughout all construction stages of the fortress. But major and significant changes involved the bastions, particularly their most characteristic parts, their flanks.

Although the core of the defense principle of bastion fortifications – perfect flanking defense – did not change, the methods to achieve it were considerably improved during the 17th century. Archaeological investigation allows us to get a glimpse of what it meant constructionally, and analyze the fortification-theoretical arguments for these costly and labour-consuming undertakings.

The problem is in dating. The ceramic material belongs to 16-17th cc. and is connected with local (“Oreshek”) tradition of production. This is supported by other finds, e.g. from the building of the fortress.

The ruins of the hillfort (situated now near the village Gorodische) was archaeologically studied. The rampart was built in the early 1620s. It had temporary garrison (in 17th century from 20 to 200 persons). In 1657 a significant battle between Swedes and Muscovites was there nearby to hillfort. After the Great Northern War it lost its significance.

The main stress in this paper will be on the presentation of the activity of the Prussian side of the conflict, mainly in the area of construction of new permanent fortifications from the last half of 17th century through the first half of the 18th century. This large period is divided into two smaller ones.

During the first period, between 1648 and 1720, Prussian activity was focused on securing the Farther Pomerania. Its main city and most important fortress was Kolberg. The bastion fortifications of this city were already built by Swedish forces during the last stage of the Thirty Years’ War, but the Prussians thoroughly rebuilt it during the long modernization between 1656 and 1716. Apart from Kolberg a fortress in Rügenwalde was planned, but never built. The main achievement of the second period was the modernization of the fortresses at Stettin. It lasted only fifteen years (from 1725 to 1740), but was very intensive, more than half of the Prussian engineering corps was involved in this large construction site. Just as in the previous period, also after 1720, another fortress was considered (in Stargard), but it also was never built. After 1720 the Prussian engineers had to handle the problem of a large number of smaller and weaker fortified complexes in the Hither Pomerania, “inherited” from Sweden, such as cities with bastion fortifications (Wolin, Damm, Cammin in Pommern, Neu Warp, Demmin, Dammgarten and Anklam), or single strongpoints such as scrones in Penemünde, Anklamer Fehr, Beinemünde and Diverse. Only some of them were modernized (Penemünde and Anklamer Fehr Schanzen) but all of them were preserved until the second half of the 18th century, and even took an active part in the Seven Years’ War.

In the projects of Prussian fortifications in Pomerania different solutions are visible, traditional (passages for guns in the flanks of bastions in Rügenwalde); modern, French inspired, connected with the activity of Huguenot engineers such as Cayart or Montargues, and the solutions influenced by Scandinavian military architecture (powder magazines in Stettin, similar to those in Copenhagen).

The decision to build a fortress in the first place was a political resolution from the Swedish crown, since Finland was a part of Sweden from the Middle Ages until 1809. The decision was a reaction to a situation created by two ruinous wars in 1700-21 (The Great Northern War) and 1741-43 (The Russo-Swedish War) where Sweden lost easternmost regions along with old fortifications. The decision was a reaction to a situation created by two ruinous wars in 1700-21 (The Great Northern War) and 1741-43 (The Russo-Swedish War) where Sweden lost easternmost regions along with old fortifications.

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in connection with the Nordic Seven Years War (1568-1570) and the Kalmar War (1611-1613). These wars were two major conflicts between Denmark and Sweden and a result of both countries’ constant rivalry for dominion in the northern part of the Baltic region.

Between 2003 and 2006, Gothenburg City Museum conducted a series of excavations at the Älvsborg Castle. The excavations aimed at examining structures belonging to the castle’s early modern fortifications. Some features were revealed, such as a bastion, the moat, and the covered way. In addition to these, an extensive assembly of artifacts that can be directly linked to the Danish siege of Älvsborg 1612 was recovered. The artifacts consisted of a range of ordnance, including lead bullets, cannonballs, parts of rifles, fragments of grenades. In connection with the besieging aspect of siege archaeology, the excavations also uncovered remains of a besiegers approach (bag), and mines, and one of the castle’s defenders’ countermines. During this project it has been possible to link some of the archaeological remains to actual events described in the historical sources therefore strengthening the actual narrative.

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TH4-08 Abstract 13

The Outdating of Medieval Fortifications – The Castle of Raseborg and the Town Wall of Vyborg

Author - PhD docent Haggren, Georg, University of Helsinki, Espoo, Finland (Presenting author)

Presentation Preference - Oral

The castle of Raseborg (Finland) and the town of Vyborg (Russia) both locate on the northern coast of the Gulf of Finland. Raseborg was built in the 1370s by the Swedes and during the next 150 years the castle was gradually enlarged. The town of Vyborg situated close to the eastern border of the Swedish realm and it was continuously threatened by the Russians. There was an older castle close to the town of Vyborg but in the 1470s the town itself was fortified too. From now on high walls surrounded the medieval town.

When Raseborg was founded fire arms were not yet in use along the northern Baltic Sea. A century later when Vyborg was surrounded by the walls fire arms were known but on those days most of them were light weapons making no harm to stone structures.

In dawn of the early modern era or the early 16th century, the role of the fire arms had changed. New guns were heavier and more effective than the earlier ones. Simultaneously the range of the fire arms had become much longer. Old medieval fortifications offered not anymore a safe haven. The new era meant remarkable changes for the old fortifications. The castle of Raseborg had lost its military importance already in the 1520s. In 1550 King Gustaf Vasa made a decision to abandon the old castle and build a modern one called Helsingborg in his new town called Helsingorce. This was a part of his large castle building program but in the case of Helsingborg the King was not able to realize his ambitious plans.

In Vyborg a fortified suburb with two modern bastions was built ahead of the weakest part of the old town wall in the middle of the 16th century. These arrangements combined with the old town walls secured the urban settlement for another hundred years. However, in 1700 when a new war between Sweden and Russia broke out, the old town wall was in bad condition. Three years later an officer called Lorenz Stobaues was ordered to modernize the fortifications. The outdated town walls were now pulled down. Fortunately, before he began replacing the fortifications Stobaues documented the old structures offering later generations a possibility to get an overview of the Europe’s northernmost medieval town.

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TH4-08 Abstract 14

The fortifications of Copenhagen: The western boundary as seen at Rådhuspladsen (Townhall square)

Author - Lyne, Ed, Museum of Copenhagen, Brønshøj, Denmark (Presenting author)

Keywords: Bastion, City Gate, Fortifications

Presentation Preference - Oral

Prior to excavations carried out at Rådhuspladsen in 2011/2012, relatively little was known with certainty about Copenhagen’s former western boundary. What knowledge was available mainly stemmed from cartographic sources and historical references, as well as present day street layout (particularly Vester Voldgade). The first map however was only drawn in 1598, and the first historical references for this area date to the later 1530s, when Vesterport (the western gate) is mentioned for the first time. Part of the aim of this excavation was to confirm or reject existing ideas about the city’s border to the west, where it was placed, how it was constructed and when, and how it changed through time.

The excavations at Rådhuspladsen carried out in advance of the Metro Cityring, offered an unprecedented opportunity to examine the remains of the fortifications along Copenhagen’s western boundary, and as will be discussed here, the evidence unearthed has been extensive and very illuminating regarding the ongoing changes made to this boundary through the centuries. The historical evidence, previous archaeological observations and the new evidence as documented in 2011/2012 will all be outlined, in an attempt to achieve both an account of the story of this boundary as possible.

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TH4-08 Abstract 15

The city wall in Nya Lödöse

Author - Archaeologist Svensson, Pia, National Historical Museums, Mölndal, Sweden (Presenting author)

Co-author(s) - Bakunic, Imiela, Rø Olsen, Natuur en Kultuurhistorie, Gilleleje, Denmark

Keywords: Early Modern Town, Material culture, Rampart/Palisade

Presentation Preference - Oral

In 2013 the largest urban archaeological excavation ever undertaken on the west coast of Sweden started in the Old Town (Gamlestaden), Gothenburg. The town of New Lödöse/Nya Lödöse, at the mouth of Göta river, which lay here between 1473 and 1624, is still being excavated. Twice before, in the 1910s and 1960s, archaeological excavations were carried out, mainly in the northern parts of the town. During the first excavation, parts of the northern moat were also recorded. Since then, more recently, further smaller investigations have been carried out. In 2015 we had the opportunity to explore much larger areas southwest of the town. Underneath the modern disturbance and an 1800s construction debris and foundation, we had the opportunity to record remains of the city wall. This area consisted of the following structures: a putative gatehouse, a palisade, parts of the ramparts and the appurtenant moat, as well as a bridge foundation in the moat. Having excavated the remains and the parts of the wall as well as the remains of the town, we now have a significant body of material reflecting daily life in the town of Nya Lödöse. Organic materials, construction waste and the practical use of the moat in the handling of various materials, for example flax-retting, are all evidenced. Subsequently, we address the question of how the construction of the ramparts affected the people in Nya Lödöse and what was its real purpose? We present the preliminary results and take a closer look into how the construction of this town limit affected the town and its population.

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**TH4-09**

**PAST ANIMAL AND HUMAN RELATIONSHIPS AROUND THE BALTIC**

Friday, 2 September 2016, 09:00-16:00
Faculty of Philology, Room 107

**Author** - Kirsipuu, Tiia, University of Helsinki, Helsinki, Finland (Presenting author)

**Co-author(s)** - Daugovica, Lina, Klaipeda University, Klaipeda, Lithuania

**Keywords**: bioarchaeology, Early- and Middle Ages, Baltic region, burial context, animal use

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**TH4-09 Abstract 01**

**Bioarchaeology in action – a multidisciplinary approach on animal remains in ritual contexts**

**Author** - PhD Mannermaa, Kristinna, University of Helsinki, Helsinki, Finland (Presenting author)

**Co-author(s)** - MA Kirsipuu, Tiia, University of Helsinki, Helsinki, Finland

**Presentation Preference**: Oral

**Keywords**: bioarchaeology, animal remains, ritual contexts

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**TH4-09 Abstract 02**

**Wild mammals in culture and landscape of the medieval Poland**

**Author** - MA Wiejacki, Jan, Nicolaus Copernicus University in Toruń, Toruń, Poland (Presenting author)

**Co-author(s)** - Prof. Makowiecki, Daniel, Nicolaus Copernicus University in Toruń, Poland

**Keywords**: archaeology, hunting, Poland, wild mammals, Middle Ages

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This paper addresses the question of wild mammals and its significance to life of societies living in Poland during the Middle Ages. Several publications about particular species have been published so far mostly in "Archaeologia in Polonia" and "Archaeologia Polonica". However, in present research authors revisit old records and opinions on this topic. Special attention will be also paid to fusion of archaeozoological, historical and anthropological knowledge. It will be possible thanks to considering the time, space and category of archaeological contexts. Therefore the picture of medieval hunting, which was strictly related to the social status, will be possible to obtain. In this context it is important to emphasize special species such as red deer, elk, wild boar or brown bear. Crucial role played also aquatic mammals like beaver and otter, and its use as a fur-bearing animals. Apart from considerations on cultural aspects some osteometric observations will be performed. Measurements will be used for detecting the diachronic and synchronic trends in body size changes.

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**TH4-09 Abstract 03**

**The role of big game hunting among Iron Age boreal zone farmers**

**Author** - PhD Student Kirsipuu, Tiia, University of Helsinki, Helsinki, Finland (Presenting author)

**Keywords**: animal identification, inhumation burials, wild mammals

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**TH4-09 Abstract 04**

**In search of an animal skin: applying SEM for the soil of the Perttulanmäki Corded Ware grave, Finland**

**Author** - PhD Vajanto, Krista, Nanomicroscopy Center Aalto University, Espoo, Finland (Presenting author)

**Co-author(s)** - MA Ahola, Marja, University of Helsinki, Helsinki, Finland

**Co-author(s)** - MA Kirsipuu, Tiia, University of Helsinki, Helsinki, Finland

**Keywords**: animal hairs, Corded Ware grave, SEM

**Presentation Preference**: Oral

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In the acidic soils of Finland, where organic materials from Stone Age are only rarely preserved, the Perttulanmäki Corded Ware grave is an important exception. In this context it is important to emphasize special species such as red deer, elk, wild boar or brown bear. Crucial role played also aquatic mammals like beaver and otter, and its use as a fur-bearing animals. Apart from considerations on cultural aspects some osteometric observations will be performed. Measurements will be used for detecting the diachronic and synchronic trends in body size changes.
TH4-09 Abstract 05
A critical appraisal of using relative bone weights of reindeer from archaeological sites
Author: Prof. Bartosiewicz, László, Osteoarchaeological Research Laboratory, Stockholm University, Stockholm, Sweden (Presenting author)
Keywords: meat consumption, reindeer, relative bone weight
Presentation Preference - Oral
Quantification in archaeozoology requires a combination of various approaches. In addition to primary osteological data (Number of Identifiable Specimens and weight) derived measures have been calculated to compensate for bias caused by fragmentation and selective destruction. Fragment weights have remained underestimated in developing such methods. The argument against their uncritical use is the changing specific weight of bone during diagenesis which precludes estimating absolute quantities of meat and even comparisons between bone deposits of different preservation.

Reichstein (1994) used the relative weights of elements in complete skeletons for cattle, sheep and pig as standards in analyzing the summarized fragment weights of elements in archaeological assemblages, presuming that the criterion of homogeneous preservation is met. Aside from NISP, weight offers the only information available in fragmented materials for estimating the representation of various body parts in food refuse. In this paper Reichstein's method is extended to reindeer, a meat source of key importance in Paleolithic Europe and throughout the history of the northern Baltic region and adjacent areas. Skeletal element weights of a mature male were chosen against whose percentage proportions weight distributions in archaeological assemblages can be compared. Bone measurements taken on the same standard individual can provide a basis for log size index (LSI) calculations, by which the few surviving bone measurements in the archaeological material can be compared to those of the reference specimen. The methodological concerns involved ranging from taphonomic issues to intraspecific variability a SWOT analysis of the relative weight method was carried out to appraise its applicability to reindeer.

TH4-09 Abstract 06
Swine and ritual at the turn of fourth millennium BC on the Polish Plain
Author: MA Lisowski, Mikolaj, University of Sheffield, Sheffield, United Kingdom (Presenting author)
Co-author(s): Prof. Szmyt, Marzena, Adam Mickiewicz University in Poznań & Poznań Archaeological Museum, Poznań, Poland
Keywords: Neolithic, Poland, Zooarchaeology
Presentation Preference - Oral
The paper explores the role of pig in ritual communities associated with Globular Amphora Culture (GAC) at the turn of 4th millennium BC on the Polish Plain. Distinct ceremonial practices involving domestic animals are well-documented at sites linked to this culture, including commonly documented practice of so-called cattle burials. Pigs play also an important role for GAC communities, and are also present in burial practices; however, the role of this species in other ritual activities, including feasting and offerings, is largely under-explored. Taking into account new evidence from Globular Amphora Culture at Wldziszewo in Greater Poland region we aim to explore this issue. The deposit excavated in one of pits at this site consisted of a tight cluster of remains of six pig carcasses, disarticulated and consumed in distinctive and standardised manner during a short- time event. The evidence from Wldziszewo represents hitherto undocumented aspect of ritual activity of GAC communities, and has no direct analogies in the Polish Plain. Based on the data, it is possible to trace the significance of pig as an animal consumed and/or deposited in ritual contexts of GAC. Particular emphasis is put on differential treatment of pig body parts: depositing heads in human burials (e.g. burial in Chodziez), and communal consumption of carcasses (as documented in Wldziszewo). This issue will be a subject for further research to determine whether it was a widely applicable rule or a single instance.

TH4-09 Abstract 07
Cluttered faunal remains from a Roman Iron Age burial mound in Sweden: a taphonomic perspective
Author: Stolå, Bettina, Stockholm University, Uppsala, Sweden (Presenting author)
Presentation Preference - Oral
The area of Fullerö, north of Uppsala has been subject to numerous archaeological excavations. Artifacts and structures demonstrate a long continuity from Neolithic times and onwards. Finds datable to the Roman Iron Age (1st to 4th century AD) dominate the context. Investigations in 1934 concerned a burial mound in the southern part of the area (RAA 163:1). It contained a Roman Iron Age chamber tomb. Excavations yielded various precious finds, as well as human and animal remains. Artifacts and bones (mainly unburned) were unevenly spread out in the fill of the mound. Looters has been suggested as the main reason. The human remains represent a single individual, an adult male. The animal bones derive from both domestic and wild species. The burial mound at Fullerö is quite exceptional and unusually rich for its period. While the artifacts and human remains have been closely studied and interpreted, the faunal remains were only mentioned tangentially. Animals were common burial gifts in Swedish prehistory, deposited as complete individuals or food offerings. Unfortunately, leaking as well as contemporaneous and later activities on the site have hampered a straightforward interpretation. An advanced approach, contextual taphonomy, was thus used to analyse the faunal content of the chamber tomb and to distinguish effects of later activities.

The identification and quantification of the remains will be accompanied by a comprehensive analysis of e.g., fragment size, weathering and fracturing. The matter is challenging and complex, but it is hoped that contextual taphonomy might offer a means to approach faunal remains in disturbed archaeological settings. This study will thus contribute to the discussion about the ritualization of animals during the Roman Iron Age and demonstrate the possibilities and limitations of archaeozoology today.

TH4-09 Abstract 08
Animals of the living and the dead. Animal bones of Iron Age burials and settlement at Old Uppsala
Author: PhD Magnell, Ola, National Historical Museums of Sweden, Lund, Sweden (Presenting author)
Co-author(s): - Sjöling, Emma, SAU Societas Archaeologica Upsaliensis, Uppsala, Sweden
Co-author(s): - Prata, Sofia, SAU Societas Archaeologica Upsaliensis, Uppsala, Sweden
Keywords: animal bones, cremations, social zoaoarchaeology
Presentation Preference - Oral
Around the Baltic Iron Age burials animals reflect the importance of animals to humans in the Pre-Christian societies. Burials and ritual depositions of animal bones reveal complex social and symbolic relationships between humans and animals beyond the use of animals as a food source. It is evident from several studies that animals had different social and symbolic significance for the living and for the dead in the burial rites. Excavations in Old Uppsala, Sweden of a Late Iron Age settlement with a large contemporary cemetery have resulted in unusual conditions to study the animal and human relationship. A comparative study of faunal remains from settlement and burial has been performed to examine the handling of different animals in the everyday life of the living at the settlement and burial rituals of the dead. The study is based on abundance of animal species, but also on stage and sex of the animals. The taphonomic effect of cremations on bones from the burial in relation to the unburned bones from the settlement has been important to consider.

A critical appraisal of using relative bone weights of animal bones has been studied to evaluate if whole animals or body parts of animals have been put on the funeral pyres and to compare with consumption patterns and depictions at the settlement. The study explores the use of animals to express status and/or identity, but also consider religious symbolic meaning of the animals. The relationship between animals and humans in Old Uppsala will be related to regional and inter-regional trends.

TH4-09 Abstract 09
Sami animal offerings, changing religious practices and human-animal relationships
Author: Dr. Salminen, Anna-Kaisa, University of Oulu, Oulu, Finland (Presenting author)
Co-author(s): Äikäs, Tiina, University of Oulu, Oulu, Finland
Co-author(s): - Fransson, Markus, Stockholm University, Stockholm, Sweden
Co-author(s): - Spangen, Marie, Stockholm University, Stockholm, Sweden
Keywords: animal offerings, reindeer domestication, Sami archaeology
Presentation Preference - Oral
In recent years, archaeological excavations have been conducted on Sami offering sites (dating ca. 11th to 17th centuries) in Finnish Lapland. Moreover, some materials from Northern Sweden and archived in museum collections have been revisited with new methods and questions. Zooarchaeological analysis, radiocarbon datings of animal bones and stable isotope analyses reveal new information about religious rikli, religious change, and human-animal relationships among the Samis. We argue that there was a change in the offering tradition, interweaving with changes in the subsistence economy and especially reindeer domestication. Our results indicate that reindeer domestication, acknowledged to have had a major impact on social organization and economy, was also a major factor in the transformation of Sami indigenous religion. However, the underlying nature of the offering tradition remained consistent although the focal species of economic and religious interest changed.
Reindeers in Lithuania: a technological study of antlers artefacts

Author - Daugrona, Linia, Klajpeda University, Klajpeda, Lithuania (Presenting author)
Co-author(s) - Girininkas, Algirdas, Klajpeda University, Klajpeda, Lithuania
Keywords: Lithuania, Lynnyb type axe, reindeer antler
Presentation Preference - Oral

In the Lithuanian territory found 32 skeletal bones and manufactured artefacts of reindeer (Rangifer tarandus). Between them in 2014-2016 three Lynnyb type implements made out of reindeer antler were found within territory of Lithuania. One of the Lynnyb type artefact dating back to the 4400 to 4200 BC, the other two - 12 000 BC - to Late Allerød - Younger Dryas period. All other artefacts dating to Younger Dryas period. Taxistotic, stable isotope, radiocarbon dating, morphological examination on the implements carried out in Klajpeda University laboratories tells us that the one of them was made out of adult reindeer antler and was used as an axe. Wear marks indicate their use as a working tip. The other two was made of reindeer and was used as a hammers connection with leather and fur. Portable Confocal Scanning Light Microscope and Computer tomography scan of a reindeer antler artefacts illustrated of the anisotropic orientation of mineralized collagen fibers. These studies demonstrated the hierarchical structure of reindeer antlers. The trabecular bone is anisotropic, with aligned channels directed parallel to the long axis of the antler beam. Technological research has shown that stoutness articles, as Lynnyb type axes, were made of reindeer male antler and hammers - from female antler, because both sexes are members of the same species, and the properties of their antlers could, therefore, have emerged under similar pressures and constraints through evolution. This is confirmed by a reindeer antlers made of hardware functional purpose, which is to date the Northern European researchers were not analyzed until now.

Late Neolithic V-perforated buttons from a female burial in SE Poland - revisiting a case study

Author - Wnukcia, Kinga, University of Wrocław, Institute of Archaeology, Wrocław, Poland (Presenting author)
Keywords: Bell Beakers, osseous materials, personal adornments
Presentation Preference - Oral

The aim of this paper is to revisit a case study presented at the 21st Annual Meeting of the EAA in Glasgow in 2015 using results from all analyses conducted and offering an interpretation on their basis. During my presentation in Glasgow I argued that in regard to small and weathered finds it is often impossible to identify the raw material only by macroscopic evaluation but the use of low-invasive archaeometric methods (conventional microscopy, SEM, microCT) can reveal structural micro-features and properties facilitating raw material identification. It was so in the case of eleven V-perforated bone buttons from a Bell Beaker female grave found at the Sandomierz-Zawichost Hill site in south-eastern Poland. Low power microscopic approach revealed qualitative features indicating that the osseous material used in the manufacture of these buttons might be animal dentine (ivoory). If confirmed, it would link this eastern Bell Beaker enclave to the Iberian Peninsula, where the use of ivory for the manufacture of V-perforated buttons is well-known. In order to test this hypothesis, different analytic non-destructive and low-invasive techniques of imaging and morphometrics were employed: conventional microscopy (high and low power approach), scanning electron microscopy with energy-dispersive X-ray spectroscopy (SEM-EDS) and micro-computed tomography (microCT). The results were cross-checked using Zooarchaeology by Mass Spectrometry (ZooMS) method, developed at the Bioch/Ch laboratory of University of York, United Kingdom.

Combined results showed that V-perforated buttons from the Sandomierz-Zawichost Hill site were made of cortical tissue with a fringe of cancellous tissue from a long or a flat bone (e.g. scapula) of genus Bos (domestic cattle or wild auroch). It is consistent with what is known about Bell Beaker animal bone assemblages from Central and Eastern European context where cattle bones are the most numerous category of bone. Although the material is not exotic and as such it does not directly link the Polish Bell Beaker southern group with the Iberian Bell Beakers, it is interesting in terms of bone technology and its significance. In this case it can be argued that the choice of this particular material for the manufacture of V-perforated buttons is meaningful - the buttons are made from a bone (or bones) of familiar animal; this material was easily attainable and manifested mechanical properties known to the artisan. The raw material choice can be thus seen as a conservative act perpetuating familiarity and stability within the group to which the wearer belonged.

This study shows that a comprehensive low-invasive analysis of small and weathered finds can facilitate raw material identification and, subsequently, highlight issues connected with the raw material selection and its significance in the past societies.

Zooarchaeological Data and the Historical Sources of Livestock and Breeding at Kurtuvėnai Manor

Author - Palkonytė, Jūratė, University of Klajpeda, Šiauliai "Audia" Museum, Klajpeda, Lithuania (Presenting author)
Keywords: livestock, manor, zooarchaeology
Presentation Preference - Oral

Kurtuvėnai Manor – one of the first fifteenth century’s Manors established in Lithuania, which has been region’s economic and cultural center more than 450 years. In order to understand the livestock, breeding goals and practices at this manor at the time, this research combines an examination of relevant documentary of XV – XIX centuries (inventory books of Kurtuvėnai Manor and information from letters) evidence with a careful osteological analysis of 3027 bones and their fragments (XV – XIX centuries), gained in archaeological excavations.

Although the size of animal farm varied during different periods nevertheless similar trends are observed. According to the observed data, it can be noticed that the smallest farm existed in the seventeenth century (this tendency was influenced by wars, famine and plague). Animal husbandry of Kurtuvėnai Manor was one of the strongest in Samogitia during the management period of the richest Samogitia’s noblemen’s (XVI century – Škaldniskis, XVII century – Napoļis, XIX century – Pliataris). This can
be explained by the economic power of the owners’ estate. During XV – XX centuries livestock was the main source of meat in comparison with wild animals or birds. This data indicates the importance of meat (pork, beef, poultry, fish) and production of milk. The type of breeds, fixture types and the fragmentation level of the bones encountered in manor help to determine the animals’ slaughtering technologies. In XV – XX centuries wild meat firstly added variety to the noblemen’s table and also was a splendid entertainment. Mostly hunted animals were deer (Cervus elaphus), elk (Alces alces) and wild boars (Sus scrofa). Zoological remains from inventory books confirm that there lived the rich noblemen who ate a high-quality meat. This was affected by the material well-being of strong noblemen and their dependence on the nobility of the Samogitian affluent circles. For example, in 1563 Stanislaw Skalski sent 60 partridges for Prussian Duke Albrecht, three years later he sent 100 partridges. We also know that the householders of manors of the seventeenth century already took care of animal husbandry – productivity and improvement of the species. It is believed that at the beginning of the seventeenth century the Dutch cattle came to the major manors in Northern Lithuania, most likely through Riga. Pedigree cattle and horses, which were fed and conformed to, were grown only on larger manors. But this innovation spread slowly. Recently, we have integrated our investigations of the excavated bones with technical and analytical development to gain an all-round perspective on social zooarchaeology. As the past researchers, we have to try to realize the full potential of zooarchaeological data and different methods of zooarchaeology.

TH4-09 Abstract 15
Archaeozoology of Port Towns in Poland

Author - Prof. Maliszewski, Daniel, Uniwersytet Mikolaja Kopernika w Toruniu, Torun, Poland (Presenting author)
Co-author(s) - Wiejacka, Martyna, Uniwersytet Mikolaja Kopernika w Toruniu, Torun, Poland
Keywords: Archaeozoology, Middle Ages, Towns
Presentation Preference - Oral
Background 8th and 9th century strong port centers had been established at the southern Baltic Sea. Some of them played a key role in the history of Poland and of Poland. We can count, among others, Gdansk, Kolobrzeg, Szczecin, and Wolin. Each of these centers was developing in a different cultural and environmental context. Archaeozoological research suggests that the role of rabbits, geese, swans, and other small birds in a territorial, estuarine, and marine - was significant for them. However, up to date results of analyses published in numerous articles in Polish language, consider each of the centers separately. Therefore, the aim of this paper is to compare them according to the archaeozoological data. The effect will be to indicate the differences and similarities in the strategies for supply, and to consider the significance of mammals, birds and fish in the historically changing political, cultural, and social reality of these centers in the Middle Ages.

TH4-09 Abstract 16
Birds and people on polish seaside in Middle Ages

Author - MA Wiejacka, Nicolaus Copernicus University in Torun, Torun, Poland, Poland (Presenting author)
Co-author(s) - Prof. Maliszewski, Daniel, Nicolaus Copernicus University in Torun, Poland
Keywords: birds, archaeozoology, Poland, Middle Ages, polutry, hunting
Presentation Preference - Oral
Polish seaside is characterized by different environmental conditions than the rest of the country. Societies living there since early prehistoric times exploited its resources for food supply and for trade purposes. Beside fishes and mammals also birds have played an important role in farming and hunting economy. Although the studies on importance of this group of animals in Polish areas have been taken up rarely so far. This paper is focused on breeding and hunting for birds during the Middle Ages in Poland. Some aspects of birds history on polish Baltic coast were briefly presented mainly in papers about principal sites like Gdansk and Kolobrzeg. On the base of published data and new research authors will compare obtained picture of birds economy with the rest of the country and observations for other parts of the Europe. Special attention is paid to a social status of domestic chicken and goose consumers in medieval settlements, towns and castles. The introduction of turkey is one of the most important aspect as well. The uniqueness of the coastal area can be observed considering the site in Culin located on Walin island. People living there have exploited local avifaunal species such as White-tailed Eagle and Cormorant.

TH4-09 Abstract 17
Did rats abandon a sinking ship? Discovery of animal products from the 14th c. shipwreck in Tallinn

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Co-author(s) - Matõs, Lima, University of Tallinn, Tallinn, Estonia
Keywords: animal products, Medieval Time, shipwreck
Presentation Preference - Oral
The archaeological excavations of shipwreck that was found at a construction site in Kadriorg, Tallinn, Estonia in 2015, have resulted in a large amount of spectacular finds. The wreck originates from the 14th century and is a medieval cog-like merchant ship. Many everyday items made of metal, wood, birch bark, leather, wattle, textile, clay and stone, have been found both inside and around the ship. There are some burn marks visible on the wreck, which gives reason to assume that there was a fire that caused the shipwreck. Probably the lower part, which was not damaged so much sank and became covered by sandy sediments quite fast. This caused good preservation conditions also for organic compounds of the materials, including different animal products. The paper focuses on the animal remains found in situ in the wreck. This is a unique evidence supporting the information we get often only from the written sources like medieval inventory books or chronicles.

TH4-09 Abstract 18
How to process meat for a 17th century warship

Author - Göran, Björn, University of Kiel, Kiel, Germany (Presenting author)
Keywords: butchery evidence, GIS, zooarchaeology
Presentation Preference - Oral
Researching the fauna remains from the famous VASA, while testing a new GIS based system for displaying and analyzing butchery marks on bones.

The 17th century warship Vasa was launched in 1628 in the time when Sweden was on the rise to their stormaktstiden, the time of their greatest power, but the ship capsized around 20 minutes after the launch. This catastrophic event let to one of the best preserved wrecks of all time and provides the opportunity to study a fauna assemblage in the context of a highly complex movable war machine, which would have built a small floating village with over 400 inhabitants and a diverted social structure.

More than 2000 mammal bone fragments could be mapped and specially analyzed within the ship, showing the main provision storage in the hold and distributed spots of presumably personal food at the upper gundeck as well as some smaller bone assemblages from the provision of special individuals or groups. Another 800 fragments must be considered as only partly reliable since their context or information were found outside the wreck.

All bones were, if possible, identified with taxa, skeletal element and side, showing a dominant amount of cattle, some pig and sheep/goat bones and a small amount of game and birds. The only probably not food-related bones are 5 cat bones.

A special emphasis was placed on the butchery practice. Following the idea from David Orton (http://alexandriaarchive.org/bonecommons/timesshow/18668) GIS shape files for all bigger post cranial bones where created in a higher resolution and from different sides. As an attempt to reconstruct meat cuts all the bones where recorded with a portion based system which can be displayed on the GIS files according to their frequency. Beside from obligatory measurements after Von den Driesch (1976) was the remaining length of the fragments recorded. All bones where weighed and the meat weight was calculated.

The butchery marks were identified as cutting, chopping or sawing and pointed with the direction of the strike as separate layers for each bone on the GIS files.

TH4-09 Abstract 19
Evolutionary history of Baltic seals inferred from the analysis of historical and subfossil samples

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Keywords: Baltic sea, mtDNA haplotypes and haplotype diversity, seal species
Presentation Preference - Oral
Some genetic changes in Baltic harp seals and three extant Baltic seal species: ringed seals Pusa hispida, grey seals Halichoerus grypus, and harbour seals Phoca vitulina, during the Holocene. Each extant species showed a decline in the number of mtDNA haplotypes and haplotype diversity between historical samples (from 1843-1970) and modern samples (collected after 1975).
reflecting a demographic bottleneck in 1970-1980’s. Subfossil samples (9,500-2,800 yBP) had higher haplotype diversity than historical samples of each extant species, suggesting that seal populations have been losing genetic variability throughout the Holocene, and not only as a result of recent population declines. An effective population size estimated from nucleotide diversity of subfossil samples was lowest for harbour seals and highest for ringed seals, which corresponds well with the inference based on the relative frequency of these species in archaeological sites at the Baltic coast. The effective population size of harp seals was comparable to ringed seals and higher than grey and harbour seals, suggesting that frequent occurrence of harp seals in archaeological record reflects their abundance rather than being a result of preferential hunting for harp seals. Reconstruction of the harp seal population dynamics suggests that their extinction was preceded by an abrupt rather than gradual decline. If the decline was due to an intensified hunting pressure, this would have likely affected all the seal species, and we found no evidence for this. Therefore, it is unlikely that the extinction of Baltic harp seals resulted solely from the hunting pressure.

TH4-09 Abstract 20
Worked bone and antler use-wear technology at Lielais Ludzas lake settlement complex

Author - Danciņa, Guna, Cēsīs, Latvia (Presenting author)
Keywords: bone, antler, Lielais Ludzas lake, methods
Presentation Preference - Poster

Since 1960ies in Latvia is known a Stone Age settlement complex around Lielais Ludzas Lake in Eastern part of Latvia. The coastline of the Lielais Ludzas lake has not been changed or reconstructed since 1954, when the water level was regulated and it lead to finding of a lot of tools made of bone, antler and stone in different shapes and sizes. The discovered uncountable number of tools interested the locals so they started to gather them for private collections.

In the following years a number of archaeological excavations were organized in several settlements. The archaeological excavations in Kreiči, Budgarka, Jurizdika I and II, Kreiči burial ground were led by Rauls Śnore, Francis Zagorskis, Lūcija Vankina, who confirmed that the territory around the lake was inhabited during the Middle Stone Age. But after few years of surveying archaeological R. Śnore found more story find concentration sites all around the lake that could also have been a settlements - Baltais point, Baznīckunga island, Harpūnu island, Jurizdika (I, II), Šelupinki, Ūdri (I, II), Vīdri (I, II), Želupes, Utdi un Vīdri (I, II), material use-wear was important all Stone Age but only used material depends of climate and accessible animal species. Environment combined with material use-wear technology was an important part of Stone Age people lifestyle so it is important to see correlation between worked bone and antler tools from excavated sites and stray find concentration places, also to clear out what kind of methods were used to make hunting and fishing tools in Stone Age settlement complex all around Lielais Ludzas lake in Latvia. Mostly all tools were polished by stones, sawed on top or at the bottom of tool, part of fishing gear is bored for fishing hook holes and barbs. Some of tools are made of big flakes of bones which are result of process of bone splitting.

Some of the tools are decorated with carved decorations as well, but it is not a big part of all tools from Lielais Ludzas Lake. Tools mostly are made of the deer, elk, wild boar bones and antlers (identified by K. Paavel). Although not all tools were analysed, the dominance of the previously mentioned animals matches with the Latvian paleoecological material. It is obvious that elk were common, as more than 70 percent of all bone and antler tools used in the Early and Middle Mesolithic were made of elk. During the Late Mesolithic and Early Neolithic significantly grew the use of the wild boar (44.5%). Only in the Late Mesolithic people started to hunt also other species. A larger number of the marten, badger, fox, otter and other predator bones were found. Also the number of hunted roe deers and deers increased in the Early Neolithic, however not significantly.

TH4-10 Abstract 01
Traces on Material Culture: Craftspeople and Contact Networks in the Nordic Bronze Age

Author - Dr. N. Gnejda, Heidelberg, Moesgaard Museum, Ebeltoft, Denmark (Presenting author)
Keywords: individual craftspeople, Nordic Bronze Age, workshops
Presentation Preference - Oral

Superficial and metallographic traces of the crafting process of elaborated bronze artefacts of NBA II and III in North Germany and South Scandinavia made it possible to detect the craftsman behind the objects.

Different craftsmen and their area of influence could be identified, from a craftsman’s point of view, and as such also workshops and contact networks. With the knowledge of distinct techniques, the different skill levels of craftspeople and their affiliation to each other the organisation of metal craft could be better understood within the Nordic Bronze Age.

As a result of this study, it can be stated that an intensive exchange of technical knowledge between workshops around the North Sea formed the unit of the Nordic Bronze Age. However, technological innovation and the specific use of stylistic elements clearly separates the single workshops from each other. Especially the period between 1500-1300 BC, roughly the NBA II period, revealed workshops with individual technical behaviour, different forms of organisation and despite all of this a clear evidence for knowledge exchange. The investigation could not only identify the direction of this exchange but could also drag the idea of the itinerant craftsman back into the light of research.

TH4-10 Abstract 02
Technology exchange and iron trade around the Baltic Sea

Author - Jouttička, Arne, Her, Virum, Denmark (Presenting author)
Keywords: metal trade, iron, smithing traditions
Presentation Preference - Oral

From the rock carvings depicting ships in the Scandinavian Bronze Age to the age of the Hanseatic League and its mighty cargo ships, the Baltic Sea has always played an important role as a travel zone, facilitating interregional contacts and dissemination of cultural and technological knowledge. The study of metallurgical practices is indicative of the spread of innovation and the movement of craftsmen, and therefore not only shows the movement of goods but also the transfer of new ideas and the dissemination of people. Prehistoric and medieval production of metals in the Baltic Sea region demonstrates both shared practices and distinct traditions, making it central for our understanding of cultural relations and networks within this area. This session aims to bring together archaeologists and archaeometallurgists exploring the traditions, continuity, and developments of metal crafts through external influences and innovation from the Bronze Age to the medieval period around the Baltic Sea. The focus will be on the history of technology and traditions of metal production, including aspects of metal working techniques, utilization of tools, and the layout and “chaîne opératoire” of workshops. The interdisciplinary nature of the session will encourage discussions between cultural-historical approaches, experimental and archaeometric studies, to enrich our understanding of technological practices and to explore how metals, technologies and traditions were spread and shared within the region.

TH4-10 Abstract 03
Presentation Preference - Oral
The traditions of iron smelting and smithing technologies in Denmark from the Iron Age to the Medieval period, is fairly well documented on the basis of metallographic analysis of more than 500 artefacts. Compared to similar analyses from other areas bordering the Baltic Sea, it can be seen, that in the Roman and Medieval iron age, there are differences in technologies, that there was only a limited spread of traditions and knowledge.

In this paper, the use of steel for cutting edges in tools and weapons developed in the areas south of The Baltic Sea whereas neither welded steel edges or carburisation appear in Denmark. One illustrative example is a number of single edge swords found in the votive deposit at Vis'nø on Funen. Most of the swords were made from combination of layers of iron and steel. On the basis of analyses of slag inclusions they were judged to have their most likely origin in the area of present day Poland. The sword on the other hand was made from low carbon iron, and the slag inclusions indicated that it was produced within present day Denmark. Apparently the form was copied with no knowledge of the technology.

A much more developed network seems to have been present in the Viking Age, where similar technologies for example forging knives seem to have existed in the whole area around the Baltic Sea. It shows that there has been contact between craftsmen throughout the area, and that technological traditions have been exchanged.

Iron, and especially higher quality metal as steel, was probably also traded within the area, and slag inclusion analysis shows that steel in Denmark was primarily acquired from abroad. Unfortunately, reference databases are not yet sufficiently developed, especially for the eastern areas, and it is therefore not possible to give a more precise description of the trade routes. Future cooperation on the exchange of analyses of slag from iron smelting, will be able to open new perspectives in the identification of the trade of metal in the past.
archaeological silver-copper alloys sometimes leading to incorrect interpretation of the data. Preliminary data from complementary techniques like neutron activation analysis (NAA) and proton-induced X-ray emission (PIXE) are very promising in accounting for some of these surface effects.

This study has the goal of providing elemental information, which will serve to enhance the current knowledge about geographical and chronological diversification of Polish numismatic collections.

Keywords:
- Saage, Ragnar, Tartu University, Tartu, Estonia (Presenting author)
- Patalan, Krzysztof, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany (Presenting author)
- Patalan, Krzysztof, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany (Presenting author)

TH4-10 Abstract 10
On some aspects of specialized production in Roman Iron Age. A case study of S-shaped clasps

Author: Patalan, Krzysztof, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany (Presenting author)
Keywords: Goldsmith, Roman Iron Age, S-shaped clasps

Presentation Preference: Oral

The main topic of the paper are goldsmith products from the Roman Iron Age in the southern and western zone of the Baltic Sea region with emphasis put on the production of golden and silver S-shaped clasps which were used as a closure of the necklace. Although one can speak about chainé operators in context of the individual specimens or in some cases products from limited geographical area such generalizations are not possible to the whole material. The use of certain techniques, order of their application or attempts to bypass them provide important information about local production and can be used to identify the producers or at least in attempt to limit the area of origin of the analysed objects. In the presentation the production of S-shaped clasps will be outlined and compared in the different areas of their distribution. This would show the strength and direction of influences in the goldsmith production of the Roman Iron Age. On the other hand this deliberations – based on the assumption that S-claps may be perceived as both status and group affinity symbol – would allow to discuss those connections between the populations of the Baltic Sea region that were presumably based on heterogeneity.

Keywords:
- Saage, Ragnar, Tartu University, Tartu, Estonia (Presenting author)
- Patalan, Krzysztof, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany (Presenting author)
- Patalan, Krzysztof, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany (Presenting author)

TH4-10 Abstract 11
The path of knowledge - Transfer of knowledge of bronze crafting in the Late Bronze Age Scandinavia

Author: PhD Cand. Nilsson, Andreas, Lunds Universitet, Lund, Sweden (Presenting author)
Keywords: Bronze Age, Bronze Craft, innovations

Presentation Preference: Oral

The Scandinavian bronze craftsmanship has been discussed countless times. But the discussion can continue thanks to new discoveries and new approaches within the subject. I intend in this talk to discuss technology dissemination and the availability of bronze casting technology in southern Scandinavia during the Late Bronze Age. Was the knowledge of bronze casting a closed knowledge or was the technology available to more people than specialists in bronze crafts? What paths have new innovations in form and function and the knowledge of changes in bronze casting technology taken? Can we see variations and ingenuity of bronze smiths at a local level? Was there space for everyday craftsmen or were all bronze craftsmen specialists? I will try to approach these questions by examining the various steps needed in the Chaîne opératoire of bronze casting and by discussing different parts of bronze casting technology such as soapstone moulds, crucibles, technical ceramics and examine specific everyday objects made out of bronze such as socketed axes.

Keywords:
- Saage, Ragnar, Tartu University, Tartu, Estonia (Presenting author)
- Patalan, Krzysztof, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany (Presenting author)
- Patalan, Krzysztof, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany (Presenting author)

TH4-10 Abstract 12
Markers of ethnicity and female power? Some reflections on Scandinavian brooches in Viking Age Rus

Author: Neib, Michael, Uppsala University, Uppsala, Sweden (Presenting author)
Keywords: Baltic metal working, Artefact biography, Runikid dynasty, Viking diaspora, Viking Age Rus

Presentation Preference: Oral

Prehistoric pictures are a special sort of source material. Pictures are not random products – they were created to convey messages. This statement applies especially to the oral culture of the Viking Age. However, Viking Age pictures rarely occur as independent monuments. More often, they appear as animal art on metal artefacts. The starting point for my reflections is a group of grandiose brooches from Viking Age Russia.
To begin with, a recent 'object autopsy' on the famous Gnezdovo hoard revealed that two circular brooches should be regarded as locally made reconstructions of an elder brooch type, once imported from Scandinavia. In fact, no corresponding brooches from mainland Scandinavia display similar amounts of antiquarian sentiment. Why was then so much effort put into restoring the Gnezdovo brooches? One intriguing possibility is that these brooches represented heirlooms from an earlier generation of settlers. Presumably, over time some of these heirlooms transformed into important symbols of Scandinavian ethnicity.

Another case is the grandiose brooch from Yelets. Here, we find an emblem, possibly linking the object to the princely House of Rurik. Rurikid emblems were compositions of elements from various sources. We believe that different male princes created individualized emblems of their own. In the case of Yelets, the emblem combines Scandinavian and Oriental elements. Yet, being a female dress adornment, we might ask whether the Yelets emblem represents the might of the princely dynasty or the power of an individual female known from written sources. There is plenty of circumstantial evidence to conclude that Yelets brooch was made for a woman with close ties to the Rurikids, possibly during the second half of the 900s or the early 1000s. Ancient concepts of personhood were such that the actions of an upper class female fell back on her entire clan. Thus, we should perceive the mere act of commissioning that sumptuous brooch as a statement of might and power. Special consideration should also be given to the role of women in the building of alliances, as well as the function of female heirlooms within the social interplay. In fact, the Yelets brooch displays signs of wear and repair that might indicate that it had been passed down to later generations. As Viking Age craftsmen would have been able to travel considerable distances, there would have been no need for our female patron to seek out the gold smith. Having said that, we should neither exclude the possibility of a precious gift bestowed upon her, either by one individual or by several people.

**TH4-10 Abstract 13**

**Technological aspects of the Swedish gold collars**

**Author:** Dr. habil. Armbruster, Barbara, Laboratoire d’archéologie TRACES - UMR 5608, Toulouse, France (Presenting author)

**Co-author(s):** Pesch, Alexandra, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany

**Keywords:** fine metal working, gold collar, Migration period

**Presentation Preference:** Oral

The Swedish gold collars from the Migration period are enigmatic masterpieces of Early Medieval fine metal working. Their refined imagery, complex form and decoration, and sophisticated manufacturing techniques were studied within the scope of an international research project coordinated by Pesch, Alexandra (Schleswig). This paper deals with the technological aspects of these fine pieces: the “chaine opérateure” of the production processes and the tools implied. It provides new insights on the collars’ technology chosen by the goldsmiths to create the composite body, the figurative elements and the filigree and granulation work. Especially interesting are the technological features of the construction of the tubular sheet work and the making of the so-called miniatures. The specialized and complex knowledge of the makers will be set in the context of fine metal working in the North during the Early Medieval period.

**TH4-10 Abstract 14**

**Iron smelting room in the Žarde-Bandužiai archaeological complex (Lithuania)**

**Author:** Masuliene, Ieva, Klaipeda University Institute of Baltic Region History and Archaeology, Klaipeda, Lithuania (Presenting author)

**Co-author(s):** Selskienė, Ausra, State research institute Center for Physical Sciences and Technology, Vilnius, Lithuania

**Keywords:** chemical analysis, Iron Age, iron smelting

**Presentation Preference:** Oral

The chronology of the Bandužiai (Žarde) and Bandužiai settlements is very broad: economic activities connected to iron smelting and other not defined domestic activities were conducted in this territory from 1st millennium BC – early 2nd millennium AD.

Chemical analyses (XRF, SEM-WDX) of iron metallurgy artifacts and detailed analysis of archaeological material provide the opportunity to reconstruct process of iron smelting and to evaluate the development of archaeological complex in prehistory.

**TH4-11 Abstract 01**

**Dental findings from the Mesolithic sites in Lithuania: morphology and affinities**

**Author:** PhD Zubova, Alisa, Institute of archaeology and ethnography SB RAS, Novosibirsk, Russian Federation (Presenting author)

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**Co-author(s):** Wärmänder, Sebastian, Stockholm University, Stockholm, Sweden

**Keywords:** dental non-metric traits, Lithuania, Mesolithik

**Presentation Preference:** Oral

Domains and Spiginas archeological sites are located in the Lake Birzulis region, West Lithuania. Calibrated 14C data for the Mesolithic graves from Donkalnis are around the second part of the VII millennium BC – the middle of the V millennium BC. Spiginas Mesolithic graves belonged to the period from the second quarter of the VII millennium BC to the middle of the IV millennium BC (Daubaras, 2009 table 1). According to the results of previous investigations, the complex of non-metric traits in the sample from Donkalnis and Spiginas was connected with so called «Middle European» dental type (BaltGörén, Černy, Januškevičius, 2001; BaltGörén, Černy, 1985, 2012). The main features of this type are the absence of eastern traits such as, for example, shoveling of upper central incisors and distal trigonid crest on lower first molars, and at the same time absolute prevalence of five-cusped lower first molars and high frequency of Carabelli trait on the upper first molars. Middle European complex widely spread in the Middle, East and West Europe. It has a lot of variants inside; some of them are signally distinct from each other. So we need a more precise definition of the dental status of these findings and it is one of the aims of our research. The second one is the comparison of the Lithuanian samples with the Mesolithic findings from the other regions of North, East and Middle Europe for determination of the main directions of biological affinities.

The dentitions from six Mesolithic craniums were observed using ASUDAS, Russian dental system, called after A.A. Zubov and the program of the archaic traits accounting. Also the main dental dimensions (mesio-distal diameter, bucco-lingual diameter, crown height and root height) were measured. Obtained data were compared using the Principal Component Analysis (PCA) with the Mesolithic samples from Latvia (Zvenieky), Russia (Yuzhny Oleni Ostrov), Sweden (Scateholm) and Mesolithic and Neolithic series from Ukraine (Vasilevka, Vonigii-1, Vonigii-2, Nikol’skoe, Yasynovka) because some of the Neolithic burials of this region were synchronous to the Baltic Mesolithic.

The results of our analysis showed the population from Donkalnis and Spiginas belonged not to the clear middle-european type, as suggested in previous articles, but to the Baltic variant of this type. Difference between these two variants is in the presence of eastern admixture in the latter. This admixture strongly presents in the North, in the Yuzhny Oleni Ostrov, less in Zvenieky and minimally in Latvian Mesolithic. So we can suggest that its presence depends on the distance from the Baltic Sea. Lithuanian findings lack almost all eastern non-metric markers, exclude the six cusps, but proportions of molar crowns they have close to contemporary Saami, Latgalls and some mongoloid groups. This differ them from all of the Ukrainian samples which belonged to clear middle European dental type, without any eastern admixtures.
Prevalence of pathological lesions in the Iron Age water burial site Levānuţa, Western Finland

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**Keywords:** Finland, Osteoarchaeology, diseases, Paleopathology

**Presentation Preference:** Oral

Ante mortem tooth loss (AMT), dental calculus and especially dental caries prevalence was lower than in later periods in Finland. The prevalence of periapical lesions in the lower molars, however, were slightly higher in Levānuţa than in later periods. This may be explained by advanced dental wear or trauma. The alveolar-CEJ distance was also lower although teeth in general had more wear. This speaks for diet change (increase in carbohydrates and softer foods) in the later Iron Age, medieval and early post-medieval periods in Finland. For dental caries, however, even the existence of the pathogens causing dental decay in the whole material can be questioned, since lesions are so few and some of them are not typical caries lesions and could be taphonomic or developmental defects of the dental enamel.

Most striking feature in the paleopathological state of the Levānuţa people is that joint lesions are found more than usual in bioarchaeological studies. Especially the knee and ankle joints are affected more than usual. Most of the joint lesions resemble osteoarthriditis diseases, but its prevalence exceeds the normal crude prevalence rate of osteoarthriditis (0.5%) by far.

Trauma prevalence is similar to other bioarchaeological studies. Also periostitis and localized infections did not reveal anything surprising. Cribra orbitalia, especially in subadult skulks seems to be a slightly lower than the later periods in Finland.

Schön’s nodes, spondylosis, enamel hypoplasia, osteoma and localized osteolytic lesions prevalence rates were similar to previous bioarchaeological studies. Partial sacralization of the left side was observed in three individuals.

**Formisto, T. 1993: An Osteological Analysis of Human and Animal Bones from Levānuţa, Vammalan kirjapaino oy, Vammala**

Evidence for venereal syphilis in post-medieval Riga, Latvia

**Author:** Petersone-Gordina, Elina, Durham University, Department of Archeology, Durham, United Kingdom (Presenting author)

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**Keywords:** congenital syphilis, infectious disease

**Presentation Preference:** Oral

This research aims to evaluate the presence of venereal syphilis (VS) in two post-medieval cemetery populations from Riga, Latvia. Both skeletal populations were excavated prior to building and reconstruction work. Two hundred and seventy-four individuals from the Riga Dome Church cemetery (RDCD), and 196 individuals from the St Peter’s Church cemetery (SPCC), dating from the 16th – 17th centuries AD were included in the analysis.

To estimate age at death of the adult individuals, degenerative changes of the pelvis were evaluated, while sex was based on the morphology of the pelvis and skull using standard methodology. Age of non-adults was estimated according to dental development and eruption, using long bone length if dental analysis was not possible. Two hundred and seventy-four individuals from the Riga Dome Church cemetery (RDCD), and 196 individuals from the St Peter’s Church cemetery (SPCC), dating from the 16th – 17th centuries AD were included in the analysis.

Pathological changes on the outer table of the skull and on the long bones of legs characteristic of VS were observed in four subadults from the RDCD population, and 74 males, 45 females and 77 non-adults from the SPCC population. Six individuals from the RDCD and two from the SPCC with lesions possibly associated with VS were selected for further analysis.

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The evidence for VS from these two post-medieval cemetery populations complements historical data about the spread of the disease in Riga during the 16th – 17th centuries AD, along with the development of sea trade and the growth of Riga as a significant port city in the Baltic region. It also helps to understand how VS was introduced into the territory of Latvia: the only individuals with possible VS in the archaeological populations of Latvia have so far been found in Riga and Ventspils, which were relatively large port cities in the Baltic Sea trade route during the post-medieval period.

Cribra orbitalia and trace elements in subadults from a 17th–18th century cemetery in Latvia

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**Keywords:** Bioarchaeology, Paleopathology, Trace elements

**Presentation Preference:** Oral

Cribra orbitalia (CO), or porotic hyperostosis of the orbital roof, is one of the most common pathological conditions found in archaeological skeletal remains of subadult humans. Reaching frequencies higher than 50% in many prehistoric samples, CO has been generally connected to a variety of factors including infectious disease and malnutrition. In this study, we tested the relationship between CO and trace element concentrations in 28 subadult skeletons from a 17th to 18th century cemetery in the historic town of Jākūpīsi, Latvia. Bioarchaeological evidence indicated high mortality for children in this cemetery: half of the burials were children under the age of 14, while a third were under the age of four. Life expectancy at birth was estimated to have been only 21.6 years. Seven of the 28 subadults (25%) showed evidence of CO, but only those in age groups of 1-5 and 5-11 years old. Trace element concentrations measured by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) showed no relationship between presence or absence of CO and levels of manganese, zinc, strontium, barium, copper, cadmium, or lead (p > 0.05, one-tailed t-test, unpaired variances). However, a significant relationship (p = 0.05) was found between the presence of CO and decreased levels of iron. Further, the relationship between CO and decreases in copper and lead approached significance (p = 0.065). These results support the hypothesis that CO is related to iron deficiency, and suggests that deficiencies in other trace elements (e.g., copper) may be involved as well.
As a modern population, Finns are well known for an abundant record of genetic research. There are, however, no ancient DNA studies focusing on Finnish population history before now. This project aims to use a new approach together with statistical computational methods, to study skeletal remains from Finnish historical burial grounds. Our objectives are to resolve the historical relations of Finns with the neighboring populations, such as other Finno-Ugrians, and investigating the migration patterns over time. We also hope to address the local emergence of haplogroups associated with farmers in Europe, and the effect of this on the more archaic “hunter-gatherer” haplogroups.

From the collections, Renko (13th to 19th century), Porvo (16th to 18th century) and Hamina (18th century) 3-13 individuals are included in the aDNA study, respectively, as well as 20-35 Iron Age samples from Western Finland. All of the remains have undergone paleopathological and archaeological analyses.

We proved the presence and satisfactory preservation of ancient mDNA in Finnish bone material over the timespan of 1,500 years. Several complete mitochondrial genomes for each of the archaeological collections studied were retrieved. The mitochondrial DNA evidence is used, through continuity tests, to compare the ancient DNA profiles of Finns with that of the modern Finns. In addition, by including modern nearby populations into analysis, it is possible to examine the past relations and possible patterns of migrations in historical Finland. Previously published aDNA data from other locations is used to estimate the order and timing of population changes in Finland over time.

In the future we hope to include more ancient samples from Northeastern Europe and other parts of Finland, dating to the Iron Age, to further complete the historical timeline. Genome-wide nuclear DNA analysis is also planned for the samples well preserved.

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Two boat-graves, Salme I and Salme II, were found and excavated in 2008-2011 in Saarenmaa, Estonia. They are unique in the European context regarding the remarkable number of human burials inside the boats. Osteological and archaeological examinations have given indications of sex, age and probable social status. However, with recent developments, modern DNA technology can enable a comprehensive genetic analysis. Today we can get information about ancestry, origin, genetic and/or lactose intolerance, family relationships and sex. It is also possible to predict physical appearance with regards to hair, eye and skin color, length, wet/dry earwax, body odor and BMI.

The introduction of next generation sequencing (NGS) has opened up a whole new field allowing numerous analyses that would not otherwise have been possible. We will use NGS technology and massive parallel sequencing for a detailed genetic analysis of the Salme materials along with current archaeological methods to generate a database with DNA profiles and information about individuals from the boat graves. Ancient skeletal remains present a number of challenging features where the amount and integrity of recovered DNA are limiting factors. We will use NGS technology to overcome many of the challenges in a detailed genetic analysis. The assay provides whole genome DNA profiling of Viking age remains to ancient and contemporary European populations for information about ancestry and the migrations in ancient times. Our data may also provide information about phenotypic traits of these seafarers from early Viking ages.

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TH4-11 Abstract 10

Human bone AMS 14C dating and the freshwater reservoir effect?

An East Baltic Iron Age sample

Author: Dr. Kurla, Laurynas, Lithuanian Institute of History, Vilnius, Lithuania (Presenting author)

Keywords: East Baltic, Freshwater reservoir effect, Radiocarbon dating

Presentation Preference: Oral

The chronology of Baltic tribes' Roman period – Viking age archaeological material has up till now been built upon typological dating of artefacts, mostly those discovered at burial sites. However, the lack of chronological reference points is becoming increasingly evident. In many cases, sequences of particular artefact assemblages are sufficiently definite, but unrelated to absolute dates. Radiocarbon dating of series of samples associated with different artefact types or other archaeological markers should contribute a great deal not only to dating particular sites, but also to testing and correcting typological shemes and thus advancing the capabilities of relative chronology.

In order to achieve the above-mentioned goals and to test the research potentials in this field, a project was carried out during which 30 human burials were AMS 14C dated. The samples (11 of unburnt bone, 17 of cremated bone, and 2 of charcoal from cremation burials) from Roman period – Viking age East Balticburial sites were selected in order to cover all chronological horizons (c. 34th–11/12 centuries AD) and to obtain radiocarbon dates associated with as much artefact types as possible. Special attention was also paid to the construction of the biographies, i.e. in selecting the samples, every effort was made to represent a maximum variety of construction features, which are usually considered to be chronological indicators. Calibrated radiocarbon dates were statistically compared with the ones determined on the basis of the grave goods employing all currently available typological schemes.

The radiocarbon dates appeared to be unexpectedly old compared to the typological ones, and this can be hardly explained by the uncertainties of the dates alone. In only 18 instances did the intervals of absolute and relative dating overlap. The collected data, however, offer an opportunity to set a new goal for the study, i.e. to search for the source of the date offsets, and the possibilities of eliminating them. Overly old radiocarbon dates in similar contexts are generally associated with the freshwater reservoir effect. The results of radiocarbon dating demonstrate that this effect should be considered and needs special regard.

In order to evaluate the possible significance of the effect’s impact, to determine the reservoir age, and to verify the possibility of eliminating this effect, additional investigations need to be conducted. At this stage of research, additional radiocarbon dates of both the hillfort and cemetery provided new information on the relative dating of these and even challenged the old interpretation (Oinonen et al. 2013).

In 2014 Finnish Cultural Foundation provided support for a new project to study chronology of the site, and cultural and genetic connections between Kivutkalns site and eastern Fennoscandia. In this contribution, we present the status of this project. First, we discuss the cultural connections based on archaeological investigations of the artefacts from Kivutkalns hillfort and cemetery. Second, we present new 14C-based chronologies of the site to shed light on both absolute and relative dating of hillfort and cemetery. Third, we present new data on dietary habits and discuss genetic affiliation of the people based on 800–1000-year period (c. 3/4th – 11/12th centuries AD) and to obtain radiocarbon dates associated with as much 13C, 15N isotopic data and ancient DNA measurements on human bones, respectively. Particularly, possible genetic connections between Kivutkalns and ancient and present populations of eastern Fennoscandia are discussed.

Keywords: dated during the project and those which will be dated in the future. It would likely allow the modelling of the true age of human bone samples – both those dated during the project and those which will be dated in the future.
TH4-11 Abstract 15

Mitochondrial DNA Analysis of Human Remains from Estonia – Insights and Challenges

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Keywords: ancient DNA, Estonia, Neolithic

Presentation Preference - Poster

The Neolithic Revolution, describing the transition from a hunter-gatherer subsistence to farming, is one of the most important processes in human history and has been found to be largely a result of demographic diffusion. The arrival of the first farmers in Europe led to an influx of genetic diversity not seen there before as well as admixture of local hunter-gatherer and immigrating people. To gain insights into these processes in the Baltic region is still poorly studied.

Here we reconstructed the complete mitochondrial DNA of 20 individuals from different archaeological sites of Estonia covering the timespan from the Late Mesolithic to the Late Neolithic. By determining the haplogroups of the individuals, we show that the typical European hunter-gatherer maternal lineages are represented exclusively in all individuals from all sites until the Middle Neolithic. From the Late Neolithic onwards we see the inclusion of haplogroups that are linked to the Neolithic farming cultures in Central and South Eastern Europe. The results indicate a late arrival of people genetically associated to other early European farmers in Estonia with the Corded Ware culture.

In addition, we used the generated genetic data to gain insights into the demography represented in the burial complexes by determining the sex of the individuals and any case of maternal kinship. This study encountered the challenge of inhibition of enzymatic reactions, likely due to environmental conditions or treatment of bones. We show how to recognize them and propose possible technical improvements.

TH4-11 Abstract 16

Hard lives by land and sea: Vertebral pathologies as manual labour indicators in a comparison of Napoleon's soldiers’ and Nelson's sailors' skeletons

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Presentation Preference - Poster

During an excavation in Vilnius in 2001 a mass grave was uncovered containing over 3000 individuals, later identified as Napoleon's soldiers from his unsuccessful 1812 campaign against the Russian Empire. In 2007 the burial ground of the former Royal Naval Hospital was excavated in Plymouth, UK. The graves that were excavated contained more than 150 British sailors dating from broadly the same period as the Vilnius mass grave. These two excavations therefore provide an excellent opportunity to compare broadly contemporaneous groups of servicemen that are very similar and at the same time very different.

The current project focuses particularly on spinal pathology and the respective effects that different kinds of manual labour might have had on individuals from the two groups studied. Whilst both groups are likely to have had rigorous demands placed on them by their respective occupations, the current study considers the extent to which varying kinds of habitual activities will have produced different patterns of alteration and pathological responses in this crucial part of the skeleton.

TH4-11 Abstract 17

Examining skeletons from the Swedish 17th century flagship Cronan

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Keywords: bioarchaeology, craniometrics, skeletal analysis

Presentation Preference - Poster

At the time of its sinking in 1676, the Swedish flagship Cronan was one of the largest seagoing vessels in the world. With its sinking, Sweden lost an important naval battle in the Scanian War, and more than 800 individuals lost their lives in the Baltic Sea. In addition to the 500 sailors, the ship carried 350 infantrymen bound for the Swedish provinces in present-day Germany. The geographic origins of these individuals have so far not been investigated. In this study, geographic affinities of 24 human skulls recovered from the Kronan wreck were investigated through the analysis of metric and non-metric cranial data. Although the results indicate that many of the individuals aboard the ship were Scandinavian, a number of individuals exhibit cranial and dental characteristics inconsistent with European ancestry. These findings provide new information about the demographics of the Swedish military community during the seventeenth century. In addition, the study demonstrates the limitations of current craniometric databases for distinguishing different populations around the Baltic Sea, a situation that will hopefully improve as reference data for these populations becomes available in the future.
WESTERN BALTS IN THE IRON AGE

TH4-12

Faculty of Philology, Room 10

Author - Dr. Jana, Christo, Museum für Vor- und Frühgeschichte Berlin, Berlin, Germany (Presenting author)

Presentation Preference - Oral

The cemetery of Linkuhnen in the Nemunas River is best known for the large number of swords and other weapons from the Viking Age. Only little attention has been paid to the various finds from the Roman Iron Age and Migration Period in Linkuhnen. The analysis and re-evaluating of the archaeological objects and archival material from excavations between 1928 and 1939 allow for a new perspective on this important site. The reconstruction of the excavation results provides a comprehensive understanding of the chronological situation at Linkuhnen for the first time and shows a continuous usage of the cemetery from the Roman Iron Age and the Migration Period to the Viking Age (2-11 century AD) with almost 500 burials and over 5000 grave goods. The finds from the Migration Period are indicators for long-distance relations to the neighbouring areas during the 1000 years of occupancy of the site. The interpretation of Linkuhnen is closely related to its geographic position close to the Nemunas River and the alteration of the course of the Nemunas at the end of the first millennium.

TH4-12 Abstract 04

Belt hooks, fishing lures or clothing fasteners?

So-called belt hooks in the Western Baltic lands

Author - Dr. Wadyl, Sławomir, University of Warsaw, Warsaw, Poland (Presenting author)

Presentation Preference - Oral

The South-Eastern coast of the Baltic Sea seems to be a zone of significant concentration of the so-called belt hooks. So far, we haven’t realized the scale of the phenomenon, usually citing just a few of the finds from the Western Baltic lands. In the most complete catalogue of the finds about 20 objects were listed, with nearly half of them found at the burial ground in Kaup near Neversen (Meklenberg). Author of the paper has gathered information about over 40 ‘fasteners’. Investigated objects are leaf shaped or similar bronze, rarely iron plates with one end provided with a hook, and the other with S-shaped eyelet; both ends are bent to the opposite sides.

TH4-12 Abstract 05

Products Made with Inlay and Plating Techniques in the Ancient Prussia in the XI - XIV Centuries

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Co-author(s) - Shiroukhov, Roman, IA RAS, Tver, Russian Federation

Keywords: Ancient Prussia in the XI - XIV centuries, the techniques of inlay and plating

Presentation Preference - Oral

Different products made using the techniques of inlay and plating iron with base and precious metal were known in Prussian applied art since the end of Viking era. This technology wasn’t applied in material culture of early middle-ages Prussians. It is little known where was the source for such sophisticated jewelry technologies often applied Prussian masters at one a thing from start the XI century. These technologies might be the result of multilateral contacts with Scandinavian and eastern territories and perhaps the territories beyond the Volga. These technologies had two chronological stages in Prussia. The first stage: the XI - XII centuries. Products of this stage have intricate geometrical shapes that indicate some connection with early Scandinavians. Time of their appearance in Prussia is similar with such décor spreading in neighbor territories of the Kursi and the Finns. The inlay was used as for arms (sword pommeis from Irzkapinas, Swidty; Zimmerbude), plugs of spearheads from Vetrovo (Budat), Fedorovo (Małdaniec, Paszowko) Kauster (Bl-Sie Gostow), battle- axes from Murmosko for riders and horses outfit – stirups, bit, cover plates for harness belts, buckles. The plating was used for decorating harness (cover plates, pendant) and some tibiales made from tin or bronze with silver foil cover. The most remarkable findings is pole-axe from Murmosko, spearheads from Kovrovo, Fedorovo and Kauster, parts of harness from Guriievsk (Klein Heide) and Volnoe (Schulstein). Such decor has parallels in more early decorative elements of the Baltic Sea region. The second stage: the XIII - the beginning of XIV centuries. It is specified by appearance of numerous products (iron parts...
of sword knots and belts, spurs for riding and buckles of spurs, arms like the sword from the Balga castle surroundings and sword hilt (from Marienwerder) decorated with geometrical and zoomorphic ornament like image of horned animals ("goats of Perkūnas god") made in unusual for Prussia style with using wire and foil from different metals. Some researchers had suppositions about their eastern origin connected with the movement of the Mongols in Eastern Europe in the XIII century. Such supposition has its reason considering geography of findings (Morava, Poland, Kaliningrad region (East Prussia), Belgorod region). New findings of this stage goods (belt plates, spurs) are represented in materials from burial ground in Fedorovo, Ruvnina Dolna (Unterplenen, Równina Dolna, Poland), Prudno/Alt Wehlau, Simonischken, Kłincovka (Wiliai, Kuntrastruch), Rybachy (Stangenwalde). Such artifacts are also known in Belorussia and Lithuania that can be explained by the migration of the population West-Baltic region caused by crusader expansion. Numerous décor elements connected with Christianity (different images crosses) appeared in this period. This stage is characterized by the reduction of products plated with silver that was in active usage at the first stage. Mass use of these technologies passed away among Prussian jewelers. In this period such goods served as status indicating jewelry of Prussian nobles. This jewelry tradition passed away completely perhaps under the influence of European fashion after absolute conquest of Prussian tribes by the Teutonic Order.

TH4-12 Abstract 06
Western Balts after the Vikings and just before the Crusades.
Finalisation of the post-doc project

Author - Dr. Shiroukhov, Roman, Vilnius University, Vilnius, Lithuania (Presenting author)

Keywords: Archival data, Chronology, Western balts

Presentation Preference - Oral

During the several last years of preparation of PhD thesis about Prussians and Curonians contacts in the 10/11th-13th centuries and the Post-doc project, dedicated to the Western Balts social, economical and cultural development in the described period, the unique archaeological archives and artefacts database of the 37th scientific institutions from the 8th countries has been collected. Following the tradition of the transregional research of the Western Balts, established by Carl Engel and other East Prussian archaeologists and working in all the major archaeological collections of the Baltic sea region, connected to the Western Balts culture of the late 10th-13th centuries, with a particular consideration on former "Prussia Sammlung", the picture of development of the whole South-East Baltic region on the basis of archaeological data was elaborated. Considering this, catalogues, maps and analytics for the each general artefact type, burial custom and social (cemeteries based) structure were prepared and partially published. The very first draft of the book reviewed by 2 senior researchers was sent to the Research Council of Lithuania in March 2015. The basis of the draft represents the dissertation, significantly supplemented with data collected during the implementation of a post-doc project in 2013-2015, as well as some new ideas and theories about the development of the South-East region of the Baltic Sea in the 10-13th centuries. The final stage of the preparation of the post-doc project book will be presented at the session.

TH4-12 Abstract 07
A Heraclius solidus - an Avar find from Sambia

Author - Dr. Zapolska, Anna, Institute of Archaeology, Warszawa, Poland (Presenting author)

Keywords: Avars, Heraclius, solidus

Presentation Preference - Oral

In 80' of 20th century a unique find was made in Sambian Peninsula. During excavations a Heraclius solidus was discovered – the only so far Byzantine coin from this region. Gold coins of Heraclius were minted in big numbers and served as source of tribute payment for Avars. The time of paying these tributes to Khaganat was very short – it lasted only few years – as long as Avars threatened to the Empire's borders. Even though there are numerous finds of these coins in Lower and Middle Danube, in Carpathian Basin and further to the north up to Middle and Lower Rhine. One such coin was found on Polish lands. The one from Sambia is the farthestmost find and isolated at the same time. The artifacts, which can be linked with Avar influence found within West Balts Culture Circle are rare. Among them there are mostly belt fittings, elements of harness and sporadically parts of jewelry. The coin then arises suspicions and questions on its origin, time, ways and circumstances of the inflow.

In my paper I will present new ideas on this matter – contrary to common opinion, that Byzantine coins were brought to the north from the Carpathian Basin through Slaves, there were the rests of Germanic tribes, who should be linked with this mystery and unique find and it's appearance at the Baltic shore.
TH5 SCIENCE AND MULTIDISCIPLINARITY IN ARCHAEOLOGY

Advancement in the use and application of scientific techniques and methodologies in archaeology have significantly altered and contributed to our knowledge of the past. Many of the greatest examples of the research reconstructions of the past have been achieved through the integrated application of multidisciplinary methodologies. This theme seeks contributions that examine how the combination of interdisciplinary research methodologies have affected and influenced development in all areas of archaeology. Debates on both the advantages and the limitations of scientific techniques are invited, together with case study examples that illustrate the improvement of quality and reliability in particular analytical methods.

Closely related to long-standing scientific methodologies in archaeology, bioarchaeology is increasingly presenting a new focus on application of a variety of biological research platforms to our understanding of the past. Employing new technologies, new methodologies and new knowledge from biomedicine, chemistry, physics and biomolecular research, these complement our understanding of the past by adding a “biological dimension” to archaeology. In this theme, we call for contributions and discussion on various aspects of our understanding of the past by adding a “biological dimension” to archaeology. In this theme, we call for contributions and discussion on various aspects of our understanding of the past by adding a “biological dimension” to archaeology. In this theme, we call for contributions and discussion on various aspects of our understanding of the past by adding a “biological dimension” to archaeology.

During the Stone and Early Bronze Age, flint and chert were the most widely used raw materials for making various types of tools and weapons. Along with dyes (used in burial rituals) and shells, lithic raw materials are among the most important items available to archaeologists to document long distance distribution, exchange networks, and mobility in Stone Age. Given this, precise identification of the outcrops of siliceous rocks-based on their mineral and chemical composition-is of crucial importance in determining the geologic/geographic areas from which artifacts originated. Because flint is notoriously difficult to source using macroscopic means, instrumental methods of analysis, e.g., energy-dispersive x-ray fluorescence (EDXRF), laser ablation-inductively coupled plasma-mass spectrometry (LA-ICP-MS) trace element analysis, scanning electron microscope (SEM), electron probe micro analysis (EPMA) and micropaleontological analysis all have been explored to help attribute artefacts to their source of origin and to distinguish among and between individual varieties of siliceous rocks.

This session will be devoted to geochemical and petrographic investigations of flints, including their potentials and limitations. We welcome a wide range of presentations dealing with research on different kinds of siliceous rocks, in any period of time and space, and hope the session will provide new directions for future research into the important problems of flint provenance studies.

TH5-01 INVESTIGATING GEOCHEMICAL AND PETROGRAPHIC METHODS FOR FLINT IDENTIFICATION IN ARCHAEOLOGY

Friday, 2 September 2016, 09:00-13:00
Faculty of History, Room 217
Author - Sobkowiak-Tabaka, Iwona, Institute of Archaeology and Ethonology
Co-author(s) - Werra, Dagmara H., Autonomous Unit for Prehistoric Flint Mining in Warsaw, Institute of Archaeology, Warszawa, Poland
Co-author(s) - Hughes, Richard E., Geochemical Research Laboratory, Portola Valley, United States of America
Presentation Preference - Workshop

The Epipaleolithic site of “Hort de la Boquera”, dated from 12,250±60 BP to 11,850±45 BP and 11,775±45 BP, is located in the north-eastern part of Iberia. The complete stone tool assemblage includes up to 24,000 flint artefacts. This presentation is the first approach to the analysis of the raw materials through an archaeopetrological study. First of all, results were obtained by use of mineralogical techniques: macroscopic and microscopic (petrographic) analysis, Scanning Electronic Microscopy (SEM), Micro-Raman and X-Ray Diffraction (XRD); thus combining mineralogical, petrological and micropaleontological methods. Additionally, a geochemical technique was applied: LA-ICP-MS. One of the aims of this presentation is to show that the results were obtained in this study and to demonstrate the advantages and disadvantages of each technique used. Finally we will show the initial results of the project’s geological surveys conducted in the area, which has allowed for the study of several primary outcrops of siliceous raw materials. The analysis of these sources of raw material and their comparison with the stone tools recovered in Hort de la Boquera rockshelter have led to an initial approach to the potential sources of supply of the Epipaleolithic groups that occupied this rockshelter. Together, these results make this study the most comprehensive analysis of the raw materials to have been carried out in the area, and will therefore be a breakthrough in our knowledge of the economy of the prehistoric communities, and thereby helping in the understanding of the reasons for certain human behaviours.
TH5-01 Abstract 02
Applying ED-XRF, LA-ICP-MS and PIXE analyses to characterize Pyrenean cherts. Potentials and limits

Author - PostDoc Sánchez de la Torre, Marta
Université Bordeaux Montaigne, Pessac Cedex, France (Presenting author)
Co-author(s) - La Bordonnec, François-Xavier, Université Bordeaux Montaigne, Pessac Cedex, France

Presentation Preference - Oral

An intense fieldwork focusing on the definition and characterization of chert sources outcropping in the Pyrenees (SW Europe) was recently carried out. This work was linked to a PhD research concentrated in determining Magdalenian human mobility in the Pyrenees through the analysis of chert tools. This study contemplated a textural, petrographic and micropaleoanthropological characterization of chert using macroscopic and microscopic methods. However, results showed that these techniques had some limitations regarding the evident similarity between several formations. Thus, recovering the previous data obtained after textural, petrographic and micropaleoanthropological characterization of several Pyrenean chert formations, we applied some geo-chemical methods. The aim was to observe the potential these methods could have to characterize chert and, by this way, solving archaeological questions. We would like to present in this communication the potentials and limitations of the application of energy-dispersive X-ray fluorescence (ED-XRF), laser ablation-inductively coupled plasma-mass spectrometry (LA-ICP-MS) and particle-induced X-ray emission (PIXE) to chert characterization.

TH5-01 Abstract 03
Sourcing prehistoric chert artefacts from Malta using new non-destructive techniques

Author - Chatzipaipetis, Petros, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: Chert, Malta, Sourcing

Presentation Preference - Oral

The purpose of this paper is to present petrological/geochemical techniques (e.g. LA-ICP-MS), which can contribute to the investigation into the origin of chert assemblages found in prehistoric sites in Maltese islands. This research is part of a greater project (FRAGSUS) investigating the extent to which these islands were laboratories of human activity and, in particular, their degree of connectivity with neighbouring areas. The project focuses on the Stone Temples on Malta (between 4th and 3rd millennia BC) and identifies the circumstances under which these unique monuments were built. Although these stone artefacts have been studied in the past, the research on their sources has been inconclusive. The advantages of these techniques are their great accuracy, the speed with which results are obtained and, most importantly, they are non-destructive. They are considered perfect for identifying the mineralogical and geochemical context of rock samples. These specific characteristics, combined together, can be great indicators of the origin of these chert assemblages. Firstly, the main principles, functions, equipment and limitations of these techniques will be demonstrated. Secondly, preliminary results from both chert assemblages and chert outcrops from Maltese islands will be presented. Moreover, this paper will also show how the results should be processed in order to obtain the necessary and useful information in sourcing chert assemblages. Finally, a comparison will be made between these techniques and those used in similar research in western Greece.

TH5-01 Abstract 04
Renewed petrographical and geochemical studies of flint from secondary deposits: Belgian case study

Author - Dr. Moreau, Luc, McDonald Institute for Archaeological Research, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Co-author(s) - Dr. Federspiel, Paul, Bar-Latourne, Villard-le-Lens, France

Keywords: Flint, Geochemistry, Neanderthal

Presentation Preference - Oral

The western region of the English Channel is an archaeologically rich area encompassing the French coastline and the plateaus of the Channel Islands located on the shallow Continental Shelf. Although modern sea level has obscured much of the prehistoric landscape for cooler periods during the late Ice Age the region would have resembled a terrestrial plain with a diverse biotope ranging from boreal forest to tundra conditions, home to both Neanderthals and the large fauna that they hunted. This study is focused within the Middle Palaeolithic of the area; a time period represented well in the western Channel for example at large sites such as La Cotte de St. Brelade, Jersey. It aims to shed light on the largely submerged Neanderthal resource base by reconstructing procurement of their preferred raw material, flint (here referring to siliceous rock of Cretaceous age). On the Continental Shelf we know that primary bedrock flint was likely only available from several small chalk outcrops to the north of Jersey, whilst secondary flint resource bases were present in rocky beaches and carried by nearby palaeoivers. These flint pebbles, removed from their original context, are very variable with thick, pitted, cortex and visible inclusions, deriving from multiple parent sites. This research focuses on artefacts within the La Cotte de St. Brelade assemblage that have likely been procured from a primary bedrock origin. At this stage these artefacts are identified macroscopically by the presence of thin chalky cortex and the fine-grained homogenous nature of the flint matrix. This paper investigates the geochemical signature of these first objects with

TH5-01 Abstract 05
The use of FTIR for provenancing flint in Denmark

Author - Dr. Markby, Inga, Vinum, Denmark (Presenting author)

Keywords: Flint sources, heating experiments, Infrared spectroscopy

Presentation Preference - Oral

Infrared spectroscopy appears to be cheap and fast method for provenancing flint resources. Samples collected from three different outcrops in Denmark (Slavere, Kalestrup & Alborg) and one from Sweden (Kristianstad) were analyzed in the field and in the laboratory using an infrared spectrometer in the pre-historical, produce consistent and unique patterns in spectrograms. Heating experiments also demonstrate a consistency of results thus allowing to identify the origin of the outcrops regardless visual changes in appearance. The presentation also considers the significance of intentional burning of flint.

TH5-01 Abstract 06
Tracking the Hunters: Towards a Methodology for Neanderthal Flint Procurement in the English Channel

Author - Mills, Jose, University College London, London, United Kingdom (Presenting author)

Keywords: Flint, Geochemistry, Neanderthal

Presentation Preference - Oral

This research focuses on artefacts within the La Cotte de St. Brelade assemblage that have likely been procured from a primary bedrock origin. At this stage these artefacts are identified macroscopically by the presence of thin chalky cortex and the fine-grained homogenous nature of the flint matrix. This project investigates the geochemical signature of these first objects with
Erratic Flint from Poland. Preliminary results of petrographic and geochemical analyses

Author - Dr. Sobkowiak-Tabaka, Iwona, Centre for Prehistoric and Medieval Studies in Poznań, Institute of Archaeology, Poznań, Poland (Presenting author)
Co-author(s) - Wiera, D.T., Autonomous Unit for Prehistoric Flint Mining in Warsaw, Institute of Archaeology, Warsaw, Poland
Co-author(s) - Hughes, R.E., Geochemical Research Laboratory, Portola Valley, United States of America
Co-author(s) - Siuda, R., Faculty of Geology Address University of Warsaw, Warsaw, Poland
Keywords: erratic flint, geochemical analysis, petrologic analysis
Presentation Preference - Oral

Archaeological sites in Poland, and elsewhere in Western Europe, document that flint and chert have a long history of use. The most commonly knapped raw materials throughout the Stone Age and Early Bronze Age, flints from a number of different sources were used for making tools and weapons, fire-lighting tools, etc. When studying prehistoric flint, one of the more interesting issues to be examined is the connection between deposits exploited at the time and the tools recorded at archaeological sites. By following the spread and distribution of particular raw materials we can study the spreading of prehistoric communities, their mobility and mutual contacts, as well as the size and quality of exchange networks.

At the same time, those features which caused siliceous rocks to be highly prized by ancient communities also mean that it is easier to lose track of the deposit. In order to discriminate erratic flints from an archaeological site, that is why researchers try to describe the diagnostic features of siliceous rocks using various petrographic and geochemical methods.

The area of the Vistula basin is rich in siliceous rocks and it contains deposits of several varieties of flint. A ‘chocolate’, grey-white spotted and striped (banded) variety, Volhynian flint on its eastern borders and erratic flint, occurring mostly in secondary deposits, were mainly used in prehistoric times. Almost all types of them have been examined by using both macroscopic and petrographic-geochemical methods to define their diagnostic features.

This presentation refers to the lithic raw material exploitations in the eastern part of Polish Carpathians. The surface surveys and LiDAR analysis carried out in 2013-2016 on this area resulted in discovery of new resources of various lithic raw material used in the prehistoric: silicified sandstones, quartzite, siliceous marls, mezzine hornstones, flysch radiolite, biroza-like flints, light-brown tabular hornstone. As suggested from artefacts found on the sites in Poland and Slovakia in various chronological contexts these lithics were exploited both for local and much wider use. Identification of raw material itself as well as the outcrops of siliceous rocks is crucial issue in the study of mobility relations within prehistoric communities.

The purpose of our work is to present the primary macroscopic and petrographic characteristics of various variants of siliceous sandstones, quartzite, siliceous marls, hornstones, flysch radiolite and flints from the Eastern Carpathians as well as their natural sources. We point at distinctive features of macroscopic similarity or almost identical raw materials that allow to discern stone artefacts and suggest their source area.
The development and production of brick production in Vilnius, the capital of the former Grand Duchy of Lithuania, was inspired as strategically important craft. The production of bricks has been changing and improving during more than seven centuries. Therefore brick is an important source providing the knowledge about the technical development, production potential and cultural influence during different periods. The evaluation of physical and chemical properties of bricks would enable us to judge about the technological standards of Vilnius bricks, deviations from them and their reasons. The promising investigation methods of the old bricks are related to applied methods of exact sciences. One of them is geochemical method. The geochemical data statistically grouped using Ward’s hierarchical clustering (Barcevičius, Taralievičius, 2015, Archaeologia Lituana, v.16, p.45-62) enables to hypothesize that: a) in certain chronological periods the material for construction of buildings and production of bricks could be extracted from the same or adjacent clay deposits similar in mineral composition; b) there existed brick production technologies specific for that period. So, it is possible to try to create peculiar “multivariate recalibration matrices” with as many as possible dated or characterised by other parameters samples. According to them it would be possible to determine at least approximate dates of the newly found interesting brick of unknown chronology or to compare other features.

Geochemical investigations are understood as a complex of methods which includes: a) purposeful selection of brick fragment samples, b) multi-elemental method of determination of real total contents of elements, c) multivariate statistical analysis (cluster, factor analysis), d) analysis of the ratios of geochemical indices, e) graphical representation of data. Energy-dispersive X-ray fluorescence is usually used for investigation of chemical composition. Its advantage is that great number of chemical elements which can be determined including those related to clay minerals and their additives (Al, Ca, Fe, Mg, Na, K, Si, Ti) accompanied by specific trace elements (Ga, Co, Cr, Cu, Mn, Nb, Ni, Rb, Sr, P, Br, Zn, Pb, etc.).

Aiming to obtain more precise interpretation of brick origin and technological processes using geochemical methods it would be useful: a) to take more (5-15) sub-samples from the same brick (avoiding the effect of random sample selection), b) to take samples from the inner part of the brick (reducing anthropogenic chemical component), c) to use multivariate analysis method with obligatory determination of total content of main major chemical elements and their specific satellites, d) to compile geochemical database of as many as possible exactly dated bricks (when a, b and c requirements are met), e) to select the set of chemical elements for multivariate analysis basing on various geochemical features (not only variability of composition), f) to verify and supplement the results of cluster analysis with the help of other multivariate statistical methods; g) to accumulate geochemical data on potential raw material (clay) deposits.

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**TH5-01 Abstract 12**

**Micromorphology of flint from Mesolithic–Early Neolithic site Zamostje 2 via thin-section analysis**

**Author:** Dr. Kulkova, Marianna, Herzen State University, St. Petersburg, Russian Federation (Presenting author)

**Co-author(s):** Lazovskaya, Olga, Institute for the History of Material Culture, St. Petersburg, Russian Federation

**Keywords:** Mesolithic, Early Neolithic, petrography of flint, raw materials, Zamostje 2 site

**Presentation Preference:** Poster

Site Zamostje 2 is situated in the northern part of the Moscow district on the Doubra River (Russia). The site has yielded cultural layers of the late Mesolithic and early Neolithic with pottery and dated to the time between the beginning of the 7th to the middle of the 6th millennium cal BC. The flint tools which were found inside the Mesolithic-Early Neolithic cultural horizons have many common features. Mainly the same flint sources were used for them. Micromorphology of flint samples including the composition and structure of flint was examined by means of thin-section analysis. Thin sections were investigated at low magnification between x10 and x100, as higher magnifications observe individual features, which may not be helpful for structural interpretation. Using both plane- and cross-polarised light highlights the textural and structural characteristics of the sample. The microstructural, mineralogical and micropaleontological characteristics allow to divide several flint types and suggest their geological age. The most common is the stone tools for which was used the Carbon flint. There are several samples of Jurassic and Cretaceous ages. Carbon flint was found in the site as pieces of rounded pebbles. The outcrops of flint sources in this region are covered by Quaternary deposits. The Quaternary deposits in this area are presented by the Upper-Valga outwash alluvial lowland with the depth of about 100 m. Lowland transect to Khinasko-Dmitriv moraine-erosion ridge. We suppose that the main raw sources are the alluvial and moraine deposits of Quaternary age. It is possible also that some samples from flint of Cretaceous age were import items.
UNRAVELLING THE FORMATION PROCESSES OF THE ARCHAEOLOGICAL RECORD BY INTEGRATING ENVIRONMENTAL ARCHAEOLOGY AND TRADITIONAL FIELD EXCAVATION

Saturday, 3 September 2016, 09:00-18:30
Faculty of Philology, Room 92
Author - Rowena, Barнежa, University of Reading, Reading, United Kingdom (Presenting author)
Co-author(s) - Wouters, Barbara, Vrije Universiteit Brussel, Brussels, Belgium
Co-author(s) - Dr. Orton, David, University of York, York, United Kingdom
Co-author(s) - Dr. McPand, Hang, University of York, York, United Kingdom
Keywords: Environmental archaeology, Site formation processes, Taphonomy
Presentation Preference - Regular session

In 1987 Michael Schiffer published the hugely influential ‘Formation Processes of the Archaeological Record’, which has continued to be consulted to interpret the biographies of archaeological materials, the formation of refuse and refuse assemblages, the spatial and diachronic development of archaeological sites, and to study sites in the context of their hinterlands. On the approach to the 30th anniversary of Schiffer’s publication, this session aims to examine the contribution that environmental archaeology, and its associated specialisms such as archaeobotany, geoarchaeology, palaeoentomology, palynology, and zooarchaeology, has made to advance our interpretations of formation processes on archaeological sites. We welcome submissions from all specialisms of environmental archaeology, as well as from archaeologists in other fields, particularly those who apply integrated approaches and/or experimentation to understand the taphonomy of data assemblages, the formation and reworking of stratigraphy, and the diagenetic processes that affect archaeological materials within their depositional context.

TH5-02 Abstract 01
A multi-disciplinary approach to formation and abandonment processes within later prehistoric houses
Author - Dr. Romanikiewicz, Tanja, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)
Co-author(s) - Dr. Hunter, Fraser, National Museums Scotland, Edinburgh, United Kingdom
Keywords: Abandonment processes, architectural analysis, Prehistoric building materials
Presentation Preference - Oral

From the Bronze Age to the late Iron Age people in Britain lived in roundhouses. They generally kept them clean which created wear, brush and cut patterns on the soft lowland soils. Later truncation left little remains behind apart from few highly fragmented artefacts, the fills of negative features such as pits and postholes which can contain deliberate structured deposits, and artefacts with features in the use-wear depressions. The material recovered from these hollows or the top fills of features is often ignored as representing redeposited material that can yield little securely stratified information. These deposits are either midden-rich, some showing a degree of lensing, or represent a bulk of homogenised but often artefactually sterile infill.

This paper is interested not only in the formation of these hollows but the nature of their infills and the research potential of such redeposited “rubbish”. The multi-disciplinary approach based on recent excavations in Scotland uses micro-morphology, architectural analysis of structure and building materials and experimental reconstructions from Britain and beyond. Results suggest that the accumulated infills in the womb hollows are unlikely to be contemporary with the final house occupation, but represent post-abandonment processes not linked to the particular structure, but to wider site activities. The homogenous bulk of material infill represents the remains of the houses’ superstructures and is studied at macro- and micro-levels to identify their organic building materials such as timber, turf and earth which are usually assumed to be “lost”. Interpretations working with such redeposited material move away from trying to understand each structure on a site individually and towards studying these within a model that postulates a cyclical site use, in which individual features and materials change function and substance because they are interlinked in larger economic and cultural processes.

TH5-02 Abstract 02
Interpreting silos deposits in medieval Mediterranean France: archaeobotanical approach
Author - Dr. Rols, Jerome, UMR7299, CNRS/MNHN, Paris, France (Presenting author)
Co-author(s) - Dr. Vaschalde, Christophe, UMR 5554 (CNRS); UMR7298 LAM3 (CNRS), Montpellier, France
Keywords: archaeobotany, medieval Mediterranean France, silos
Presentation Preference - Oral

For the last twenty years, large-scale public works have helped to improve medieval archaeological research in Mediterranean southern France. The multiplicity of rescue excavations has led to the discovery of several large ensiling areas, some of them formed by thousands of silos. The discovery of such structures systematically raises the question of the size and the duration of the storage practices. New archaeobotanical investigations on several sites in Languedoc-Roussillon allows us to present a review of the results on storage practices in this region, and a discussion on the methods by which archaeobotany can enlighten the existence of primary deposits in ensiling areas. In a second time, we will discuss the interest of studying deposits in secondary position to document several questions, such as the identification of other agricultural practices not related to the storage itself, or the reconstitution of past agricultural practices.

TH5-02 Abstract 03
Exploring house (after)lives at Catalhöyük West via microstratigraphy and animal bone taphonomy
Author - Dr. Orton, David, University of York, York, United Kingdom
Co-author(s) - Rigash, Jana, Flinders University of South Australia, Adelaide, Australia (Presenting author)
Keywords: Bone taphonomy, formation processes, microstratigraphy
Presentation Preference - Oral

This paper presents recent work on the Catalhöyük West Mound (Turkey, ca. 5900-5800 BC), combining microstratigraphy and animal bone taphonomy to explore the use lives of buildings. Research on architectural stratigraphy and particularly on formation processes of infill deposits has demonstrated that buildings underwent several phases of use, abandonment and modification, and that at various stages of their lives they were used for different activities and purposes that included storage, refuse disposal and burial. While stratigraphy provides a relative sequence of events, animal bone taphonomy provides data on the nature and rate of deposit formation processes, allowing us to begin to approach the duration of each stage in the buildings’ lives. These observations can be linked with interpretations of social processes during a phase of Anatolian prehistory that saw societies transform to become more mobile, fluid, and competitive.

TH5-02 Abstract 04
When someone walked in these buildings (geoarchaeology of soils)
Author - Cammas, Cecilia, INRAP, Paris, France (Presenting author)
Co-author(s) - Grousset, Marie, INRAP, Montigny-le-Bretonneux, France
Co-author(s) - Marcy, T., INRAP, Croix-Moligneaux, France
Keywords: geoarchaeology, huts, Middle Ages
Presentation Preference - Oral

The Medieval period was documented for a long time by texts and iconography. These studies brought numerous testimonies which tended to present the living conditions of the noble persons and the clerks. For more than 30 years, in France, the archaeological research has totally changed this incomplete vision of the period. So, the development of the preventive archaeology, and more particularly on huge excavations called in French ‘Grands Travaux’ lighted numerous datas and artefacts of the beginning of the medieval period.

The national institute Inrap which was in charge of many of these projects, operated numerous related disciplines of the archaeology such as geoarchaeology, archeozoology, archeobotany. It was in particular possible to make experiments, such as they were able to be put forward in particular on plan of the Channel relieving the river Saine and the North of Europe (code CSNE). The poster presented here shows the results which were obtained on the same excavation fields of the North of France within the framework of a micromorphological study of the Early Medieval stuff. We especially focused on huts called ‘sunken featured buildings’. It was set up that a particular strategy of sampling, which aims at taking into account the allowed time, as well as the average scientists and the available human being. All the archaeological units of this type having been searched and
taken, it was set up an index form of statement taking into account paleo-environmental comments and studies. It is to find easily samples with the aim of the study in laboratory. Every sample was coded and inventoried. A ceaseless round trip between field data (sediments and drawings/photos) and the data obtained by the micromorphological study, as well as the overall of the other disciplines allowed to document very finely structures which seemed in prior homogenous.

So, the studies led by the archaeologists during works of preventive archaeology allow to set up real scientific protocols. The BBFs, structures in priori without notable interest, give a lot of information onto the everyday life of the populations of the beginning of the Middle Ages in the North of France. Thanks to the interdisciplinary studies led everywhere, it is today possible to have a more just vision of the activities of populations we discover in archaeological field.

TH5-02 Abstract 05
Cesspits and the P-P-P-P-problem: The pitfall of the Pompeii premise and the palimpsest
Author - Dr. Van Oosten, Roos, Leiden University, Amersfoort, Netherlands (Presenting author)
Co-author(s) - Maria Cypsel, 16: 213-225.

Given their high yield of artefacts and ecofacts, cesspits are afforded much time and effort in urban archaeology. While historical sources reveal that cesspits were emptied at regular intervals every few years, archaeologists still treat cesspits as closed contexts where artefacts are fossilized and undisturbed by subsequent cultural or natural processes. This “archaeological blind spot” results from the lack of attention given to cesspit cleaning activities in the application of traditional archaeological methods. For example, counting ceramics both in terms of the “minimum number of vessels” and fragments to tackle formation processes is widely known since Schiffer’s publications, but has not taken root in urban archaeology.

This presentation is a call for a revaluation of the contextual analysis, meaning that stratigraphy must be the terminus of the archaeological record. In order to date artefacts and ecofacts correctly, the issue whether cesspits are (in terms of Bailey 2008) true palimpsests (with or without residual refuse), cumulative palimpsests or temporal palimpsests must be discussed.

The pitfall of the Pompeii premise and the palimpsest
Author - Dr. Van Oosten, Roos, Leiden University, Amersfoort, Netherlands (Presenting author)
Co-author(s) - Maria Cypsel, 16: 213-225.

Keywords: cesspits, palimpsest, Pompeii premise
Presentation Preference - Oral

TH5-02 Abstract 06
Reinterpreting pits and post-holes: Archaeobotany as a tool to access site formation processes
Author - Dr. Teresa, João, CIBIO - Research Center in Biodiversity and Genetic Resources (Univ. of Porto), Porto, Portugal (Presenting author)
Co-author(s) - Martin-Séjoi, Maria, CIBIO - Research Center in Biodiversity and Genetic Resources (Univ. of Porto), Porto, Portugal
Co-author(s) - Vaz, Filipê, CIBIO - Research Center in Biodiversity and Genetic Resources (Univ. of Porto), Porto, Portugal
Co-author(s) - Gaspar, Rita, Natural History and Science Museum - University of Porto, Porto, Portugal

Keywords: Archaeobotany, Formation Processes, Pits
Presentation Preference - Oral

The interpretation of archaeobotanical assemblages has been traditionally based on a classification of archaeological contexts in two categories: dispersed and concentrated. These categories have deeply influenced the interpretation of archaeobotanical assemblages and archaeological contexts. Within this theoretical framework, concentrated plant remains are those found in association to well-delimited contexts, structured or not. These are usually considered to represent short-term events in which assemblages and archaeological contexts. Within this theoretical framework, concentrated plant remains are those found in association to well-delimited contexts, structured or not. These are usually considered to represent short-term events in which they have been successfully used for interpreting archaeological contexts and archaeobotanical assemblages (Schiffer 1987; LaMotta and Schiffer 1999). Finally we consider that the integration of archaeobotanical analysis with further archaeological evidence is crucial to better understand depositional processes and to distinguish between primary and secondary refuse (Schiffer 1987; LaMotta and Schiffer 1999) and even tertiary refuse (Fuller et al. 2014).


TH5-02 Abstract 08
Cooking pits, formation processes and demography
Author - Swedberg, Stig, Kulturlandskapet, Falbybacka, Sweden (Presenting author)
Co-author(s) - Östlund, Annika, Kulturlandskapet, Fjallbacka, Sweden

Keywords: Cooking pits, Democracy, Multi analysis
Presentation Preference - Oral

In a Scandinavian context cooking pits have often been thought to carry some or little information. This has resulted in cooking pits being excavated using simple methods, for instance by cutting a section with an excavating machine and only taking samples for radio carbon dating. This often means that these structures or even whole sites are overlooked. Therefore, we will also discuss how such treatment leads to misunderstanding, reducing or even excluding several aspects of prehistoric society in archaeological interpretations.

Before the excavation of the site Tarum 1821 a compilation was performed of the cooking pits that had been excavated in the local area. The interpretation of the site was compared with what kind of analysis that had been carried out. There were a clear correlation between a Ritualistic interpretation and fewer analyses.

Moreover, it became obvious that the different theoretical frameworks provide distinct perspectives regarding the archaeological context and the archaeobotanical assemblages, having a profound impact in the overall archaeological, palaeoecological and palaeoethnobotanical interpretations.
To solve this situation we created a strategy for the excavation. We measured the volume of larger (bigger than 7 cm) and small (7 cm or less) firecracked stones. Sample from the soil surface were collected for chemical analysis. The section of excavated structures were sampled in three to five series from top to bottom. The purpose is to analyze the presence and amount of phosphates, magnetic susceptibility and the content of organic material. Also samples for macrofossils and radiocarbon dating were collected.

The results from the analysis of the ratio of firecracked stones show that this is a way to group the cooking pits. The macrofossil analysis concluded that one type of pit was used for processing grain. The lipid analysis also support this and the lipid acids from animals implies that another type may have been used for processing meat. The soil chemical analysis strengthens the grouping of the pits but also supports an even finer grouping. Finally the soil chemical results from the surface show significant differences between the different types of structures regarding the activity area around them. These areas were not detected in the field situation but are due to the analyses. The radiocarbon datings shows that the site were occupied temporarily.

The site was situated at some distance from the nearest known waterbodies. Our interpretation is that the site was an activity area and that it during at least three phases have been used for processing grain. It seems possible to compare this with historically known roasting activities. These were also performed separately from the settlements. It is an activity that is often associated with women, but the place was also known as a gathering point for others in the society.

By focusing more thoroughly on one type of structure we have been able to gain more understanding for it. We have also been able to discuss social organisation and democracy and thereby questions of interest for our society. The excavation is in itself an example of how to see democratically on different types of structures and sites.

TH5-02 Abstract 09
Transdisciplinary results of site formation processes in the wetland site Zug-Riedmatt (Switzerland)

Author - PhD Ismail-Meyer, Kristin, Integrative Prehistory and Archaeological Science, Basel, Switzerland (Presenting author)
Co-author(s) - Steiner, Bigna, Integrative Prehistory and Archaeological Science, Basel, Switzerland
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Keywords: archaeobotany, micromorphology, Neolithic
Presentation Preference - Oral

At Zug-Riedmatt, excellently preserved waterlogged organic layers were conserved in a depth of 6m, below the delacs deposits of the river Lorze into Lake Zug. The layers have been accumulated during the Neolithic settlement activities between 3200 and 3100 cal BC. Even though only a small part of the site was excavated, an exceedingly dense recovery technique was used, ensuring that the site could be investigated in detail. Using a micromorphological methodological approach, 76 profile columns were documented, sampled and separated into layers in an intensive cooperation between archaeobotany, palynology, micromorphology, archaeozoology, geochemistry and field archaeology.

All disciplines involved simultaneously analysed the same samples and actively exchanged their results, experiences and ideas. The aim is to understand layer formation and degradation processes from different perspectives with a focus on taphonomic questions. Our talk provides an insight into the transdisciplinary discussion of three profile columns regarding archaeobotany, palynology and micromorphology. The three profile columns cover the whole occupation layer of up to 1.3 m of thickness, which contains various sediment types. The interplay between lake and delacs deposits, which overlap with anthropogenic settlement activities, shall be presented. This micromorphological approach shows that complex, hard to solve questions emerge, which have to be discussed in detail between the involved disciplines.

TH5-02 Abstract 10
Formation processes related to foragers in tropical forests

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Keywords: Foragers, Formation Processes, Tropical Forests
Presentation Preference - Oral

Although an important habitat for human societies, the study of archaeological site formation in tropical forests has been less studied compared to temperate and arid environments. Nonetheless, in addition to environmental factors, human behavior plays a significant role in the formation of the archaeological record. This paper focus on the study of archaeological site formation processes related to forager ways of living in a tropical forest environment. It presents a geo-arthroarchaeological case study from South India where an integrated approach involved long-term ethnography, field excavation and geoarchaeological laboratory-based analyses.

The integrated approach enabled to associate social and cultural aspects of forager ways of living - such as mobility and immediacy - with patterns of use of space and material deposition. Field excavation and sediment sampling from recently abandoned sites of the same group, allowed the investigation of post-depositional processes at both the visible and invisible (micro- and sub-microscopic) scales of the archaeological record. The geoarchaeological analyses included mineralogical and phytolith analysis and soil micromorphology. The results of the geoarchaeological analyses exhibit the environmental post-depositional processes occurring in tropical forests, mainly characterized by acetic conditions and intensive biological activity. Overall, although forager ways of living and the environmental conditions in tropical forests challenge the formation of a well preserved archaeological evidence, an integrated approach examining the different scales of the archaeological record can successfully reconstruct human behavior and the formation processes of archaeological sites.

TH5-02 Abstract 11
Taphonomic analysis of the birds from the Middle Palaeolithic site of Gruta da Figueira Brava

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Keywords: bird, Middle Palaeolithic, zooarchaeology
Presentation Preference - Oral

The procurement of small prey has been widely discussed over the last decades, and in particular since the recovery of bird bones assemblies from archaeological sites dating to chronologies older than expected. Gruta da Figueira Brava is one of those sites, located on the west coast of central Portugal. The identification of a Middle Palaeolithic Idiocrasy industry essentially made of quartz and the MIS-5 absolute dates obtained by speleothem analysis have confirmed a Neanderthal occupation of the cave. The faunal assemblage recovered shows evidence of Neanderthal manipulation of large to very small animals, including tortoises and rabbits, with only scarce participation of carnivore activity to the mammal accumulation. An faunaal assemblage was also recovered and is composed by both marine and terrestrial birds, including edible species as well as diurnal and nocturnal rapters.

Most bird species are from environments identified in the cave’s surroundings, mainly from rocky cliffs and shores. Bird bones can be naturally deposited in caves, or accumulated by hominin and/or carnivore activity. In order to identify the agent of bird accumulation, a detailed analysis within the framework of taphonomic methodology was conducted. The data suggests that diverse occupational dynamics occurred in the cave with differences between the reworked levels and MIS-5 deposits. Even though Neanderthal activity was identified on site, bird remains do not show a significant hominin input to the assemblage. The aim of the paper is, thus, to understand such contradiction and to discuss further hypotheses regarding the possible agents of bird bone accumulation.

TH5-02 Abstract 12
Formation processes and site detection in an Apennine upland valley (Calabria, Italy)

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Keywords: Archaeological prospection, Italian prehistory, Site formation processes
Presentation Preference - Oral

Between 2011 and 2014 the authors investigated in detail the Maddalena upland basin in the southern Apennines (800-1000 m a.s.l.), which had previously (2005-2008) been archaeologically surveyed by the University of Groningen Institute of Archaeology. The new and interdisciplinary investigations consisted of geophysical surveys and geo-archaeological and pedological studies. In this paper, we present the results of this work conducted at site RB73, a representative small prothritic ceramic scatter discovered by field walking survey in the lower part of a cultivated field, near an agricultural terrace. Magnetic gradiometry survey on the whole field did not result in any structural features associated with a sinusoid set of anomalies - seemingly of geological origin - was recorded running from the upper part of the field to the terrace and beyond. Manual augering across the anomaly and two test pits provided subsurface context to the surface finds and the geophysical data, revealing a surprisingly deep stratigraphy (>2 m) from at least the Early Bronze Age to the Roman period. Staining anthropogenic deposits alternating with more or less sterile layers locally occur not only near the surface ceramic scatter, but throughout the anomaly. Sinuous anomalies now appear to be associated with surfacing anthropogenic deposits, with further pit-like anomalies detected in a second magnetometry survey suggesting exploitation of a locally shallow water table.
In this paper we will explore the depositional, post-depositional and current land use processes that have resulted in the present situation and the expression of the surface site as recorded in the archaeological field survey. We will show how the integration of geoarchaeological and geophysical work has provided us with a completely different view on the formation of sites like RB73, and of types of landscape exploitation in these Apennine upland valleys.

TH5-02 Abstract 13
Unravelling the formation process: re-excavating stratigraphy beneath the temples of Malta

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Presentation Preference - Oral

The great megalithic temples of Malta were first examined in a systematic manner in the early years of the 20th by antiquarian archaeologists. Thomas Ashby and Eric Peat from the UK joined Themistocles Zammit in Malta in the first properly recorded excavations, and their published records provide an important and useful early evidence. A century later, as part of the ERIC FRAGUS project, three temple sites have been re-examined, in the quest for new samples for dating and palaeoecological analysis and in doing so have reintroduced the work of these earlier scholars. This paper reviews how archaeological approaches to megalithic prehistoric sites have changed over a century by drawing some surprising conclusions about the quality and the questions of these pioneers. The current study is employing a range of interdisciplinary approaches to develop and enhance the archaeological record through coordinated methodologies to extract the maximum information from the remnants that remain.

TH5-02 Abstract 14
Interdisciplinary research for unravelling the chronology of archaeological sites of Ulów (Poland)

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Presentation Preference - Oral

A group of archaeological sites located near the village of Ulów in Central Roztocze (Lublin voivodeship, south-eastern Poland) was discovered by people using metal detectors when searching for military items from World War II. The first archaeological survey was carried out in 2001 and proved that an extensive forested area, considered as unsettled in prehistory, contained remains of multicultural settlements. The systematic excavation works began in 2002 and have been intensified since 2014, when a research project entitled “Roztocze – the ancient terra incognita? (Settlement micro-region in the area of Ulów in Middle Roztocze – the prehistory and its background. Interdisciplinary studies)” obtained financial support from the National Science Centre in Poland. The main scope of the research is the reconstruction of processes behind prehistoric settlements in this area based on interdisciplinary investigations, including archaeological, anthropological, geospatial, and archaeobotanical research, among others. In this area, the archaeological site 3 is especially interesting when taphonomic problems are considered. It was largely investigated and showed evidences of long-term occupation since the Late Palaeolithic and Mesolithic until the Middle Ages. However, the majority of archaeological features belong to the Late Neolithic Corded Ware culture and a cemetery of the Roman period Welbarth culture. The taphonomic problems were initially revealed by anthropological studies, which documented a large variety of woody taxa and indicated preferences in their use in specific types of archaeological features. A group of selected charcoal samples were used for radiocarbon dating, especially those coming from various types of archaeological features and those that differed taxonomically. The results showed that a group of features with evidences of burning activities and with a small amount of archaeological material, which previously were interpreted as funerary pits belonging to the Roman period cemetery, turned out to be Late Neolithic origin. Another problem in this cemetery was the discrepancy between dating results of charcoal and well-dated objects according to the relative chronology that were found in the same graves. Also, radiocarbon dating indicated a much greater intensity of settlement dated to the early and late stages of the Middle Ages, which was not inferred as being singular by archaeo-geological findings. Moreover, the archaeo-geological analysis of burrows dated to the Corded Ware culture, complemented by radiocarbon dating, demonstrated taxonomical and chronotological differences between original burials and areas that were disturbed in later periods. The results from the current study show that a full reconstruction of the different phases of multicultural archaeological settlements is only possible by the implementation of a complementary and interdisciplinary approach.

TH5-02 Abstract 15
An interdisciplinary approach to the study of a stratigraphic sequence from Malalbergo (Italy)

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Presentation Preference - Oral

The Middle to Recent Bronze age site of Ponticelli di Malalbergo was recently found in the lower alluvial plain of Bologna, 25 km NE of the city and 25 km south of Po river, 60 km eastward the Italian Adriatic sea coastline. The study of a stratigraphic sequence contributes to knowledge of land formation from the Bronze Age to the present day. The Po river alluvial basin allows a good preservation of archaeological sites due to fluvial sedimentation linked to postglacial sea level rise and tectonic subsidence. The resulting optimal sealing conditions guarantee the removal of most of the reworking and pollution conditions usually affecting the outcropping archaeological sites and related palaeosols. In such a way archaeological and palaeoecological studies can be successfully performed.

The related soiltop was laying at 6.65 m of depth (+2.35 m a.s.l) while the Roman age topsoil was recorded at 5.7 m (+3.3 m a.s.l) characterized by anthropogenic layers (Ap horizon). The site was resting on sandy loam soil with horizontally oriented gravel and clay plates. The Roman soil was capped by a 2.75 m thick loamy clay layer hosting 8-10 cm thick peaty layers suggesting the size reduction of the former side and eastwards open, alluvial basin happened probably at the end of the High Middle Ages or the beginning of the Free Common age (XI-XII century AD). In the 18th century AD the prograding alluvial ridge of the Reno river new course deposited uppermost about 3 m of sandy loams. This site states for the first time that the core of the alluvial plain was at some extent drained and suitable for he human settlement both in Roman and Bronze ages. It is still impossible to state if the sediments predating the Middle Bronze age were delivered by the Apennine alluvial network or Po river anabranching system.

From a fluvio-geomorphological viewpoint the paleo anthropogenic soil horizon dating to the Bronze Age recorded: 10g/kg CaCO3; 30 g/kg Organic Matter; 8-11 g/kg Ptot; 87 mg/kg Cu; 2 mg/kg Sn; 245 mg/kg Zn. As term of comparison the Roman age Ap horizon, instead, recorded: 50g/kg CaCO3; 25 g/kg Organic Matter. The Cu and Zn concentration was higher then the today accepted pollution thresholds suggesting a possible bronze fusion activity performed in the site core.
Exceptional discovery was made in the stratigraphically older layer of calcareous clay, where unusual pottery was located. Radiocarbon dates of the organic temple from pottery correspond with the end of 7th and beginning of 6th millennium BC. The pottery from the older layer is Late Bronze Age. The composition of inorganic pottery matrix is not of local origin and points out that the sources of the raw material originated from the southern foothills of Štúnovice mountains. The pottery is tempered with grass stems and leaves. Changes of the organic matter in pottery matrix show a very low firing temperature. The uniqueness of the site lies in the stratified sedimentary sequence containing the Early Neolithic artifacts in limnic environment, which preserved material that would be otherwise irretrievably lost.

Zubrow and Lindström (Current Anthropology 2015) applied Blake & Cross’s framework in areas around the “Vikingtidsgravene” (graves from the Viking Age) in Ustedalen, Gjøvik, Norway. Ustedalen was an important place for iron production during the Viking Age, and a major thoroughfare, connecting Western and Eastern Norway across the Hardangervidda Arctic tundra plateau, for millennia. In this small pilot-project, we discovered unexpected sounds and interesting sound-quality that helps us construct a phenomenological understanding of life in Ustedalen in the Viking age. – Data will be presented. We concluded that Blake & Cross’s framework is a useful and comprehensive framework for integrating sounds, soundscapes and archaeoacoustic considerations into the archaeological multidisciplinary record.

Finally, this paper extends their framework by emphasizing the importance of silence and sound for transient experiences that leave non-transient remains.

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TH5-02 Abstract 17

Regional correlations of destruction layers using Earth’s magnetic field: The Levant case study

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Keywords: Destruction layers, Paleomagnetism, Stratigraphic correlation
Presentation Preference - Oral

The temporal variations in Earth’s magnetic field have been recorded in fired artifacts and can provide independent tests for radiocarbon and typology. Cooking installations used continuously before particular calamities in different sites should show similar magnetization directions. If their constituent ferromagnetic minerals are appropriate for the method. The magnetization direction is measured with respect to the geographic north (declination) and the horizon (inclination). Correlation can be tested by inclination, declination, or both. We test correlations between oven samples in situ within individual destruction layers at the modern World Heritage site of Qasr al-Khobar covering Late Bronze and Iron Ages (13th-8th centuries BCE). During parts of the time, radiocarbon calibration severely limits temporal resolution of absolute dating. By contrast, the magnetic field in the Levant shows extreme fluctuations. The data supports the overall stratigraphic picture and demonstrate the potential of future studies to resolve some of the uncertainties and discrepancies between alternative chronologies.

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TH5-02 Abstract 18

Applying silence and sound to environmental reconstruction: frameworks, applications, implications

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Keywords: archaeoacoustics, methodology, sounds, soundscapes
Presentation Preference - Oral

Culture and the Environment are noisy. The formation of sites within their environments is never quiet. However, the past is silent. It was not until the nineteenth century that one could hear sounds from the past. Admittedly, language—notation began about five millennia ago and music—notation about a millennium and a half. But, even that is recent for human existence. Notations depict sound, but are not the sounds themselves.

In 1877 Thomas Edison invented the phonograph, later to be developed into various sound recording technologies. Only then, did the sounds of the past become available to the present. We can listen to words spoken and music played long ago. – But can we hear the sounds of prehistory? No, but to some extent we can reconstruct them, and at least record and measure the present soundscapes of archaeological sites and their environments. Such recordings can give us relevant clues about earlier times. When combined and integrated, these pieces of information from various sources can help us to build reasonable valid descriptions, interpretations, and even reconstructions, of past sounds and soundscapes.

Devos, Y., Nicosia, C., Vrydaghs, L., Modrie, S., 2013. Due to their lack of any recognizable internal stratigraphy, standard archaeological approaches typically fail to understand their complex histories. The present contribution will demonstrate how geoarchaeological approaches, and especially micromorphology, can help to understand the dark earth; we will hereby focus on the example of the phytoliths (Devos et al., 2013; Vrydaghs et al., in press).

References:

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TH5-02 Abstract 19

Not separating wheat from chaff: considerations for differential recovery of charcoal plant remains

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Keywords: Archaeobotany, Recovery, Taphonomy
Presentation Preference - Oral

This presentation aims to highlight some of the taphonomic issues which may affect the recovery of charcoal archaeobotanical material from archaeological deposits. The basis of this presentation is data from 10 archaeological sites in Northern England where the rates of recovery from the washover and the heavy residue have been compared. In this region finds of charred cereal remains may often be sparsely distributed in archaeological contexts, and will not meet the required number of elements recommended to conduct applications such as multivariate analysis. It is argued that due to differences in settlement patterns and geology the recovery of archaeobotanical remains in northern England is in many ways distinct to those in southern England. The presentation will discuss the differential recovery of chaff and grains that have been observed by the presenter, as well as the differential preservation and recovery of hazelnut shell. It highlights some of the methodological problems this creates when classifying sites as being ‘producer’ or ‘consumer’ sites, as well as broader debates such as the nature of wild and domestic plant consumption in prehistory. The presentation highlights the varied types of recovery from within a relatively small geographic area (England), and asks participants to consider how this might affect supranational, or transcontinental interpretations. Concludes by suggesting novel ways in which environmental plateaus might be used for broader site interpretation by trying to identify activity areas via the integration of archaeobotanical data with contextual information from excavation.

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TH5-02 Abstract 20

Deciphering formation processes of the urban Dark Earth: a geoarchaeological approach

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Keywords: Dark Earth, Phytolith study, Soil Micromorphology
Presentation Preference - Oral

Urban dark earths are dark coloured, poorly stratified units, often formed over several centuries that have been uncovered in many European towns (Nicosia & Devos, 2014). Due to their lack of any recognizable internal stratigraphy, standard archaeological approaches typically fail to understand their complex histories.

The present contribution will demonstrate how geoarchaeological approaches, and especially micromorphology, can help to understand the complex formation processes, and to discriminate different human activities and natural processes involved in dark earth formation. In a second step, we will also discuss how soil micromorphology (the microscopic study of archaeological soil/semis) can help to understand the taphonomical history of the botanical components, observed within the dark earth; we will hereby focus on the example of the phytoliths (Devos et al., 2013; Vrydaghs et al., in press).

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Plant macroremains as proxies to understand formation processes in lakeshore settlements

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Keywords: archaeoobotanical, preservation parameters, wetland archaeology

Presentation Preference - Oral

Anthropogenic layers in wetland sites are mainly characterized by the presence of archaeological artefacts and clusters of organic remains resulting from the dumping of food or other useful plant remains (incl. cultivars), accumulations of dung and other organic debris like leftovers of building activities. How formation processes affect the preservation of these remains and the degree of representativeness of the resulting data is still largely unknown.

A recently excavated Late Neolithic settlement phase at the site of Parkhaus Opera (Lake Zürich, Switzerland) offered the unique opportunity of sampling a well-preserved waterlogged layer that spread over 3000 m2. A systematic sampling strategy was conducted and an ambitious project funded by the SNF (Swiss National Science Foundation) was organized in order to approach several methodological and research issues, among which was the identification of relevant parameters in archaeobotanical remains to characterize layer taphonomy. Uncharred plant remains are amongst the most fragile remains in such sediments and therefore ideal candidates for answering taphonomic questions. Based on previously published research and own experience we have defined around 70 variables (which included not only plant remains but also remains of diverse origin which appeared in archaeobotanical samples) which are considered to be indicators of preservation conditions. These variables were described for ca. 250 large-volume samples (ca. 0.5 L) and ca. 120 small-volume samples (ca. 0.3 L). We developed specific quantification criteria that can be applied in a rapid yet informative way. The data were evaluated on the basis of ubiquity, and through qualitative evaluations of the spatial distribution of the variables (with GIS maps). The results seem to allow a clear distinction between well-preserved parts of the layer and eroded parts of the layer, including parts that were eroded in connection to lake influence in opposition to other erosive processes. These results make us suggest that such evaluations should continue to take place in the future if proper palaeoecological evaluations of archaeobotanical remains are to be done.

Unravelling Formation Processes Associated with Destruction by Fire

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Keywords: Destruction by fire, Formation processes, Geoarchaeology

Presentation Preference - Oral

Destruction by fire is a well-known archaeological phenomenon around the world, including the Near East. It is common in many sites in Israel dating to the Iron Age (ca. 1150 to 600 BCE), and mostly associated with territorial conflict, as in conquest campaigns. A recent project is conducted at Tel Megido, a key Near Eastern archaeological site, in which a massive destruction event (Stratum VA of the late Iron Age I) is studied using a geoarchaeological approach. Initial mineralogical analyses, using FTIR spectroscopy, indicated that bricks found at the destruction level are homogeneously heated to about 600°C. This observation posed the question whether the site was constructed with sun-dried or pre-fired mud bricks. A paleomagnetic study of five bricks spectroscopy, indicated that mud bricks found at the destruction level are homogenously heated to about 600°C. This observation suggested that sun-dried mud bricks behave during a conflagration event in a different manner.

We believe, however, that the study of the formation of the archaeological record has not been developed as it might have been, either theoretically or methodologically. In fact, the works of reference continue to be those written by M.B. Schiffer in the late third of the 20th Century. This indicator introduced the concepts of “systemic context” (dynamic stage during which elements shared the culture of their societies and different processes of aggregation and elimination were produced) and “archaeological context” (state in which these same elements have come to us at time, that is, the context of archaeology). Understanding the first will give us a better understanding of the second, in a process in which material culture plays a fundamental role as a link between both. It is precisely this aspect, the relationship between stratification and objects, that we want to discuss in this poster. From the beginning we can easily distinguish different types of deposits that are recorded in an archaeological site, generating a reference framework that could be used as a hermeneutic and decodifying tool of the archaeological record. For definition purposes, we will use 3 stages that are acknowledged in the lifecycle of any place (occupation, abandonment and post-abandonment), each of which comprises moreover different aggregation and reduction processes. Within the aggregation processes, we will pay special attention to pottery recorded in the archaeological context. In this respect, the manner in which artefacts are presented in the archaeological record constitutes one of the main instruments for identifying the depositional processes since these same processes contribute to the presence of pottery in a very different manner.

The Archaeological Stratigraphic Sequences of the Vitava River Valley

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Keywords: Geoarchaeological archive, settlement episodes, Stratigraphic sequences

Presentation Preference - Poster

Archaeological terrains located on the left bank of the Vitava river in the Czech Republic are the unique “geoarchaeological archives”. These sites are threatened with current building development. But archaeologists don’t always give them so much attention it deserved. Their importance lies especially in the chronological record, integrity of unique archaeological findings and opportunities to study their genesis. We are constantly monitoring the occurrence of these layers on the left bank of the Vitava River in Prague (parts Sedlec, Dejvice and Bubeneč). We are talking about geomorphological temperate eastern slopes of the hills and foot hills of the Upper Šýka height. Local stratigraphic sequence captures the settlement from the Paleolithic to the present. It often has the character of a “Tell” and has generally polycyclic origin. According to the current knowledge on the river terraces there is a stratified layer stratigraphy of the loess loams containing Upper Paleolithic finds and this layer is overlaid by Holocene layers composed mostly by the dark loams containing remains of archaeological cultures from the Neolithic period to the present. Preserved stratigraphy layers have thickness from 0.5 to 1.9 meters and in parts of transverse depressions it may be much more thicker. The aim of this paper is to show the most interesting data sources to the object of interest and to assess the state of current research. Nowadays it is possible to comment the genesis of stratigraphie sequences only on the basis of macroscopic observations made during the archaeological rescue researches. On sites shown we can see, that development of the layers in prehistoric stratigraphic sequences may have a different time frames. On the example of the research in the street Pod Pajarkou in Prague- Podolí (Podačina 2011) can be seen each episode of this formats process. It’s clear that there are rotating episodes of rapid deposition of earth mass and local expressions of polycyclic probably in the interval between the various stages of settlement and cultural layers formed “in situ”, which are documented up to 16 episodes of the residential settlements and waite overlaid by fine sediment. For a more detailed understanding of the development of the stratigraphic sequences in a timeframe is necessary to undertake the results of the excavations to a more through multidisciplinary research.
TH5-02 Abstract 25

**EcoPlis:** characterizing the prehistoric human occupations in the Lis River Basin (Portugal)

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**Keywords:** EcoPlis, Human occupation, Prehistory

**Presentation Preference:** Poster

The River Lis Basin, located in central Portugal, is an ecotone between the coast and the inland mountains. The unique conditions for highly preservation of both organic and inorganic materials make it a key region to acquire high-resolution data from both geological and archaeological contexts, fundamental for understanding features of hominin behaviour, such as mobility, site use, adaptive strategies and resource exploitation, mainly from the highly productive coastal environment.

Besides hundreds of open-air sites, this basin also has hundreds of caves and rock shelters, many of them with sediments reaching their roofs and with clear evidence of human occupation. In those already tested it was possible to recognize well-preserved multi-occupational archaeological layers, several types of artefacts made in organic and inorganic materials and also human burials. In 2015, the EcoPlis research project was started with the goal of find and characterize, with the highest resolution possible, the complete sequence of the Middle and of the Upper Paleolithic occupations in the Western-most Iberian Peninsula. Among other things, the project aims to contribute significantly for the understanding of the period before the demise of Neanderthals and their replacement by Modern Humans. In our first year, we found over 50 new caves and rock shelters with sediments, found artefacts dated from the Aurignacian to the Chasolithic and start the excavation of two caves and a rockshelter. Our approach includes the 3D piece-plottting of all visible finds without a cut-line, the complete flotation of the sediments from archaeological layers and samples for phytoliths and parasites. Among other things, we found multiple entrances with human remains in a same short valley and in a same cliff that may correspond to two Early Prehistoric mortuary complexes, a dense shell layer in several short valleys and a rich Neolithic occupation of one of the caves. As soon as possible, we aim to carry out the process of recording the information of the cave and rockshelter with the aim to recognize the depositional processes and to reconstruct the dynamics of deposition of the natural and archaeological remains in a same archaeological layer that will allow us to create detailed diachronic and synchronic snapshots of the human occupation and ecodynamics of this region throughout its Prehistoric occupation.

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TH5-02 Abstract 26

**Palynological contribution for formation processes reconstruction in a Neolithic pile dwelling site**

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**Date:** 26-28 November 2015, Faro, Portugal
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**Keywords:** formation processes, La Draga, Palynology

**Presentation Preference:** Poster

The integration of pollen and non-pollen palynomorphs (NPP) analyses provides essential data to reconstruct palaeoenvironmental conditions in both regional and local scales. The application of these analyses in archaeological deposits also offers the possibility to obtain evidence of socioeconomic practices, in terms of documenting crops, gathered plants, stabilising of flax, etc. In addition, the integration of both biarchaeological proxies and the information from the archaeological excavation allows reconstructing the dynamics of formation of the archaeological record. In this work, a spatial analysis of pollen and NPP taxa has been carried out in order to obtain a better understanding about the formation of the several archaeological structures and sedimentary units of the site of La Draga (Siurana, Spain), a pile dwelling site located in the shore of Lake Banyoles.
BIODEOCHMICAL APPROACHES TO ARCHAEOLOGICAL DIET, MOBILITY AND DISEASE

TH5-03

TH5-03 Abstract 01

Dietary Isotope and Paleopathology Reconstruction of the First Pastoralists from Cis-Baikal, Siberia

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Keywords: Diet, Pastoralist, Siberia

Presentation Preference - Oral

Nomadic pastoralists first arrived in the western region of Lake Baikal, Siberia, known as the Cis-Baikal, around 3,000 years ago. Compared to early and later periods, the lifeways of these pastoralists, who brought with them domesticated animals including horse, sheep, goats, and cattle, is poorly known. This research presents the first stable carbon and nitrogen isotope dietary reconstruction of Cis-Baikal pastoralists (n=55), with mostly sites and individuals (n=34) deriving from ~2950-2350 calBP, in the Buturkhei mortuary tradition. Stable isotope data are also obtained from five pastoralist period faunal species (n=22; horse, sheep, goats and cattle). As well, every pastoralist skeleton is examined for paleopathological evidence of trauma, disease, and health status in the past. With the advent of stable isotope applications, our ability to reconstruct archaeological subsistence strategies significantly improved. The implementation of archived DNA studies has also brought the possibility of better differential diagnosis. Despite these advances, other aspects as the dietary component of the pathological conditions, the role played by the mobility in the spread of the maladies, and whether diseases can alter the biochemical signals in the tissues deserve further in depth attention. This session aims to bring together archaeologists, physical anthropologists, paleopathologists, archaeozoologists and scholars related with these topics. The objective will be to explore the connections between diet, mobility and disease, analyzing human and animal remains. The non-exclusively unresolved problems to discuss are: a) the impact (absence) of the introduction of new foodstuff in the health status of a population, ii) growth patterns and health outcomes, iii) changes in human and animal subsistence strategies and consequences on their lifestyles, iv) the exposure to toxins (e.g., trace metals) and how to tell these effectively from post-mortem contamination, and v) the relation between (infectious) diseases and mobility. We welcome papers on case studies in these or similar topics, as well as contributions that address methodological aspects such as intra-skeletal variability or new bone chemistry applications (e.g., FTR, Ptn-GCM, multi-isotopic studies, proteomic, etc.).
Science and multidisciplinarity in archaeology

Late Iron Age Switzerland - New isotopic evidence for dietary habits of “Celtic” populations

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Dietary and social patterns in early medieval southwest Germany – a stable isotope approach

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Social stratigraphy in Late Iron Age Switzerland: New isotopic evidence

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Dietary and social patterns in early medieval southwest Germany – a stable isotope approach

Author - Marker, Anne, University of Tuebingen, Tuebingen, Germany (Presenting author)
Co-author(s) - Boechner, Hervé, Department of Prehistory and Ethnology, University of Tuebingen, Tuebingen, Germany

The paper will present and discuss results of stable isotopes analysis of carbon and nitrogen for a diet as well as strontium and oxygen for a provenance from 6th century crematoria with chamber graves. This form of elite burials was constructed and used in early medieval Poland mostly during the second half of the 10th century and the first quarter of the 11th century. The study mainly aimed at capturing the diversity of dietary and social habits of the people buried in these chamber graves. For this purpose, stable isotopes of carbon and nitrogen from bone collagen were measured. Isotopic analysis was used to derive information about the diet, including plant versus animal products. In the urban area, the results indicated a higher consumption of animal products, while in the rural area, the diet was more balanced between plant and animal products. The data also suggested a greater incorporation of marine foods in towns. Moreover, a greater component of omnivores of high trophic levels in the diet could have contributed to the observed dietary shift. This study demonstrated that the integration of paleoanthropological and isotopic research provided a more complete understanding of dietary changes in medieval Holland.

Dietary and social patterns in early medieval southwest Germany – a stable isotope approach

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This strontium analysis method was applied on a large skeletal collection (MIN 260) discovered from the Inari Manma cemetery. The site which was used during the 15th to 16th century AD and has been previously studied with stable isotope analysis for diet, which has been demonstrated to have changed heavily in the area. In this study, strontium isotope ratios were analyzed from samples of ten people. Moreover, local plant materials were collected for a baseline study on this remote area. Preliminary results suggest that strontium isotope analysis should be interpreted with caution when the population has a large input of aquatic food in their diet.

TH5-03 Abstract 09
Diet, morbidity and mortality of a north Finnish town 1600-1800 AD

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Keywords: CT and SIA, Finnish Lapland 1600-1800, morbidity, mortality and diet

Presentation Preference - Oral

Kemi (c.65ºN 25ºE) has been a small but relatively important town in southern Finnish Lapland since the 16th century. The morbidity and mortality of its inhabitants have been studied on the basis of death records that contain the statistics of nearly 1000 individuals that died in Kemi between 1600 and 1850. These data include the individual’s name and profession, the death date, the death age and, from 1750 on, the cause of death. In addition, the naturally mummified remains of some individuals buried under the churches of Kemi and Haukipudas (c.75 km to SE) from the early 17th to the mid-18th century were investigated by means of Computerized Tomography (CT) scanning and stable isotopes analyses in order to obtain information about possible pathological features and the diet. Zooarchaeological and ethnohistorical data have been used together with isotopic results in the interpretation of the local diet. This paper presents and discusses the preliminary results of this research.

TH5-03 Abstract 10
Dietary variability among earliest domesticated pigs in the Iberian Peninsula

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Keywords: early Neolithic, foddering strategies, stable isotopes

Presentation Preference - Oral

Dietary variability among earliest domesticated pigs in the NE Iberian Peninsula (5700-3500 cal BC): a stable isotopic perspective

Domesticated pigs (Sus domesticus) played an important role in the early Neolithic economy of the western Mediterranean. Studies from the Iberian Peninsula reveal that their exploitation followed a systematic pattern oriented to the production of meat, with increasing emphasis on this species over time. However, diet has often been assessed from faunal remains and it has been suggested that pigs were kept for a variety of purposes, such as religious, economic, or cultural. The collagen of human and animal bones is routinely extracted and analysed in Scientific Archaeology (e.g. paleodiet studies, 14C dating, etc.). Reliable information can only be obtained from analysis of collagen with a “good” level of integrity, a condition that has been determined by different approaches based on, for instance, elemental composition (C and N content), C:N ratios, collagen yield, amino acid profiling or amino acid racemization. In addition, spectroscopic techniques provide a non-destructive method to investigate the molecular structure of extracted collagen; however, a deep knowledge of multivariate statistics is required to deal with the large amount of data generated.

We used FTIR spectroscopy to characterize non-ultrafiltered collagen extracted from 50 skeletons recovered in 8 necropoleis from NW Spain, representing a wide chronological period (~3,500 years), multiple soil environments and different funerary deposits. The second derivative and the standard deviation spectra were used to identify the most relevant absorption bands. Principal components analysis (PCA) and multiple regression models were developed to synthesize the spectroscopic information and to estimate collagen quality parameters.

The four principal components extracted by PCA were interpreted as two main diagenetic changes: i) a primary process leading to the preferential loss of collagen a-helix and a residual increase in carbohydrates, and ii) a secondary process related to the loss in g-sheets; and two minor components related to: i) variations in aliphatic side chains and ii) absorptions of the OH of carbohydrates and amide A. Highly significant regression models were obtained for the quality indicators (collagen yield, C, N, and C:N ratio) using the principal components as predictors, but no relationships between the α C3 and αS1 and the components were found. Our data suggest that the decrease in C and N contents and the increase in C:N ratios are caused by the degradation of the protein and the relative preservation of carbohydrates.

As can be concluded that the extracted archaeological collagen does not seem to be contaminated with exogenous organic substances; i) for the studied samples there is a continuous change in C, N, and C:N ratios that is coupled to the structural integrity of the collagen; and ii) the observed diagenetic changes in collagen composition/structure did not affect in a significant way the αS15 and α151 values, thus supporting their use for paleodiet reconstruction.

TH5-03 Abstract 12
Leprosy of the past: The genetics behind pathogen-host interactions, as revealed by ancient-DNA

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Keywords: genetics, immunity, leprosy

Presentation Preference - Oral

Leprosy is a well-studied disease of the past. Its significance in paleopathology has been secured due to many historical references, bone lesions that allow osteoarchaeologists to document its presence in the archaeological record, and various biomolecular studies that have traced the pathogen’s genetic mark. The causative agent (Mycobacterium leprae) has been proven to be an organism that does not exhibit much variability, neither in terms of time nor in space. However, studies have shown that a distinct phylogeography seems to exist, allowing researchers to discuss several scenarios about how leprosy spread across the world. In contrast to the limited genetic variability of the pathogen, however, the clinical symptoms of the disease vary to such a degree that this has led to the notion that it is the host’s immune system that plays the major role in the development of the pathogenesis.

In this study, we investigate the frequency and even the presence of the allele thought to be protective against leprosy in populations of the past. For this reason we generated new ancient DNA data from two cemeteries from Medieval Sweden (where leprosy had been previously documented) and compared the results with published genomes from even earlier populations, reaching back to the Mesolithic. Our findings show that the “protective” allele was already fixed in Medieval Europe but seems
be lacking in specimens from the Stone Age. Thus, we discuss whether there has been selection of this allele, as well as the possible routes that it followed in order to enter Europe and give rise to its prevalence today.

TH5-03 Abstract 13
Finding a common framework for skeletal science in Archaeology

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Keywords: life conditions, population/environment perspective, skeletal science

Presentation Preference: Oral

Skeletal science can be defined as the application of scientific techniques to the analysis of archaeological skeletons. It includes various methods such as stable isotope analysis, ancient DNA and elemental composition, as well as other more recent introduction as FTR, pyrolysis-OC-MS and proteomics. All these methods are under the umbrella of biogeochemical approaches, since they study the chemical, physical, geological, and biological properties of bones and teeth. Their most usual purpose is to reconstruct different pre-mortem features (i.e. diet, mobility and health) of the individuals the skeletons belonged to. Thus, it is worth to remark that the properties we analyse in skeletons are in fact approximations (i.e. proxies) of the multiple processes governing bone and tooth formation and degradation.

My own research started in the field of Physical Anthropology with emphasis in osteological variation and paleopathology. In the last years, I have been more involved in the application of biogeochemical techniques, discovering their utility in unraveling pre-mortem characteristics and how complementary their data are with more classic macroscopic approaches. I also realized that less attention has been paid to the role of post-mortem processes (diagenesis) on the chemical transformations of bone and their effect on pre-mortem signals.

Despite the recent advances in every specific field, and with few exceptions, most of the investigations have been highly disciplinary, seldom involving other close research areas. An example is the few connections between paleodiet reconstruction using stable isotopes and the study of ancient health, which has been discussed in the recent workshop "Paleoanthropology: what does it really matter?" As Physical Anthropology teaches us, the focus should be put in the populations since they better reflect environmental changes than the ecosystems, thus avoiding the bias single case studies may introduce. And the population perspective should be embedded within an integrated vision of the environment, whose changes challenge human populations at many levels (e.g. health, resources availability, migrations). The changes also pertain to specific human activities such as mining and metalurgy that may pose a threat (e.g. metal pollution) both to the societies and the environment.

Moving our focus from the straightforward interpretation of the data to the understanding of the processes involved will surely allow us to see the big picture that can explain aspects of human life in the past. In my opinion, a common, coherent framework based on the population/environment perspective should be implemented to be able to tease out the breadth of questions that may pose a threat (e.g. metal pollution) both to the societies and the environment.

TH5-03 Abstract 14
Famine to find God? Stable isotopic approaches to Nuns’ diet

of the Convento de Belmonte, Cuenca, Spain

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Keywords: isotopic analysis, paleodiet, paleopathology

Presentation Preference: Poster

The advances in geochemical and physical anthropological studies have provided new tools to reconstruct the lifestyle of the Convento de Belmonte, Cuenca, Spain. The human sample comprises 43 individuals who lived in the 16th (n=28) and 17th (n=15) centuries AD: 38 females, 1 male and 4 of indeterminate sex. The sample covers a wide range of ages, most of individuals were estimated to be from 25 to 39 years of age-at-death (n=19). Archaelogical and Historical records suggest that the studied area of the church yard was used to bury the Dominican nuns who process in the convent. In order to contextualize nuns’ diet, 13 faunal specimens were also analyzed including sheep (7), Gallus (3), pigs (2) and marine fish (1, catshark).

The faunal sample presents a great isotopic variability. This is particularly the case for δ15N of sheep. Although all these animals were adults between 18 and 24 months at dead, they show a 3‰ range (9.6-6.6‰). This may be reflecting the wide variation of ecosystems surrounding the site including some areas with saline geological materials (e.g. continental salt mines). No correlation has been found between the size of the sheep and their isotopic signal. Gallus also show a quite large variation on δ15N, while pig values are more homogenous. Terrestrial animals δ15N ranges from -18.7‰ to -21.0‰ including herbivores, which suggests a low intake of C4 plants in some of them.

In contrast to humans, δ13C values are within a limited range (17.6‰-18.6‰), but δ15N shows a continuous shift between 9.7 and 12.7‰. The latter is an unexpected result considering that a religious community should consume basically the same kind and amount of food. There is no relationship between nuns’ isotopic variation and their age at death, period of burial and main paleopathological features (including one possible case of brucellosis, another two chronic infections and two cases of osteoporosis). A reliable explanation for the results could be the austerity and fasting habits that were common in Dominican nun communities, particularly between the 16th and 18th centuries. It is known that severe famine can produce enrichment in 15N due to autopathobiosis of proteins. The paleopathological study also supports the assumption of a very austere life, e.g. muscular/skeletal stress markers and osteoarthrits have a high presence in the sample. This intriguing hypothesis demands more research to unveil the most intimate life of the female inhabitants of the cloisters in their way to find God.

TH5-03 Abstract 15
Ancient dental calculus as new source of information for a 10th century population from Dobrogea

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Keywords: dental calculus, molecular analysis, oral microbiome

Presentation Preference: Poster

A series of interdisciplinary tools can be used in order to investigate ancient dental calculus from archaeological human remains. Molecular analysis can be easily associated and stable isotope analysis in order to obtain valuable information regarding past population lifestyle. The oral human microbiome can be investigated in order to determine the bacterial specificity in the ancient populations compared to modern ones. Dietary changes are correlated with modifications in the oral microbial community structure. A series of species with particular signatures associated to human oral microbiome can be identified and tracked through space and time in the human population. The dietary preference indicates the specificity of human-environment interaction in search for food and water.

The present study aims to investigate the oral microbial diversity and the food preference of a medieval population (10th century) situated in the south-eastern part of Romania (Capidava, jud. Constanțe). Ten individuals from the population mentioned above presenting dental calculus were the subject of this research. In order to aid investigation, several methods such as stable isotope analysis, scanning electron microscopy (SEM), quantitative PCR (qPCR) and the amplification of universal barcodes for bacteria (targeting the 16S rRNA gene), fungi (targeting the ITS region) and plants (targeting the tmr, intron of the chloroplast) were applied.

Acknowledgments

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This study has received funding from the Genetic Evolution: New Evidence for the Study of Interconnected Structures (GENESIS): A Biomolecular Journey around the Carpathians from Ancient to Medieval Times (CNCSIS-UEFISCDI_PNNPCCA_1153/2011) project.

TH5-03 Abstract 16
Diet and dynamics of Muslims and Christians in Montefelt (11th-15th, Spain)

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Science and multidisciplinarity in archaeology
Since 2012, excavations at the site of Montiel (Spain) had led to the discovery of two cemeteries, representing two socially and culturally different communities: one Muslim (10th - 13th century AD) and one Christian (13th - 15th century AD). The geochemical composition of these osteological remains (10 individuals and 21 Christians) was investigated to see how different religious beliefs, culture and social status might have influenced the diet of these populations which were buried in a similar manner. This allowed to compare the results obtained with historical sources.

The nature and location of dietary components determine their specific geochemical composition which passes on through the food chain and is archived in consumers’ bones. The Muslim and Christian skeletal remains can therefore be used as witnesses of individual’s dietary habits and preferences, at least for the last years before their death, as a result of the mineral part of bone (bioapatite) regulates the geochemical composition of all the dietary constituents (lipids, carbohydrates and proteins), while the composition of bone’s organic component (collagen) reflects the geochemistry of ingested protein.

The geochemical analysis of both bone bioapatite and collagen can therefore provide a detailed picture of the subsistence strategies adopted by the late medieval populations buried at Montiel.

These dietary strategies will be discussed regarding the type of plant resources, inferred from bone carbon isotopic ratios (δ13C), the origin of water supply, deduced from bone oxygen isotopic ratios (δ18O), as well as individual’s trophic level position, addressed using bone nitrogen isotopic ratios (δ15N). While these isotopic tools have been routinely employed in past dietary studies and measured using an IRMS, bone Sr/Ca and Ba/Ca ratios were also analysed to provide additional information on the trophic level, marine food consumption, as well as potential mobility. Bone Sr, Ba and Ca contents were measured using a cutting-edge technique (LaICP-MS) that enables us to create spatial high resolution maps of bone trace element concentrations and to target preferential bone histological features which might be preserved from post mortem alteration.

This study also investigates the geochemical composition of contemporaous faunal remains (ca. 10 individuals from each period studied) from neighboring settlements, with a view to establish an environmental geochemical baseline for each analytical proxy applied, and to enable the discussion of the Muslim and the Christian economy in Montiel.

In the present study, the goal was to investigate how the geochemical composition of bone collagen and bone Sr/Ca and Ba/Ca ratios might be used to address the question of dietary and mobility patterns and its potential impact to the life expectancy of the Muslim and Christian population buried at Montiel.

In the first place, we will highlight differences between the two communities in terms of dietary and mobility strategies. This will be done through the analysis of bone δ13C, δ18O, Sr/Ca and Ba/Ca.

The second part of the study will address the situation of the Muslim community. Here, we will analyse bone δ13C, δ18O, Sr/Ca and Ba/Ca to get insights into the diet and mobility strategies of the Muslim population.

Finally, we will discuss the implications of our results in terms of subsistence strategies and life expectancy of the Muslim and Christian population buried at Montiel.
Initially the genetic profiles obtained from the remains of the graves 10A - "The Warrior" and 10B - bone fragment derived from a child pointing a parent-child relationship. However the genetic profiles obtained were incomplete so it was very difficult to define the relationship type. In later stages of the project it has again carried out a genetic analysis of the remains of the graves 10A and 10B, with another bone fragment (10A grave). The results of this new analysis provided a more complete genetic profile and confirmed the earlier presumption of parent-child relationship. In the analysis of mitochondrial DNA (mtDNA), the same haplotype mtDNA were observed among individuals of the graves 4B and 8, and the graves 3 and 5, which may define their kinship in the maternal line. Estimates haplogroups (hg) of mtDNA in these relationships are H1b and H4a respectively. In addition, mtDNA haplotypes have been obtained in the analysis of the graves 2, 6B and 12. Preliminary results indicate that individuals belonging to haplogroups H1b and H4a respectively. Recent genetic studies of the remains of the burials 13 and 15 have been inconclusive about the sex of the individuals analysed. While mtDNA haplotypes obtained indicate that they belonged to haplogroup JT.

The presented studies have proven that interdisciplinary analysis from a wide range of archaeology-related and anthropological-medical fields can assist studies and broaden the knowledge of archaeologists and anthropologists to enhance the understanding of the Strzyzow Culture.

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**TH5-03 Abstract 19**

**Cooking for the deceased: ceramic with lipids**

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**Keywords:** dolmen, grave goods, organic residues

**Presentation Preference:** Poster

The megalithic necropolis of Panoria was discovered in 2012 and supposes the latest addition to the finds of megalithic cemeteries in the Guadiana basin (far south of Spain). It makes up one of the most important megalithic concentrations in Europe. Although the first excavations at Panoria have found 19 dolmens. Most of them consist of small tombs with polygonal, rectangular or trapezoidal chambers and short corridors. With one possible exception, neither the capstones nor the expected mounds have been documented. Five of these megalithic tombs were excavated between February and June 2015. Two pottery vessels, found as grave goods in Burial 10, have been analysed to extract organic residues preserved in their body because of the absorption through its pores. We have investigated the molecular and isotopic composition of organic residues by gas chromatography and mass spectrometry. Vegetal remains, mainly represented by plant oils, were the main organic residues found. For the first time for the megalithic societies of Iberia, these results shed new light on their funerary rituals as well as their food habits.

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**TH5-03 Abstract 20**

**Bioarchaeology - Behind the Scenes of Multi-Proxy Analyses**

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**Keywords:** biocapta, stable isotopes, XRF

**Presentation Preference:** Poster

In archaeology, the study of bone and teeth is key to the understanding of the past as they represent direct evidence of life on Earth. The mineral present in bone and teeth (bioapatite – a highly substituted hexagonal calcium phosphate apatite) contains several elements that can be used to reconstruct palaeoenvironments, palaeodiet, mobility patterns, etc. However, when looking at bioapatite of bone and teeth, diagenesis remains a problem that is often overlooked. Recent developments in high resolution infrared and X-ray analyses allow for a better assessment of the preservation of archaeological skeletal remains. Once optimal samples are selected, it is possible to go into the isotopic study of archaeological bone and teeth. In this poster we present the structural and chemical compositions of hundreds of bone and teeth with ages ranging from the Mesolithic to the present day using µXRF, FTIR microscopy and (CP-MS). Several alteration patterns can be observed such as fossilization, burning, leaching of elements within the sample, etc. It is also possible to evaluate the presence/preservation of organic matter in these samples. A selection of optimal samples are then analysed isotopically ($\delta^{13}$C, $\delta^{15}$N) and the results discussed in terms of diet, climate and mobility.
TH5-04 Abstract 02

First evidence of mobility levels from British Bronze Age cremations

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Keywords: Cremation, Mobility, Strontium

Presentation Preference - Oral

The question of Bronze Age mobility has been central to many discussions of the period. In Britain, such discussion has been largely informed by the fixation on cremation as a mortuary rite from the end of the Early Bronze Age, which has meant that human remains could not be subject to isotopic analysis. Whilst there is good isotopic evidence for different mobility patterns in the Beaker period, in later periods we can trace only the movement of artefacts and not the movement of people. Since the publication of a new method for carrying out strontium analysis of cremated remains within the last two years (Harvig et al. 2014; Snoek et al. 2015), a whole new area of analysis has therefore opened up. This paper presents the results of the first analysis of mobility in cremated human remains from the British Bronze Age. The remains come from the barrow cemetery of Over in the Cambridgeshire fenslands, which is one of very few cemeteries where the barrow mounds survive and have been excavated using modern techniques. This analysis therefore offers a unique opportunity to understand how mortuary practices, and changes in mortuary practices over time, are related to the mobility of the people buried within a barrow cemetery.

TH5-04 Abstract 03

„Cremated Dating”? Case studies for the dating of Bronze Age cremation burials from Hungary

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Keywords: AMS dating, Cremated remains, Early & Middle Bronze Age in Hungary

Presentation Preference - Oral

Cremation of dead bodies was a very common practice in the Carpathian Basin during the early, middle and late phases of the Bronze Age. The scientific value of cremated remains were undervalued due to the small amount of calcinated bones and the microfragmentation of human bones that provide only limited bioarchaeological information. Beside the restricted information archaeologists have to face with methodological problems. One of these problem is that sometimes it is not easy to collect the tiny cremated bone pieces within a cremation burial. Another, “burning question” is the dating of the cremated bone remains.

Contrary to the nearly 70 year old development of the traditional 14C dating, the methodology applicable to cremated bone is now in a phase of maturation. The aim of our presentation is to provide case studies of several Early and Middle Bronze Age (2600/2500–1600/1500 BC) cremation burials from eastern, central and western Hungary. This is important because sometimes because sometimes there is a poor fit between the relative chronological scheme and the still building radiocarbon chronology of the region, mainly because of the dominant burial practice of cremation. The presented, selected assemblages are special because they contain not just calcinated bones, but unburnt animal bones as gravegoods. The dating of these assemblages, and the combination of burnt bones (bozpapati) and unburnt bones (coglatan) from the same burial assemblages, can help build a more proper absolute chronology of the nearly two thousand-year-long Bronze Age period when communities in large parts of the Carpathian Basin followed the tradition of cremating the dead. During the years of method development for cremated bone two, basically different directions have formed. Besides the differential chemical combination method there is another one which is based on the severe chemical pre-treatment of the bioapatite sample. By measuring parallel organic/bones as reference, a refined chemical pre-treatment was tested and applied to bioapatite samples at HEKAL laboratory, Debrecen to obtain a reliable and effective method for AMS 14C dating of such sort of samples.

TH5-04 Abstract 04

The Role of MDCT in the Stratigraphic Study of Ancient Cineraria

Author - Innocenti, Dario, Monfalcone, Italy (Presenting author)

Keywords: Cinerary, Stratigraphy, Urns

Presentation Preference - Oral

Cinerary urns are a real challenge in the study of ancient populations. Content and container are indeed the result of a series of social customs and funerary gestures that begin after the death of the subject with the cremation rite and ends with the deposition of the ashes in the definitive burial place. The difficulties related to the study of the funerary rite of cremation are easily connected with the quantity and quality of information that can be obtained. The stratigraphic analysis of the urn content potentially documents the depositional process from its filling to its deposition in the definitive grave, including any changes related to the interaction with the surrounding environment, tampering, and so on.

Manual laboratory micro-extraction permits an ordinate empty of the urn through an arbitrary division of its content in horizontal sections, from top to bottom, joined to an accurate graphic and photographic documentation. One of the limits of this method is the difficulty to fully understand the spatial relationships between the layers and materials contained in the urn and their alterations.

Multidetector CT (MDCT) permits a careful, non-destructive volumetric study of the whole content of the urn, keeping unchanged the spatial relationships between the layers. The differences of X-ray density of the layers and of the material contained in them permit to easily individuate the interfaces between them. Briefly, MDCT offers many advantages in respect to micro-extraction from stratigraphic point of view, suggesting its utilization before any non-repeatable operation made on the urn.

Our experience after MDCT scan on 40 cineraria from Neolithic to Roman age will be presented.

TH5-04 Abstract 05

A Case of Contested Cremains Analyzed Through Metric and Chemical Comparison

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Keywords: burned bone, cremains, forensic anthropology

Presentation Preference - Oral

Since the 1980s, cremation has become the fastest growing area of the U.S. funeral industry. At the same time, the number of litigations against funeral homes and cremation facilities has increased. Forensic anthropologists are often asked to determine whether the contents of an urn are actually cremated bone, and to address questions regarding the identity of the remains. This study uses both metric and chemical analyses for resolving a case of contested cremains. A cremains weight of 2021.8 g was predicted based on the deceased’s reported stature and weight. However, the urn contents weighed 1737.5 g. The urn contents also contained material inconsistent with cremains (e.g., moss, sediment, stones, ferrous metal). Analysis using XRF and SEM demonstrated that the urn contained thermally altered bone as well as inorganic material consistent with glass fiber cement. Although forensically challenging, cremains cases such as this one can be resolved using a multidisciplinary approach.

TH5-04 Abstract 06

Cremated bones from Early Iron Age tarand graves in Estonia

Author - MSc, MA Kivirüüt, Anu, University of Tartu, Tartu, Estonia (Presenting author)

Keywords: cremation, Early Iron Age, methodology

Presentation Preference - Oral

This presentation will focus on the methodology and results of Estonian Early Iron Age (500 BC – AD 450) grave type called tarand. The work has been conducted on four different grave sites and the intention is to find out whether there were retrievable contents of litigations against funeral homes and cremation facilities has increased. Forensic anthropologists are often asked to determine whether the contents of an urn are actually cremated bone, and to address questions regarding the identity of the remains. This study uses both metric and chemical analyses for resolving a case of contested cremains. A cremains weight of 2021.8 g was predicted based on the deceased’s reported stature and weight. However, the urn contents weighed 1737.5 g. The urn contents also contained material inconsistent with cremains (e.g., moss, sediment, stones, ferrous metal). Analysis using XRF and SEM demonstrated that the urn contained thermally altered bone as well as inorganic material consistent with glass fiber cement. Although forensically challenging, cremains cases such as this one can be resolved using a multidisciplinary approach.

Cremation, Mobility, Strontium

Cremation, Early Iron Age, mobility
Up in Flames: Animals, People, Identity and Cosmology in Anglo-Saxon East Anglia, UK

Author: Rainsford, Clare, University of Bradford, York, United Kingdom (Presenting author)

Presentation Preference: Oral

Human and animal co-burials are a critical resource in zooarchaeology, presenting instances where a personal connection can be demonstrated between people and animals. Animal remains have been recognised in 5th to 7th century cremations in eastern England from an early date, and systematic analyses in the 80s and 90s of high-profile sites such as Spong Hill, Norfolk, have served to demonstrate the frequency, diversity and value of these inclusions. Yet the information from cremated animal remains is persistently under-exploited, due to difficulties on the one hand of accurate identification, and on the other of patchy retention of material from antiquarian and later excavations.

As analysis of animal remains in cremation burials becomes more common (although still far from universal), the increasing quality and quantity of the available data makes possible new and more detailed analyses of these complex, multi-faceted pyre goods. This paper will review new and existing evidence from early Anglo-Saxon cemeteries in East Anglia to explore how animals were used in funerary rites. Animals were a fundamental and ubiquitous part of early medieval society, providing a context for human action and perception and acting dynamically within that context. Their role in cremation rites is considered to be not simply symbolic, but as a complex interaction between identity, agency and cosmology.

Cremation in the Scottish Chalcolithic

Author: Bloxam, Anna, UCL Institute of Archaeology, London, United Kingdom (Presenting author)

Keywords: Cremation, Cremation, Scotland

Presentation Preference: Poster

The Chalcolithic of Britain (c.2450-2150BC) was a period of dramatic cultural change, beginning with the arrival of Beaker material culture from continental Europe. Changes brought by the ‘Beaker phenomenon’ included new forms of material culture, including the first use of metal, bringing an end to the insular Neolithic. This period also saw a shift in burial practices: cremation, common in the Late Neolithic, was replaced by a new rite of crouched individual inhumation, frequently accompanied by elements of the new Beaker material cultural package.

The changing mortuary evidence ties into a wider narrative of cultural replacement prompted by the arrival of the Beaker people and their culture. However, cremation re-emerged at the start of the Early Bronze Age, 300 years after its supposed disappearance. Was there really a 300-year hiatus in cremation practices in response to the Beaker cultural invasion? Or are we missing evidence of cremations due to the re-use of cremation urns? Do we have a picture of a ‘Kisirkent’ burial with its Beaker contents or a burnt bone burial?

While some authors have noted the existence of occasional ‘Beaker’ cremations, these are typically glossed over or treated as anomalies. No comprehensive study has been carried out, and there is no characterisation of what the Chalcolithic cremation rite may have involved. The advances in radiocarbon dating of cremated remains has led to a wealth of new evidence that can shed light on Beaker period burial practices and the nature of indigenous-Beaker interactions.

This poster presents a new project aiming to characterise the burial practices of Beaker Period Britain, with a discussion of the initial results for evidence of mortuary diversity in Scotland.

Advances in 14C dating of cremated bones at HEKAL Laboratory, Debrecen, Hungary

Author: Major, István, MTA ATOMKI, Debrecen, Hungary (Presenting author)

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Keywords: radiocarbon, dating, cremated bone, Bronze Age

Presentation Preference: Poster

A compilation of 14C dates over the last 50 years shows that less than 6% of all the bone dates were performed on purified bioapatite. The effective separation of the phase to be dated and the secondary calcite seems to be a challenge for researchers due to their identical chemical formula. Nevertheless physical and chemical changes which occur during the cremation process make cremated bones less susceptible to this type of contamination. In spite of all the difficulties a huge demand is shown for a reliable bioapatite preparation and measuring method since in a lot of cases dating is only possible by means of such findings.

At HEKAL laboratory, Debrecen, Hungary, we have dated several hundreds of bone samples using their organic collagen fraction. As a next step we would like to adopt a method for 14 C dating of bioapatite fraction, a process which starts with the effective extraction of the carbonate content of the samples. In the course of developing our process cremated bones from the early and middle Bronze Age (2600-1500 BC) were used where the expected age of the samples were detectable by dating well preserved, un-burnt bone findings from the same grave. At first, the intact bones were dated using the collagen fraction. In case of bioapatite samples, after the repetitive rinse with sodium hydroxide and acetic acid step, the crushed and sieved samples were reacted with phosphoric acid. The revealed CO2 gas was subsequently purified from other gases, graphitized by sealed tube method and its 14C content was finally measured by the MICADAS AMS. Based on our first results fractions with different particle size (0.2-0.3 and 0.5-1 mm) yielded identical carbonate content and 14C age results. However, comparing the age of the three parallel bioapatite samples, we proceeded to be the same, that to organic fraction a difference of 200-400 years was experienced presumably due to the chemical pre-treatment.

On this poster we would like to present both the evolution of our carbonate pre-treatment protocol and dating problems arisen in the case studies of the presentation entitled „Cremated Dating”? Case studies for the dating of Bronze Age cremation burials from Hungary.

Excavator bias and laboratory techniques of cremation burials

Author: Mgr. Pichócska, Erika, Charles University, Prague, Czech Republic (Presenting author)

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Keywords: cremation burials, excavator bias, laboratory techniques

Presentation Preference: Poster

The aim of our research is to assess three methods of analysis of cremation burials: computer tomography (CT), micro-excavation; sieving of burial infilt. We used eight burials from Jeziów- Płonki site (Czech Republic) for the purpose of the study. Four burials were seawed and four burials were micro-excavated and scanned by CT. Burials under the study comprised „old“ burials, um burials and um- sher burials. Results show significant bias caused by possible indiscriminate handling by the excavator. The most useful method for analyzing highly fragmentary burnt bone samples appears to be computer tomography (CT) together with micro-excavation. When only CT is used, the precise bone identification is not possible, whereas during micro-excavation tiny objects like metal slags can be overlooked, dislocated fragments lost, and burial volume measured imprecisely. Combination of the two methods ensures that the excavator reconstructs activities of past populations and not results of his/her own procedure.

Cinerary urns radiology and knowledge sharing: a web-based “paleopacs” proposal

Author: Innocenti, Dario, Monfalcone, Italy

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Keywords: Cinerary urns, Database

Presentation Preference: Poster

Cremation is a ritual treatment of the dead body that represents both a potential source of notices about the ancient historic societies and a real challenge for a physical anthropologist. With the introduction in the medical clinical practice of digital high-definition powerful radiological tools (MDCT, RM, QICT, CBCT etc.), is possible to carry out a non-destructive study of the cinerarium and its cremated remains in some way comparable with laboratory micro-excavation. Unfortunately, actual studies are based on a relative restricted number of cases, while the problems that we must take into correct interpretation of the images and the quantitative results need a large base of data and a effective share of the experience about it.

PACS (Picture Archiving and Communication System) can be viewed as a corollary of the digitization of diagnostic medical images. Born in the eight decade of the last century as a problem of the radiological archives and to minimize the time of distribution of X-ray films, in the last ten years PACS is become a powerful system of real-time, full-time exchange medical data imaging system. Moreover, coupling a PACS with a clinical database, it’s possible to create complex and useful digital shared medical records.
On the basis of this experience is possible to project and build a PACS dedicated to paleoradiological andarchaeological images and data, filling the gap of the actual relative paucity and dispersion of the palaeoradiological studies. This operation is not trivial because many specific problems must be solved as standardization, architecture, reliability and sharing rules of the system. A web-based, open source paleoPACS project and prototype with a section devoted to radiology of ancient cineraria is analyzed and presented.

TH5-04 Abstract 13
Cremated Human Remains of the Late Roman period of the Middle Volga Region, Russia
Author - Makarova, Ekaterina, Khalikov Institute of Archaeology, Kazan, Russian Federation (Presenting author)
Keywords: Komarovo burial ground, the Late Roman period, the Middle Volga Region
Presentation Preference - Poster
The research focuses on human remains from Komarovo burial ground (the first half of the 6th - the first half of the 7th centuries). The excavations have been conducted since 2013. Currently, 21 cremated burials have been unearthed. These burials can be divided into three groups: human, animal and mixed burials. Four burials among them can not be attributed to any of the groups due to fragmentariness and small amount of bones remained.

Human burials. The maximum size of the fragments does not exceed 40-50 mm. The total weight of bones varies from 150 to 850 grams. As regards the colour characteristics, the bones of white and pale-grey colour predominate. The colorimetric scales comparison revealed the maximum temperature of cremation that did not exceeded 700°C. In a number of cases, the remains contain transverse fractures, frequently in a curvilinear pattern, and more irregular longitudinal splitting. These features bear an evidence that the bodies were cremated during the first months after death, when bones still contain lipids and organic elements. Animal burials. Two burials were attributed to this group. Unfortunately, the species were not identified within the framework of this research. The maximum total weight of bones in such burials was 1 kilogram. The colour characteristics analysis showed the simultaneous presence of weakly burned, unburnt and white bones, indicating that the temperature of cremation varied from the lowest to over 800°C. Besides the remains with thermal deformation and fissures, these burials also contain burned ‘dry’ bones, dehydrated and delipated at the moment of cremation.

Mixed burials. The third group contains human and horse remains, with two burials contain inhumations with animal bones. The first one contains the fragments of pelvic skeleton of horse, the second one – the pelvis, the scapula, metapodial of horse. The colour analysis of the identified human remains found the same features specific to the first group. The cremation temperature for the animal remains did not exceed 300°C.

The gender and age of cremated people was identified in 14 cases. Only one of them was a 7-8 years old children. Other burials belonged to adults. The majority of them was 45-65 years old women. Only two burials contain remains of men. The unsufficient state of conservation, fragmentation and the lack of necessary morphological markers made impossible the gender determination in 5 cases.

The further studies of Komarovo burial ground will include the application of natural scientific methods, namely spectral analysis for defining human and non-human remains, histological bone structure analyses for age determining and the analysis of the 87Sr/86Sr ratio for migration processes in the local level.
### TH5-05 Abstract 01
**The Biology of Yersinia pestis and Plague in the 21st Century**

**Author:** Dr. Latham, Wynhnam, Northwestern University, Chicago, United States of America (Presenting author)

**Co-author(s):** Zimbler, Daniel, Northwestern University, Chicago, United States of America

**Presentation Preference:** Oral

There are 3 species of Yersinia that cause disease in humans: *Yersinia enterocolitica*, *Y. pseudotuberculosis*, and *Y. pestis*. While *Y. enterocolitica* and *Y. pseudotuberculosis* cause mild, self-limiting gastrointestinal infections, *Y. pestis* is responsible for the rapidly progressing, invasive, and often fatal disease called plague. Although *Y. pestis* is thought to have killed over 200 million people throughout history, it is a relatively “young” pathogen, only recently emerged from *Y. pseudotuberculosis* between 5,000—20,000 years ago. In this presentation, we will discuss the types of infections and diseases specifically caused by *Y. pestis*, its modes of transmission, both between flea and mammal as well between mammals, and provide an overview of plague in the 21st century, including information on why plague continues to be a disease of worldwide concern.

### TH5-05 Abstract 02
**From Mild to Murderous: How Yersinia pestis Evolved to Cause Pneumonic Plague**

**Author:** Dr. Latham, Wynhnam, Northwestern University, Chicago, United States of America (Presenting author)

**Co-author(s):** Zimbler, Daniel, Northwestern University, Chicago, United States of America

**Presentation Preference:** Oral

Plague, an infectious disease caused by the bacterium *Yersinia pestis*, occurred in at least three major historical pandemics: the Justinianic Plague (6th to 8th century), the Black Death (from 14th century onwards), and the modern or Hong Kong Plague (19th to 20th century). Yet DNA from Bronze Age human skeletons has recently shown that the plague first emerged at least as early as 3000 BC. Plague is, as any disease, both a biological as well as a social entity. Different disciplines can therefore elucidate different aspects of the plague, which can lead to a better understanding of this disease and its medical and social implications. The session shall address questions like:

- Which disciplines can contribute to the research on the plague?
- What are their methodological possibilities and limitations?
- How can they work together in order to come to a more realistic and detailed picture of the plague in different times and regions?
- Which ways had societies to react to the plague? How can they be studied or proved?
- Which commons and differences can be seen between the Justinianic Plague and later plague epidemics? Are there epidemiological characteristics that are essential and/or unique to plague?
- What are possible implications of the pandemic spread and endemic occurrence of plague through the ages for the interpretation of historical and cultural phenomena?

We would like to invite researchers from the disciplines of archaeology, anthropology, biology, history, medicine and related subjects to present papers in our session.

### TH5-05 Abstract 03
**Plague in the eastern Mediterranean region 1200-1000 BC?**

**Author:** Dr. Latham, Wynhnam, Northwestern University, Chicago, United States of America (Presenting author)

**Co-author(s):** Zimbler, Daniel, Northwestern University, Chicago, United States of America

**Presentation Preference:** Oral

We have an ongoing project, sponsored by the National Science Foundation, to investigate social and biological aspects of plague’s role in the eastern Mediterranean region during the 1200-1000 BC period. This era is the subject of much debate, with some scholars proposing that this was a period of demographic crisis and others maintaining that plague is unlikely during this time. Our research aims to shed light on these debates by examining plague evidence from the eastern Mediterranean during the Iron Age. We will present our findings and discuss their implications for understanding the social and demographic history of the region.

### TH5-05 Abstract 04
**Reconstructing ancient pathogens - discovery of Yersinia pestis in Eurasia 5,000 Years Ago**

**Author:** PhD Rasmussen, Simon, Technical University of Denmark, Copenhagen, Denmark (Presenting author)

**Co-author(s):** Allentoft, Morten, Center for GeoGenetics, Copenhagen, Denmark

**Keywords:** ancient DNA, paleogenomics, plague

**Presentation Preference:** Oral

The bacterium *Yersinia pestis* is the etiological agent of plague and has caused human pandemics with millions of deaths in historic times. How and when it originated remains contentious. Here, we report the oldest direct evidence of *Yersinia* pestis identified by ancient DNA from human teeth from Asia and Europe dating from 2,800 to 5,000 years ago. By sequencing the genomes, we find that these ancient plague strains are basal to all known *Yersinia* pestis. We find the origins of the *Yersinia* pestis lineage to be at least two million years older than previous estimates. Our findings suggest that *Yersinia* pestis originated in Asia and spread to Europe, possibly via trade routes.

### TH5-05 Abstract 05
**Plague in the western Mediterranean region 1200-1000 BC?**

**Author:** Dr. Latham, Wynhnam, Northwestern University, Chicago, United States of America (Presenting author)

**Co-author(s):** Zimbler, Daniel, Northwestern University, Chicago, United States of America

**Keywords:** archaeological, plague

**Presentation Preference:** Oral

How do new pathogens emerge, and how do these pathogens take advantage of host processes and pathways to cause disease? *Yersinia pestis*, the etiological agent of plague, is a recently emerged clone of the gastrointestinal pathogen *Y. pseudotuberculosis*, but the specific genetic changes that enabled *Yersinia* to cause the respiratory disease known as pneumonic plague are not well understood. By using a mouse model of respiratory infection combined with comparative genetic and genomic studies between modern and ancient *Yersinia* pestis, we have identified specific genetic changes that enable *Yersinia* pestis to cause pneumonic plague.

### TH5-05 Abstract 06
**Fleas, rats and other stories - The paleoecology of the Black Death**

**Author:** Panagiotakopulu, Eva, University of Edinburgh, Edinburgh, Scotland (Presenting author)

**Co-author(s):** Zimbler, Daniel, Northwestern University, Chicago, United States of America

**Keywords:** fleas, paleoecology, plague

**Presentation Preference:** Oral

Bubonic plague is a disease which involves various animal vectors and hosts and its ecology is both complex and of importance in terms of its spread and virulence. The origin of the Black Death is central to its better understanding and can throw light on the medieval ecological and epidemiological phenomena. The hypothesis of the spread of the Black Death via trade links with Asia and Europe, in relation to the relevant archaeological record, is explored.

### TH5-05 Abstract 07
**How do new pathogens emerge, and how do these pathogens take advantage of host processes and pathways to cause disease?**

**Author:** Dr. Latham, Wynhnam, Northwestern University, Chicago, United States of America (Presenting author)

**Co-author(s):** Zimbler, Daniel, Northwestern University, Chicago, United States of America

**Keywords:** evolutionary biology, plague

**Presentation Preference:** Oral

How do new pathogens emerge, and how do these pathogens take advantage of host processes and pathways to cause disease? *Yersinia pestis*, the etiological agent of plague, is a recently emerged clone of the gastrointestinal pathogen *Y. pseudotuberculosis*, but the specific genetic changes that enabled *Yersinia* to cause the respiratory disease known as pneumonic plague are not well understood. By using a mouse model of respiratory infection combined with comparative genetic and genomic studies between modern and ancient *Yersinia* pestis, we have identified specific genetic changes that enable *Yersinia* pestis to cause pneumonic plague.

### TH5-05 Abstract 08
**Evolution of plague - From mild to murderous**

**Author:** Dr. Latham, Wynhnam, Northwestern University, Chicago, United States of America (Presenting author)

**Co-author(s):** Zimbler, Daniel, Northwestern University, Chicago, United States of America

**Keywords:** evolution, plague

**Presentation Preference:** Oral

Plague, an infectious disease caused by the bacterium *Yersinia pestis*, is estimated to have killed over 200 million people throughout history. While some outbreaks are mild, self-limiting gastrointestinal infections, *Y. pestis* is responsible for the rapidly progressing, invasive, and often fatal disease called plague. Although *Y. pestis* is thought to have killed over 200 million people throughout history, it is a relatively “young” pathogen, only recently emerged from *Y. pseudotuberculosis* between 5,000—20,000 years ago. In this presentation, we will discuss the types of infections and diseases specifically caused by *Y. pestis*, its modes of transmission, both between flea and mammal as well as between mammals, and provide an overview of plague in the 21st century, including information on why plague continues to be a disease of worldwide concern.
Over a period of 150 years from about 1200 BC, the Mycenaean states collapsed. The great Mycenaean centres did not decline slowly during this period, but suffered sudden destruction at the very peak of their prosperity. Five hypotheses have been proposed to explain the collapse: invasion, civil war, local risings, earthquakes and climate change. However, none of them seems to provide a satisfactory explanation of the existing archaeological material. At about the same time, similar disturbances and destruction also afflicted Cyprus, Syria and Anatolia, and the Hittite empire came to an end. The temporal and geographical distribution of these disasters and the subsequent course of events in the Aegean region show a strong similarity to developments in the European region following the two later pandemics of plague. In addition, there is strong documentary evidence that there was at least one epidemic of bubonic plague with high mortality in the eastern Mediterranean region at the relevant time. Recent analyses of Bronze Age DNA sequences resembling Yersinia pestis indicate that the infection was endemic in human populations, and that it acquired sufficient virulence to cause bubonic plague at some point in time between 1660 and 950 BC.


TH5-05 Abstract 06

Plague Before the Plague: Early Bubonic Plague in Greek Medical Literature

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Keywords: bubonic plague, Greek medicine

Presentation Preference - Oral

In October 2015, Rasmussen et al. published evidence that Yersinia pestis was infecting human hosts in Western Eurasia as early as the Bronze Age. In the past, molecular evidence did not give historians a reason to doubt that Y. pestis was relatively new to Europe at the time of the Justinianic Plague. The new evidence that Y. pestis was active near the Mediterranean some 1,500 years before the Justinianic Plague therefore calls for a reevaluation of the evidence for plague in antiquity before the Justinianic Plague.

This paper will report the conclusions of a close philological study aimed at uncovering what evidence there is for plague in the medical sources of antiquity, specifically, the Hippocratic Corpus, Rufus of Ephesus, and Galen. The picture that emerges from these medical sources is that Y. pestis was unknown to medical writers until around the mid-second century AD, a time that coincides with Rufus of Ephesus reporting a disease that resembles plague. The plague remains familiar to medical authors from the first century BC to the end of the first century AD, when both Rufus and Aretaeus both demonstrate an awareness of Y. pestis. Intriguingly, Galen, who flourished in the mid-second century, only a few generations after Rufus, does not show any awareness of bubonic plague. First, this paper will demonstrate that there is no compelling evidence of Y. pestis in the Hippocratic Corpus. While the term θούμα (thouma) to describe glandular swellings appears twelve times in the Hippocratic Corpus, none of these twelve instances suggest that these thoulmas are plague buboes as opposed to other glandular swellings.

A passage by Rufus of Ephesus that has been preserved in the Medical Collections of Orbaisus contains the first description of a disease that we can confidently identify with plague. Rufus calls the disease "pestilential thoulmas" and details it in a way that corresponds to the early descriptions of Y. pestis and to sixth-century descriptions of the Justinianic plague.

In this passage, Rufus cites three little known authors who also knew of "pestilential thoulmas": Poseidonius, Dioscorides, and Dionysus Kuros. The names Poseidonius and Dioscorides could correspond to a number of possible figures, though the name Poseidonius most likely corresponds both to modern descriptions of Y. pestis and to sixth-century descriptions of the Justinianic plague. The names Poseidonius and Dioscorides could correspond to a number of possible figures, though the name Poseidonius most likely corresponds both to modern descriptions of Y. pestis and to sixth-century descriptions of the Justinianic plague.

The phylogenetic tree of the plague-causing pathogen Yersinia pestis has expanded in the last five years to include ancient draft genome sequences, which have allowed facets of the history of this disease to be explored in ways that were previously impossible. This pathogen has caused at least three human plague pandemics: the Plague of Justinian (6th-8th centuries), the Black Death (1347-1352 with waves continuing from the 14th-18th centuries) and the modern pandemic (19th-20th centuries), which have all been genetically characterized. Here we present the draft genomes obtained from two individuals who died in the first pandemic that allowed for genetic characterization of this pandemic. On the basis of maximum likelihood phylogenetic analyses, we conclude that the Y. pestis genomes that caused the Plague of Justinian and the Black Death 800 years later were independent emergences from rodents into humans. These results show that rodent species worldwide represent important reservoirs for the repeated emergence of diverse lineages of Y. pestis into human populations. In contrast, recently published Y. pestis sequences from the 18th century plague outbreak in Marseille, France do show ancestry in the strains obtained from Black Death victims, but are not represented in any sampled modern lineages. Taken in concert, the phylogenetics of ancient pandemic Y. pestis genomes reveal that the geographical spread of the disease and subsequent establishment of rodent reservoirs varied between pandemics.

TH5-05 Abstract 08

Early medieval burials of plague victims: examples from Aschheim and Aiternding (Bavaria, Germany)

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Keywords: early medieval cemetery, Justinianic Plague, Upper Bavaria

Presentation Preference - Oral

With this paper, we present burials from two early medieval cemeteries, Aschheim-Bajewarenring and Aiternding/Keitham, where the causative agent of plague, Yersinia pestis, could be detected paleogenetically.

The burials from the early medieval cemeteries of Aschheim-Bajewarenring and Aiternding/Keitham show that plague victims have been dressed and prepared carefully for their funeral. Compared to other graves from these cemeteries on the one hand and to contemporary burials in general, nothing basically indicates that the Y. pestis infected individuals had been treated differently than other deceased. Among the buried who were infected with Y. pestis occurred some of the richest and most well-equipped graves of the cemeteries. Therefore, it cannot be proven on base of the Early Medieval plague graves of the Munch grave plain that “[…] at that time all the customary riles of burial were overlooked. For the dead were not carried out escorted by a procession in the customary manner, nor were the usual chants sung over them […]” (Procopius, De Bello Persico II 23, 15).

On the contrary: the burial rites, as far as reconstructable, had been carefully conducted. The only difference is that the far confirmed victims of the plague seem to have been more often buried in double or multiple burials. However, the screening of single burials is still in a very early stage.

The Justinianic Plague was nevertheless a disease that affected Europe in the Late Antiquity, but its occurrence appears not everywhere as catastrophic as the written sources make us believe.

TH5-05 Abstract 09

Analysis of a high-coverge Yersinia pestis Genome from a 6th Century Justinianic Plague Victim

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Keywords: ancient DNA, phylogenetics, plague of Justinian

Presentation Preference - Oral

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Keywords: ancient DNA, phylogenetics, plague of Justinian

Presentation Preference - Oral

The phylogenetic tree of the plague-causing pathogen Yersinia pestis has expanded in the last five years to include ancient draft genome sequences, which have allowed facets of the history of this disease to be explored in ways that were previously impossible. This pathogen has caused at least three human plague pandemics: the Plague of Justinian (6th-8th centuries), the Black Death (1347-1352 with waves continuing from the 14th-18th centuries) and the modern pandemic (19th-20th centuries), which have all been genetically characterized. Here we present the draft genomes obtained from two individuals who died in the first pandemic that allowed for genetic characterization of this pandemic. On the basis of maximum likelihood phylogenetic analyses, we conclude that the Y. pestis genomes that caused the Plague of Justinian and the Black Death 800 years later were independent emergences from rodents into humans. These results show that rodent species worldwide represent important reservoirs for the repeated emergence of diverse lineages of Y. pestis into human populations. In contrast, recently published Y. pestis sequences from the 18th century plague outbreak in Marseille, France do show ancestry in the strains obtained from Black Death victims, but are not represented in any sampled modern lineages. Taken in concert, the phylogenetics of ancient pandemic Y. pestis genomes reveal that the geographical spread of the disease and subsequent establishment of rodent reservoirs varied between pandemics.

TH5-05 Abstract 07

Placing the Plague of Justinian in the Yersinia pestis phylogenetic context

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Keywords: ancient DNA, plague of Justinian

Presentation Preference - Oral

Over a period of 150 years from about 1200 BC, the Mycenaean states collapsed. The great Mycenaean centres did not decline slowly during this period, but suffered sudden destruction at the very peak of their prosperity. Five hypotheses have been proposed to explain the collapse: invasion, civil war, local risings, earthquakes and climate change. However, none of them seems to provide a satisfactory explanation of the existing archaeological material. At about the same time, similar disturbances and destruction also afflicted Cyprus, Syria and Anatolia, and the Hittite empire came to an end. The temporal and geographical distribution of these disasters and the subsequent course of events in the Aegean region show a strong similarity to developments in the European region following the two later pandemics of plague. In addition, there is strong documentary evidence that there was at least one epidemic of bubonic plague with high mortality in the eastern Mediterranean region at the relevant time. Recent analyses of Bronze Age DNA sequences resembling Yersinia pestis indicate that the infection was endemic in human populations, and that it acquired sufficient virulence to cause bubonic plague at some point in time between 1660 and 950 BC.
THE5 Science and multidisciplinarity in archaeology

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Keywords: ancient DNA, Yersinia pestis, plague

Presentation Preference: Oral

The Justinianic Plague, which started in the early 6th century and lasted to the mid-8th century, is the first out of at least three historically documented plague pandemics. High numbers of casualties caused by the disease were suggested to be a contributing factor to the decline of the Eastern Roman Empire, marking the transition from the Antiquity to the Middle Ages. Historical accounts as well as molecular data suggest the gram negative bacterium Yersinia pestis (Y. pestis) as the etiological agent of this massive plague outbreak. Here we present a high coverage Y. pestis genome, obtained from a 6th century skeleton recovered from a Southern German graveyard close to Munich. The reconstructed ancient Y. pestis genome is characterized by substitutions that are unique to this lineage, and structural differences in regions of the genome that have been previously suggested as virulence factors. These results may be influential for functional investigations that could explore the role of these newly discovered genomic characteristics in terms of physiology, virulence and host adaptation. We confirm Y. pestis was circulating in mainland Europe during the Justinianic pandemic and that this lineage is likely to have become extinct, as previously published based on a draft genomes that was circulating in mainland Europe

These results may be influential for functional investigations that could explore the role of these newly discovered genomic characteristics in terms of physiology, virulence and host adaptation. We confirm Y. pestis was circulating in mainland Europe during the Justinianic pandemic and that this lineage is likely to have become extinct, as previously published based on a draft genomes that was circulating in mainland Europe

THE5-05 Abstract 11

Plague in Valencia, 546: A Case Study of the Integration of Texts and Archaeology

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Keywords: bubonic plague, mass graves, Spain

Presentation Preference: Oral

Although so-called Justinianic Pandemic of Yersinia pestis that began in the early 540s dramatically altered the history of the Mediterranean, historical information about it is fragmentary. This is especially true in the Western Mediterranean, where few narratives or documents reveal the plague’s impact. Archaeology can fill these gaps. Recent work on the prevalence of mass graves in the late- and immediately post-Roman world suggests that mass graves, properly understood, can serve as a proxy for mass death. However, despite the work being done to bring together the documentation of these graves, it has been difficult to know whether these graves result from plague, famine, violence, or some other unknown cause.

In this paper, I will argue that the canons of the Council of Valencia provide us with a test case for combining archaeological and philological evidence for the Justinianic Pandemic. The council was held in 546, three years after the first outbreaks of plague in Spain. The fifth canon is concerned with the sudden and unexpected death of bishops and legitimates that bishops be buried “in their own place”, so that “the old traditions for burying bishops might not be dishonored.” Given the large number of sixth-century mass graves from Valencia, concern about the proper burial of bishops “in their own place” suggests an institutional reaction to the plague pandemic and the breakdown of traditional burial practices. The evidence, however, is not straightforward.

The paper is divided into three parts. The first analyzes the canon within the context of debates on the care of the dead in Late Antiquity. The second studies the archaeological evidence for burials in Valencia, both those of bishops within the sixth-century ecclesiastical complex and the mass graves that are currently being documented. The third reflects methodologically on the potential for integrating church documents and funerary archaeology. This study will use the concatenation of evidence from Valencia to both chart a specific instance of the Late Antique plague and showcase the promise – and difficulty – inherent in the interdisciplinary study of bubonic plague.

THE5-05 Abstract 12

Understanding Black Death: News from Denmark

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Keywords: bioarchaeology, Black Death, Denmark

Presentation Preference: Oral

The mid-14th century Black Death epidemic reverberated across Europe, having significant impacts on the population which shaped social, economic, and political dynamics in the years to come, and leaving its systemic mark on the surviving populations from a genetic standpoint. The epidemic has since captured the attention of an interdisciplinary following of researchers, with core interests in the social and biological impacts and the disease etiology, amongst other areas. It is estimated that up to 50% of the population was lost over the course of the epidemic in Denmark, but up until now little bioarchaeological or molecular work has been done on the disease in Denmark. As an acute infection, the Black Death epidemic left no diagnostic anatomical signs on the skeletal remains of medieval populations. Thus far, our understanding of the epidemic relies on historical accounts and on modern clinical understandings developed from more recent outbreaks of bubonic plague (a disease caused by Yersinia pestis, which is one of the prime contenders for the causative agent of Black Death). In reality, the causative agent of one of the most significant epidemic crises in recorded history is still an incredibly contentious subject, and our understanding of the circumstances affecting the health of populations around the period of the Black Death epidemic is limited. Yersinia pestis has been identified in Black Death cemeteries in Europe, but thus far, no published work is available from Denmark. By building a better understanding of the pathogen load of the populations in Denmark at the time of the Black Death crisis, as well as both before and after the epidemic, it will be possible to attain a better understanding of the role Yersinia pestis may have played in the population, and of the immune changes and responses to the epidemic. The current paper presents preliminary results from an international team combining bioarchaeological and molecular methods to gain a better understanding of the epidemiological patterns surrounding the Black Death epidemic in Denmark.

THE5-05 Abstract 13

A demographic history of the plague bacillus revealed through ancient Yersinia pestis genomes

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Keywords: archaeo-

Zooarchaeology is the study of faunal remains from archaeological sites. Animal bones can be used to track changes e.g. in herd composition, size or animal health. Significant changes in size over short periods of time are a testimony of the human influence upon their livestock. An increase in size can be triggered through food of higher quality, improvement of keeping conditions, but also through the import of new breeds from areas with specialized animal breeding. A decrease of size on the other hand is interpreted as deterioration caused not only by exogenous factors such as climatic shift and epizootic diseases, but also by societal and demographical changes. Zooarchaeological evidence can therefore reveal new, non-documented aspects. In the first half of the 14th century AD several devastating events affected great parts of Europe, leading to a gradual transformation of human society. The instability and unpredictability of the climate was the main cause of successive famines between 1315 and 1317, resulting in the loss of many lives. At the same time epizootics among cattle and sheep causing massive casualties across Central and Northern Europe must have had a great impact on the human nutrition. In the mid of the 14th century the Black Death (1347-1351) hit the European continent, causing long-term social and economic changes. The focus of the present paper is on German Late-Medieval and Reg site archaeological sites. In two particular finding sites in Germany Late-Medieval and Renaissance archaeological evidence suggests that the Black Death had a negative impact on domestic livestock, especially on cattle. In addition supra-regional studies reveal that the impact differed not only between geographical localities, but also between settlement types.

THE5-05 Abstract 14

Germany and the Black Death: a zooarchaeological approach

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Keywords: Black Death, livestock keeping, size

Presentation Preference: Oral

Zooarchaeology is the study of faunal remains from archaeological sites. Animal bones can be used to track changes e.g. in herd composition, size or animal health. Significant changes in size over short periods of time are a testimony of the human influence upon their livestock. An increase in size can be triggered through food of higher quality, improvement of keeping conditions,
One of the most devastating events in human history was the second plague pandemic, which began with the Black Death (1347-1353). Sporadic outbreaks of plague continued in Europe until the 18th century, when the disease essentially disappeared. Initial sequencing of Yersinia pestis genomes from London victims of the second plague pandemic, identified the Black Death as the event that gave rise to most of the Y. pestis genetic diversity present around the world today. This result raised further interest regarding the relationship of this lineage to the ones associated with post-Black Death outbreaks, and to modern plague lineages. Recent ancient and archival DNA studies have attempted to explore these relationships, although a clear consensus is still yet to be reached. Here, we present three historical Y. pestis genomes from the second plague pandemic in Spain, Russia and Germany. Our results provide support for low genetic diversity in the plague bacterium during the Black Death, followed by a subsequent eastward travel of lineages to later become the source for the worldwide third plague pandemic, which began during the 19th century in China. In addition, our data from a post-Black Death outbreak in Germany are best explained by the persistence of a European plague lineage that is now likely extinct.

The sites are roughly dated between c. 4000-2500 calBC, to the period of the suggested Mid-Holocene population peak in the country, only rivalled by similar areas in the River Iijoki (Kierikki) and River Kemijoki (Törmävaara) areas in the north. Northern Ostrobothnia were investigated and a large number of housepit sites were later inspected in terrain. A total of 481 new LiDAR mapping has recently become a standard tool in archaeological survey in Finland. In 2015, a set of LiDAR visualisations from Northern Ostrobothnia were investigated and a large number of housepit sites were later inspected in terrain. A total of 481 new housepit sites were recorded during field survey thus bringing the River Slikka area to one of the densest occurrences of pithouses in the country, only rivalled by similar areas in the River Ipikki (Karvikki) and River Kemijoki (Törmävaara) areas in the north.

The sites are roughly dated between c. 4000-2500 calBC, to the period of the suggested Mid-Holocene population peak further stressing the relevance of this period in Finnish archaeology. It is not only the large number of the pithouses themselves, but the complexity of the settlement patterns as well opening exciting new avenues to the study of complex hunter-gatherer societies in the region.

The Eastern Croatia can be considered as the heartland of the Neolithic community known as the Sopot culture. Numerous sites of this culture are already known, and only a small number of them were excavated. The project of aerial archaeological survey
Exploring the subsoil of the wide area of Mont’e Prama (Cabras, Sardinia, Italy)

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Keywords: Mont’e Prama, Multichannel GPR, Wide Area Prospection
Presentation Preference - Oral

40 years ago, an archaeological discovery occurred by chance in the Mont’e Prama region situated near the village of Cabras, in the Sini peninsula (Sardinia, Italy). Only recently (March 2014) after a long difficult restoration the famous stone statues of Mont’e Prama, were presented to the public in two different museum contexts (Cagliari and Cabras).

The old archaeological digs concluded after performing excavations tasks and trenches in every direction with the idea that the discovery was accidental and did not extend further.

From 2013 to 2015 a wide geophysical campaign was carried out both in the archaeological site of Mont’e Prama and its surrounding areas.

During 2014, an archaeological dig (20x10 metres) was done on the basis of the geophysical results. This digs gave very important findings of various kinds like tombs, baetyl of great visibility, dimensions of nuraghe and almost intact stone statues.

The analysis of the relationships between findings and their related anomalies clearly showed some typical shapes of the anomalies. The main kinds of findings, particularly tombs and baetylus, showed characteristics anomalies that are repetitive all over the excavated area.

Starting from these remains, all the GPR data acquired during the entire survey, from 2013 to 2015, over an area of about 12 hectares, were analysed to detect patterns which matched those identified in the excavated area. Basing on this kind of approach, it was possible to try an interpretation of the GPR data also in the unexcavated areas.

The old archaeological site was greatly enlarged and new structures were closely similar to those observed in association to tombs in the excavated area. As in the excavated area, these kinds of anomalies are often aligned along linear paths in N-SW direction.

A rereading of the regional archaeological documentation then forces us to reconsider the state of knowledge, particularly those concerning the subsoil area.

The whole pattern and extension of archaeological remains show that in the site of Mont’e Prama the archaeological area is wider than the excavated one. It is plausible to suppose that tombs and other kinds of anomalies exist at least for hundreds of metres both northward and southward from the archaeological digs.

In years 2010-2011, a LiDAR survey campaign was led by the - Group of Public Interest Seine- Aval - (GIP-SA) from the upstream of Rouen to the English Channel with the aim of drawing up accurate topography of the Seine valley and watershed adjoining the river. This data, available on over 1100 km², have for primary purpose of anticipating the rise of seawater, with the global climate changing, by calibrating the defense structures against the sea accordingly.

This very appropriate survey campaign had covered the public forests and also numerous private woods of less importance. The aerial data had been processed jointly by the French Ministry of Culture and Communication and the Office National des Forêts. They generated images ready to be used in archaeological analysis on more than 300 km² (situation in 2015 - to be increased in the future). The contributions are considerable, under forest cover or not, but the zone with woodland needed to be treated first for the virtual forest removal.

A rereading of the regional archaeological documentation then forces us to reconsider the state of knowledge, particularly in terms of regional archaeological mapping. Dozens of new settlements, or anomalies, need to be added in the National archaeological map and inventory. In the same meaning, the global understanding of the territorial organization from Gallic and Gallo-Roman periods is considerably renewed. Indeed, the oppida (hill forts) that did not exist this part of the Seine valley are particularly well readable, and the understanding of their insertion in the territorial organization becomes more relevant. Their morphology and their relation to the topography and the road system are greatly reinterpreted. In addition, the “antique” road called “Chaussée Jules César”, serving the plateau on the north side of the Seine, finally shows his consistency as a strong element of organizing Caïtes and Vénissacqas pagi.

This organization seems largely inherited from a structure already in place before the end of the Iron age. Connected with the latest studies in geoarchaeology and archaeogeography, the new data from LiDAR also reveal the great adaptation of the drawing of the gallo-roman road to the territory through which it passes (topography, hydrology, topology).

Collecting informations and data analysis will continue for several years, but the data from the LiDAR have already been used in two PhD and several Master’s degrees. Two systematic excavations, initiated in 2012, are straightforward the result of the new opportunities offered by this tool under development. Medieval, modern and contemporary times, also benefit from this data renewal! But many things are still to come.
This paper presents the preliminary results (and challenges) of a remote sensing research project focused on early medieval landscapes. The project’s overall purpose is to explore the potential of new methods and approaches as a means to avoid undue data collection on sites and at mitigating pervasive research biases in the study of protohistoric settlement and land use. Here we report on only one aspect of this wide-ranging project, namely the use of geophysical prospection as a means to avoid undue focus on known sites and/or elevated-density peaks in the archaeological surface record.

We first present the experimental application of magnetic-based geophysical techniques for the detection of ‘non-sites’, i.e., archaeological features without any apparent surface expression, in three landscape zones with different geology, morphology, and soils, and with potentially different archaeological records. In the sandy and gravelly soils of the foothill zone bordering the coastal plain of Syria (100–400m asl), an exploratory swath of magnetic gradiometry across the already intensively field walked agricultural area ‘Contrada Damale’ revealed evidence of anthropogenic features without associated surface artefact scatters. Some of these features have direct parallels with archaeologically relevant anomalies (hut foundations) detected on known prehistoric surface sites, and show that settlement densities have been seriously underestimated. At the Monte San Nicola Hiltop, a large-scale magnetometer survey on the fruitful soils of the Pito-Peistocene marine terraces landscape (50–500m asl) resulted in a set of circular pit-like anomalies which, after an intensive fieldwalking survey, could be related to diffuse pottery of the Late Bronze Age / Early Iron Age. Now believed to be the partially ploughed-out remnants of a cremation cemetery, the experiment has added a rare example of this type. Finally, in the generally eroded upland valley at Contrada Madalena, where soils consist of schists and marls (700–1000m asl), large-scale on- and off-site magnetic gradiometry did not result in any archaeological features. However, some seemingly natural magnetic anomalies turned out to have a complex genesis which is still relevant to our understanding of the archaeological surface record. Besides these intensive geophysical studies, we also collected long transects of magnetic susceptibility measurements in all three landscape zones to determine the geological background variation against which any anthropogenic and natural magnetic anomalies would be distinguishable. We discuss several examples of gridless and ungridred on-site MS surveys to demonstrate the effect and implications of this approach.

The presentation will deal with the methodological approaches and preliminary results of the “Hidden Cultural Landscapes of the Western Lesser Poland Upland” project. The project’s study area is an area extremely abundant with archaeological remains and at mitigating pervasive research biases in the study of protohistoric settlement and land use. Here we report on only one aspect of this wide-ranging project, namely the use of geophysical prospection as a means to avoid undue focus on known sites and/or elevated-density peaks in the archaeological surface record.

The project’s study area is an area extremely abundant with archaeological remains and at mitigating pervasive research biases in the study of protohistoric settlement and land use. Here we report on only one aspect of this wide-ranging project, namely the use of geophysical prospection as a means to avoid undue focus on known sites and/or elevated-density peaks in the archaeological surface record.
One interesting feature of the 15 settlements along the Varde Stream system mainly links to an almost preplanned structure. The settlements are situated along the stream with approximately 1 km of distance between each other. This particular situation offers considerably from other areas in West Jutland where the settlements are situated more sparsely. The Varde stream

The settlements are located mainly on the north side of the meadows that runs along the stream and allows for a utilization of both the meadows and easy access to the Bay and the Wadden Sea. The settlements are registered mainly as pit-house cromparks, and a few display longhouses in combination with pit-houses. The pit-house is the common element, a feature that often is connected with crafts. The spatial location along the stream does seem to add to such propositions, but the interesting questions relate to factors of control and power. Did someone force this structure on the settlements or does the settlement location indicate a normalized resource area? Do the pit-house sites indicate settlements or do the sites represent a specialized function? These questions are of great importance for this particular period in the Danish prehistory, when it is theorized that the early steps towards state formation occur. These processes are often linked to the central places and the power we surmise they must have had due to exceptional material culture. Now, due to the aerial archaeological data, it might be possible to contribute to, or deconstruct, these assumptions.

TH5-06 Abstract 10

The 16th century In Depth Defenses of the Nissan River Valley Revealed by Remote Sensing

Author - Persson, Claes B., Jönköping County Museum, Jönköping, Sweden (Presenting author)

Co-author(s) - Norburg, Gabriel B. N., Office of the Governor of the Royal Palaces, Stockholm, Sweden

Keywords: 16th century warfare, LIDAR, Remote sensing

Presentation Preference - Oral

In the late autumn of 1567, during the Nordic Seven Years War, a large Danish army crossed the border and marched into southern Sweden, wreaking havoc on the lands of the enemy. The outnumbered defenders were unable to offer any serious resistance for about a week, thus giving the invasion force free access to the Nissan River Valley – one of the main roads to central Sweden. From each of the villages of the following year the extent of the catastrophe can be estimated. A whole region was devastated, its villages and farms appear as “plundered”, “burned”, “destroyed” or “bad waste” in the written sources. However, this could have been avoided. A well planned system for defense in depth was established before the war. Blockhouses could have been built in strategic positions along the river valley at a distance of about one day’s march from each other. Used correctly, these simple fortifications would have slowed down an invader, wasting his strength while giving the defenders time to gather reinforcements. But due to a number of circumstances this did not happen in 1567. Instead the unfortunate peasants got in harm’s way.

The remains of these defenses and their historical importance went almost unnoticed until recently. The research project Gateryn 1567 broadened its scope after having located and investigated a battlefield from the conflict. By using combination of written sources, aerial surveys, LIDAR and GPR it has been possible to trace both the preparations made by the Swedish forces and the tracks of the Danish army. Careful analysis of LIDAR data explains why certain sites were chosen as defensive positions or used for temporary camps. It has proven to be the most effective method for mapping settlements that vanished during the events 450 years ago. The importance of remote sensing for the Gateryn 1567 project cannot be overstated. In a densely forested landscape, very different from what it looked like in the mid-16th century, modern techniques have made it possible to investigate a military campaign and even interpret its consequences. By doing so, we can begin to understand the true conditions of the local population in a border region. People were subject to recurring warfare and suffering, with a situation with too many parallels to our own time!

TH5-06 Abstract 11

Above and below the surface. The use of Remote Sensing in studying the former battlescape

Author - Michał, Jakubczak, Polish Academy of Sciences, Warszawa, Poland

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Keywords: Central Poland, Great War, Remote sensing

Presentation Preference - Oral

“Archaeological revival of memory of the Great War. Material remains of the life and death in trenches of the Eastern Front and the condition of the ever changing battlescape in the region of the Rawka and Bzura” is the scientific project, which reveals that archaeology and remote sensing can be extremely useful in reflecting also recent tragic episodes in the history of human and landscapes’ entanglement. Three seasons of research made us realize how little is known about the material dimension of the Eastern Front of the Great War, despite numerous written sources. In our presentation we will focus on showing the ways in which the Advanced Remote Sensing Techniques can reveal the enormous amount of information as well about soldiers who found themselves in trenches of Great War and local communities touched by that war as about things and landscapes. We will try to expose, the fact, that archaeological methods including advanced remote sensing techniques are adequate and universal - regardless of whether they relate to material remains of Paleolithic hunter or last century soldier’s activities – only as long as they are driven by the relevant question. Without it, we never get a relevant answer. The area of our field of research covers over 300 km². Our practices have enabled us so far to produce the questions which can give us an insight into the ways in which the fellowships and clashes of the soldiers, their life and deaths, influenced the analyzed landscape between 1914 and 1919. We will present the detailed results of archaeological research on selected sites related to Great War and recognized via aerial photography, LIDAR and geophysical surveys. By showing the cemeteries and remains of no man’s land in two different conditions - well preserved in woodland and destroyed by agriculture – we will elaborate the problem of a/ matching the particular Remote Sensing Technique to particular environmental conditions and b/ necessity of enriching the traditional methods of excavations with Advanced Remote Sensing Techniques in order to gain a chance for more complete and complex understanding of ever changing landscape.

TH5-06 Abstract 12

3D Photogrammetry/Videogrammetry in Underwater and Aerial Archaeology

Author - Prof. Dr. Block-Beritcz, Marco, HTW Dresden, Dresden, Germany (Presenting author)

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Keywords: 3D Reconstruction, Structure from Motion, Videogrammetry

Presentation Preference - Oral

Over the past few years, 3D reconstruction from images series (photogrammetry) or video streams (videogrammetry), using robust and fast software tools such as Structure from Motion (SfM) and Multi-View Stereo (MVS), has emerged as a dominant technique in archaeology. The usefulness of these tools is not limited to capturing digital models of single objects or (in combination with previously acquired 3D scanning data) Archaeological Volumes (AVs) documenting complete sites and excavation areas. Image-based 3D reconstruction is also a key technique for supporting processes of interpretation and decision making during ongoing field work. In addition, the use of photogrammetric solutions in Underwater Archaeology, using Unmanned Underwater Vehicles (UUVs) will be an important step for archaeological research in flat areas and coastal transition zones that currently constitute some of the most sparsely documented regions of archaeological interest. However, as the volumes of 3D data increase, best-practice and efficient workflows move into focus, as do staff training and access to low-key, low-cost technology. Traditionally working under constraints of strictly limited time and financial resources, archaeologists arenow turning to off-the-shelf hardware and free and open source software for data processing. Our contribution will show-case several international case studies that demonstrate how low-cost UAVs/UUVs, free software and well-designed workflows combine to enable archaeologists to capture monuments, sites or entire landscapes from the air. Our technological focus is on the innovative transition from high-resolution, single-shot imagery to using large numbers of frames extracted from video streams. Despite the lower resolution of the latter, we believe them to be an ideal source of data for robust 3D reconstruction, due to superior recording speed and frame overlap.

TH5-06 Abstract 13

Digging into the Swiss Neolithic with Modern Methods – 3D Documentation and Biochemical Analyses

Author - Sieleka, Inge, Institute of Forensic Medicine, Bern, Switzerland (Presenting author)

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Keywords: 3D documentation, biochemical analysis, Neolithic

Presentation Preference - Oral

Switzerland is known for the well-studied settlement archaeology of the Neolithic period however up to now little is known about the population who inhabited those settlements. With the recent finding of a Neolithic dolmen near Bern a unique opportunity was provided to study Neolithic human remains. The project therefore focuses on dietary habits, migration and population dynamics and includes human remains of further Neolithic sites in Switzerland.
Since such exceptional findings have high scientific potential it is of great interest for an interdisciplinary project. Photogrammetry and 3D scanning were used as the documentation method at the excavation and allowed quick and detailed drawings of scaled plans. To keep the contamination of human remains as low as possible the excavators used various protective equipment.

The human remains are morphologically analysed, the minimum number of individuals is calculated, stable isotope analyses of the isotopes carbon, nitrogen, sulphur, oxygen, hydrogen, strontium and lead will be performed in order to investigate the dietary habits, possible migration patterns and climatic conditions of this time. Furthermore, the ancient DNA will be investigated for population genetics and also to gather information about phenotypes and genetic relationships.

Radiocarbon dating will be performed to shed light on the chronology of the burials. First radiocarbon dates indicate that the dolmen was used from around the second half of the 4th millennium BC. This falls within the two big migration and admiring events of Neolithic Europe. So far little is known about the population at the time of the dolmen. Additionally the geographic in the alpine region makes it an important source for migration studies since migration routes are limited in the alpine region.

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**TH5-06 Abstract 14**

**A view from above: GIS and LiDAR vs. tovrels and spades**

**Author** - PhD student Daubara, Mantas, Lithuanian Institute of History, Vilnius, Lithuania (Presenting author)

**Keywords**: GIS, landscape archaeology, LiDAR

**Presentation Preference** - Poster

An ongoing research project focused on Varniai region (western Lithuania) is working towards understanding the use of prehistoric (Mesolithic, Neolithic) landscapes in this area of 274 km². The approach of surveying for new sites has been employed by means of GIs and LiDAR modelling as well as actual excavations. Here we present primary results of this endeavour as well as shortfalls of GIS and LiDAR modeling if it isn’t used together with an actual archaeological fieldwork.

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**TH5-06 Abstract 19**

**Unique burials found in the ancient necropolises in Crimea with the magnetic survey in 2014-2015**

**Author** - PhD Smekalov, Sergey, Tula State Law Tolstoy Pedagogical University, Saint-Petersburg, Russian Federation (Presenting author)

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**Keywords**: late Scythians, burial items, gold jewelry, magnetic survey, North-Western Crimea, ancient necropolis

**Presentation Preference** - Poster

Excavations of the necropolises are extremely important for understanding the synchronous with the graves historical processes. The funerary objects, visible on the surface, in most cases repeatedly robbed. Situation with underground cemeteries, which are not visible on the surface, is different. Although they, too, went looting extensively in Crimea, but the invisibility of these objects, to some extent, protects them from robbers. But for the same reason they are difficult to detect for archaeologists too. One of the search options to such objects is the use of magnetic survey.

In 2014-2015 gg. researchers from Tula and Simferopol have carried out magnetic survey at several cemeteries of the Western Crimea. Excavations of the anomalies have revealed burials, which was not robbed, or, at least, not robbed in modern times.

In the necropolises of the settlement Djan-Baba studied three not robbed ground children's graves with a variety of implements and unique family stone cist with numerous graves of 1 c. BC. It was found numerous burial items, among which glass, pottery red lacquer and bronze vessels, more than 3 thousand of different types of beads, many iron objects and their fragments. Waves made of bronze and white metal are presented by coin and various ornaments, including fibulas, some of which are very rare in the Northern Black Sea. A large number of grave goods was found in the graves of the adult men and women, and among them, particularly interesting were the occasional grave goods of the Cimmerians and Scythians.

In the course of the studies the study of the site of the ancient settlement Kulchuk.

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**TH5-06 Abstract 17**

**Identifying and Evaluating Neolithic Sites in Italy Using Aerial- and Ground-Based Remote Sensing**

**Author** - Prof. Tylot, Robert, University of South Florida, Odessa, United States of America (Presenting author)

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**Co-author(s)** - Di Miceli, Andrea, ArcheoRes, Perugia, Italy

**Co-author(s)** - Muntoni, Italo, Soprintendenza Archeologia della Puglia, Foggia, Italy

**Keywords**: early agriculture, remote sensing, Tavoliere

**Presentation Preference** - Poster

The Tavoliere of northern Puglia (southern Italy) was a dense area of early agricultural settlements in the Neolithic (ca. 6200-4000 BC) of western Europe and was, probably, the point of introduction into Western Europe of farming. Several hundred sites with ditched enclosures were initially identified from aerial reconnaissance photograpy following WWII, with more than 800 newly discovered in an area of several hundred square kilometers. Starting in 2013, we have conducted walking surveys of more than 25 sites, collecting about 1270 ceramic artifacts as well as many obsidian and flint tools, and 70 clay samples from nearby watercourses. These have all been analyzed using a portable X-ray fluorescence spectrometer, specifically for trace elements, with clear groupings of ceramics which include non-diagnostic coarse wares, impressed Wares, parallel-coarse and medium wares, Masseria La Quercia wares and Passo di Corvo fine wares) and a suggestion of some south-to-north movements. Most of the obsidian comes from the Aeolian island of Lipari (about 330 km to the south), and about 10% from Pamoracia (about 230 km...
to the west). These data have already expanded our understanding of socio-economic developments in the Tavoliere during the new wave of life of the early Neolithic.

In 2015, in order to select sites for future excavation, advanced remote sensing was conducted in order to assess the precise location and preservation of the prehistoric ditches, considering the potential damage caused by modern deep-plowing since the original aerial photographs were taken. A remote-controlled unmanneled aerial vehicle (UAV) and ground-level magnetometry/ electrical resistance tomography were used at several sites following the harvesting of the fields. A fixed wing SenseFly eBee UAV was used to create near-infrared (NIR) imagery at four sites: two around Lucera in the northwest of the Tavoliere, one near Foggia in the center, and one in the southwest near Cerignola. Photogrammetry produced a high-resolution (10 cm/pixel) digital terrain model. The magnetometer was used in transects of 20 x 160 m at two of these sites (Posta Barone Grella in the south, Posta del Giudice in the north), and was highly successful in showing both boundary ditches and internal structures. Additional remote sensing is planned, potentially at different times of the year and prior to harvesting to identify optimal conditions for its use in subsurface site prospection.

**Geophysical and Archaeological research on Late Roman iron-smelting site at Virje (Croatia)**

*Author* - Medarić, Igor, Gearh d.o.o., Ljubljana, Slovenia (Presenting author)
*Co-author(s)* - Mušič, Branko, Gearh d.o.o., Maribor, Slovenia
*Co-author(s)* - Sekelj Ivančan, Tajana, Institute of Archaeology, Zagreb, Croatia

Presentation Preference: Poster

Archaeological site Virje is situated in the Croatian lowland, on the right bank of the upper course of Drava river. On a slightly sloped area named Sušine, parts of a primary iron processing smelting workshops were discovered and explored. Since these types of sites are quite rare in northern parts of Croatia, and in order to get a better understanding of the development and organization of the site, noninvasive methods were applied. With the help of magnetic method, measurements of magnetic susceptibility and shallow drilling, waste disposals of a workshop, few pit furnaces from the Late Roman period (4th and 5th century), as well as settlement remains from Late Iron Age (3rd/2nd and 1st century BC) were discovered. Additionally, geophysical results applied on digital elevation model in combination with aerial photography were carefully analyzed and compared with excavated archaeological structures. All the gathered information importantly contributed and changed our views on this unique multiperiodical site and its environment.

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**FOOD FOR THOUGHT: INTERDISCIPLINARY RESPONSES TO DIETARY STUDIES IN BIOARCHEOLOGICAL RESEARCH**

Saturday, 3 September 2016, 14:00-18:30

Faculty of History, Room 218

Author - Van Cant, Manit, Free University of Brussels, Brussels, Belgium (Presenting author)
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Keywords: bioarchaeology, diet, health

Presentation Preference: Regular session

Skeletal remains unearthed from archaeological sites are one of the few direct testimonies which offer us the opportunity to gain insight into past people's lives. A substantial part of a person's life course relates to diet and nutrition, since it reflects important cultural and social behaviors. This session will explore how archaeologists, human osteologists and historians implement interdisciplinary techniques in their research to deal with the concepts of diet, health and disease.

The integration of modern methods in order to reveal dietary patterns of past individuals has improved significantly in recent years. Interdisciplinary approaches, such as combining knowledge of bone chemistry with palaeopathological analysis, have been developed to investigate the relationship between diet and disease and the connection between health and different aspects of society. Furthermore, because of rising issues regarding destructive sampling on bone and teeth, the possibilities and benefits of non-destructive methods, such as the study of dental calculus or the use of x-ray, as a proxy for invasive paleodiets analyses, have been acknowledged by researchers. As it has become increasingly necessary to adopt a diverse approach to archaeological research, this session is designed to showcase the innovative and interdisciplinary nature of new investigations into diet (and its effect) in the past, and suggestions for topics include:

- Relationship between environment and diet/health:
  - pre-industrial vs. industrial health
  - rural vs. urban health
  - the effects of natural disasters on health (e.g. famines and epidemics caused by crop failure, climate change, etc.)
  - zoonoses and human animal interaction
- Diet/health and culture:
  - Historical understanding of health (e.g. medicinal use)
  - Social identity and health
  - Children vs. adults
- Interpretations of diet/health:
  - Historical sources (e.g. demographic issues) vs. archaeological evidence
- New scientific approaches (stable isotope studies, dental calculus,...)
- Discussions of the pros and cons of interdisciplinary research

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**Multilevel approaches to dietary reconstruction in Anglo-Saxon to Medieval UK**

*Author* - Radini, Anita, Department of Archaeology University of York, York, United Kingdom (Presenting author)
*Co-author(s)* - Nikita, Efthymia, STARC-The Cyprus Institute, Nicosia, Cyprus

Keywords: dental calculus, dental wear, diet

Presentation Preference: Oral

This presentation focuses on the use of complementary methods for dietary reconstruction in a number of Early to Late Medieval assemblages from Leicestershire and Rutland, in the East Midlands, UK. These methods include the macroscopic analysis of dental wear in the anterior and posterior dentition employing estimates of the area of exposed dentine on the occlusal surface of all teeth, as well as microscopic analysis of the dietary debris embedded in dental calculus deposits (mineralised dental plaque). Such a combination of techniques has rarely been applied to date, and never before in the region examined. These assemblages were selected because dietary reconstructions, especially for the Early Medieval period, are a primary area of interest highlighted by the Archaeology Research Agenda for the region.

The Early Medieval material under study dates to 500-900 AD c. and originates in the Anglo-Saxon cemeteries of Empingham and Rothley, while the Late Medieval material dates to 1250-1450 AD and originates in the cemeteries of St. Michael's and...
St Peter’s, located in the North East quarter of Medieval Leicester. The individuals selected for this study belonged to different social groups, the elite and the poor, offering a unique perspective on social differences in food quality. The bioarchaeological methods in the study of dietary proxies in this material offer much greater resolution than any of these methods used in isolation. In specific, macroscopic dental wear provides an overall picture of the wear accumulated on the teeth throughout the life of the individual, and its degree and pattern (bilateral asymmetry: differential expression in the anterior versus posterior dentition) can provide insights into the intrinsic toughness of the food consumed as well as the extent of food processing. However, this method cannot provide direct information on the actual foodstuff that entered the mouth. The analysis of dental calculus dietary microdebris can fit in this gap, since dental calculus constitutes a primary depositional environment within the mouth and provides insights into the exact foodstuff that entered the mouth and the components of the foodstuff that formed. While this approach can identify a variety of plant micro-remains originating from food consumption often not available from traditional archaeological deposits due to preservation bias.

The combination of the above methods offered important insights to the evolution of diet from the Anglo-Saxon to the medieval period as well as to social differentiations during medieval times. Coupled with historical evidence and archaeological information deriving from the material cultural remains, the proposed multidisciplinary bioarchaeological approach has the potential to enrich our understanding of past dietary patterns by elucidating complex trends at the macroscopic and the microscopic level.

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**THS-07 Abstract 02**

**PalaeeNutrition, Coprolites, Dental Calcium, and the Celtic Curse**

**Author** - Dr. Scott Cummins, Linda, PaleoResearch Institute, Golden, United States of America (Presenting author)
**Co-author(s)** - Koznt, Barbara, PaleoResearch Institute, Golden, United States of America

**Keywords:** dental calculus, diet reconstruction, nutrition

**Presentation Preference** - Oral

In the first study of coprolites and dental calculus from the same individuals, we examine and compare dietary reconstruction from these two proxies. A population of over 500 individuals from two Early and Late Christian cemeteries in Nubia provides a human osteological record against which to compare the dietary proxies. The skeletal remains yielded evidence of numerous anomalies including orbita orbitalis, suggesting the possibility of iron deficiency anemia, and spinal fusion typical of ankylosing spondylitis, which is common among those who ate a diet high in vitamin D. Approximately 10% of the individual yielded coprolites, which were examined for pollen, phytoliths, macrofloral remains, and faunal bone. The resulting dietary record was compared across males and females and by age group for both components of the diet and dietary breadth. Diet included a grain (sorghum), multiple vegetables and fruits indicating agriculture, and meat (prociocde, pig, and fowl). Dental calculus analysis for approximately 50% of these individuals provides a dietary proxy to compare with that of the coprolites. As expected, the dental calculus record is severely limited in breadth. Comparison of these records by individual highlight those differences. Nutritional assessment of the diet included observations concerning iron, with emphasis on bio-availability. For instance, phytates, abundant in sorghum grains, inhibit iron absorption. HFE gene mutation sequencers in bodily tissues rather than eliminating it (hemachromatosis). Ancient DNA analysis that will include mapping the two alleles associated with this gene mutation is in progress. XRF analysis of dried human blood has detected elemental iron, suggesting this technique might provide preliminary data to assess relational iron loads in the tissues. First tier testing focuses on those skeletons and similarly mummified bodies from which coprolites were recovered. This analysis is ongoing and results will be reported. In conclusion, this multi-disciplinary study compares human osteological remains with dietary and nutritional studies that derive from coprolites and dental calculus. The dietary information is specific to individual, most of whom have been identified by age and sex. These anthropologists enjoyed a complex diet that encompassed grain, vegetables, fruit, and meat, some of which was represented in the dental calculus. This study forms a part of this larger investigation into the Celtic Curse (Hemachromatosis). Today, northern Europeans (and those of northern European descent) carry the majority of the genes for hemachromatosis. This, and other studies of similar nature, cross the boundaries of scientific study to link genetics, human osteology, diet, and nutrition. We used coprolite and dental calculus to identify and evaluate the diet of individuals buried in two Early and Late Christian cemeteries.

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**THS-07 Abstract 03**

**Non-Destructive Trace Element Analysis of Human Bones to Examine Diet and Mobility**

**Author** - Prof. Tykot, Robert, University of South Florida, Orlando, United States of America (Presenting author)
**Keywords:** ancient diet, bone chemistry, elemental analysis

**Presentation Preference** - Oral

The theoretical basis for elemental analysis of human diet and mobility is well-established; yet until recently the number of studies done is few and far between. Instead, analyses of carbon, nitrogen, oxygen, and strontium isotope analysis have dominated “bone chemistry” studies over the last 25 years. Nevertheless, elemental analysis of calcium (Ca), iron (Fe), barium (Ba), strontium (Sr), lead (Pb), zinc (Zn), arsenic (As) and other elements can support and supplement isotope-based interpretations, and be of significant use in cases where bone collagen is not preserved. Elemental analysis, however, has potentially greater concerns than isotope studies, due to degradation and contamination of the mineral portion of bone. Also, most previous elemental studies have been just as destructive, with samples well-cleaned, ashed, and put into solution for analysis by ICP spectrometry. Over the last decade, however, non-destructive desk-top and portable (hand-held) X-ray fluorescence (XRF) spectrometers have become widely available to archaeologists. While now regularly used for trace element analysis of obsidian and other lithics, and major element composition of metals, it appears potentially useful for studies of skeletal remains as well. In the United States and other countries, the destructive isotope analyses of skeletal remains has become increasingly difficult, and for that reason experimental studies have been conducted using the pXRF on its precision and the heterogeneity of bone surfaces versus interior, along with analyses on more than 1000 individuals from archaeological sites in Europe and the Americas. One of the studies done was on individuals from inland and coastal sites in Florida. The small amounts of variability among individuals at each site suggest little contamination, while the clear differences between the sites are most likely due to varying proportions of seafood in the diet. This was followed by analyses of many individuals from sites in Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Italy, Peru, and Portugal, most of whom were also analyzed isotopically and with interpretations made about the dietary importance of maize, millet, and aquatic resources with patterns based on sex and status.

Overall, the precision of the pXRF on most elements of interest is excellent; a separate issue however is the calibration of the raw data produced and whether the results may be compared with studies done by ICP spectrometry. Further studies are being conducted on tooth enamel and roots, to test whether non-destructive analysis may be reliable for assessing childhood diets. The reliability and utility of this method of elemental analysis of skeletal remains to study ancient diets will be discussed.

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**THS-07 Abstract 04**

**Estimating 7R Variation to Develop Chronologies for Humans and Animals with Marine-Rich Diets**

**Author** - Dr. Krua, Anthony, University of Glasgow, East Kilbride, United Kingdom (Presenting author)
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**Co-author(s)** - Hamilton, Derek, University of Glasgow, East Kilbride, United Kingdom

**Keywords:** Alaskan Arctic, Bayesian Chronological Modelling, Marine Reservoir Effect

**Presentation Preference** - Oral

Over 200 radiocarbon dates from archaeological contexts are available from the Point Barrow vicinity, along northern Alaska’s Arctic coast, which has been occupied by hunter-gatherers from the Beringian period (AD 1000-900) to the present day. Interpretation of the radiocarbon date results is hindered by radiocarbon offsets, caused by marine resources, in the diets of humans and mammals sampled for radiocarbon dating. Analysis of ancient human from the Point Barrow vicinity have thus far provided high 7R estimates, which is the local deviation from the global surface water MRE, and apply these in a Bayesian chronological model to better estimate the timing of ancient activity.

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**THS-07 Abstract 05**

**In sickness and in health. A community in death from a Neolithic Megalithic tomb (La Mina, Spain)**

**Author** - Rindlsbacher, Laura, Integrative Prehistory and Scientific Archaeology, Basel, Switzerland (Presenting author)
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**Presentation Preference** - Oral

In sickness and in health. A community in death from a Neolithic Megalithic tomb (La Mina, Spain)...
The Megalithic tomb of La Mina (Acobela de las Peñas, Soria), dating to 3890-3660 BC, is one of the unique passage graves of the Iberian Peninsula. After the communal burial chamber had been sealed, the structure was dismantled, dismantled and monumentalized, thus becoming both a ceremonial site and territorial landmark. The tomb and its artefactual faunal and human remains are in the focus of ongoing investigations focusing on cultural, social as well as bioarchaeological issues including DNA analyses (Rojo Guerra et al., 2015; Haak et al., 2015). The human skeletal remains (MN=20) were commingled and highly fragmented due to the postricket remodelling, yet the osteological analyses still revealed decisive insights into the former community (Rindlisbacher, 2015).

Neolithic megalithic tombs in Spain and other European regions hold only a select group of individuals from among the communities that built them. It becomes apparent that the life courses as well as the social status of the individuals had an impact on the decision whether or not someone was to be buried in the communal megalithic chamber. Different demographic profiles emerge for the women and men buried there, hinting at separate social roles between the sexes. There is evidence that individual health status and the influence of trauma after severe trauma might also have had an influence on the selection. Especially interesting are the distinct patterns of deficiency as well as the traces of infectious diseases which again vary between the sexes. The combined study of the demographic profile, pathologies, aDNA and the dietary data obtained in an ongoing stable isotope analysis will allow unique insights into the life histories and the health status of the societies represented in the communal monument of La Mina and widen our understanding of such sites in general. The full potential of investigations concerning past communities can only be obtained by an integrative approach encompassing archaeology, physical anthropology as well as further bioarchaeological procedures which will still continue for the Megalithic tomb of La Mina.

References:


Fish 'n' Picts: Reconstructing diet in early Medieval Scotland using stable isotope analysis

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Keywords: early medieval, Picts, Stable isotopes

Presentation Preference: Oral

First mentioned in late Roman writings as troublesome tribal groupings north of the Roman frontier, the Picts went on to become the first kingdoms in eastern Scotland in the post-Roman period. Although contemporary archaeological investigations are unsurprisingly important new information about the Picts, many aspects of the Pictish past remain elusive. Given the dearth of historical sources and current lack of Pictish domestic sites and animal bone assemblages, very little is known about many economic and social aspects of Pictish lives – such as diet. The stable isotope analysis of bone collagen is useful as a means of assessing past dietary habits, particularly the relative contribution of marine and terrestrial protein to the diet. These techniques also have the potential to investigate dietary variations within groups, such as between different biological sexes or burial types.

Here, we present carbon and nitrogen isotope data from bone collagen from a number of Pictish burials and cemeteries, providing novel insights into Pictish lifeways. Data generated are compared to limited previously-published Pictish datasets and to data from other contemporary archaeological British groups. Results suggest limited intra-group dietary variability, and a relatively homogenous diet across the areas studied. Marine fish consumption is low relative to later Medieval and Viking sites in Scotland, and in comparison to contemporary Romano-British samples, but similar to data derived from Anglo-Saxon sites. The conceptual role and importance of fish, rivers and other water bodies to the Picts is also briefly explored (particularly with regards to the positioning of cemetery sites, and the depiction of fish on Class I stones).

Scotland, and in comparison to contemporary Romano-British samples, but similar to data derived from Anglo-Saxon sites. The relatively homogenous diet across the areas studied. Marine fish consumption is low relative to later Medieval and Viking sites in Scotland, and in comparison to contemporary Romano-British samples, but similar to data derived from Anglo-Saxon sites. The conceptual role and importance of fish, rivers and other water bodies to the Picts is also briefly explored (particularly with regards to the positioning of cemetery sites, and the depiction of fish on Class I stones).

The results showed significant differences in stable nitrogen isotope ratios between coastal, urban and inland site populations (Fibiger, 2010, 123 and 128; Novak et al., 2012, 446; Novak, pers. comm.). From the analysis of vertebral osteophytosis it could be concluded that this pathology is rather related to biological factors, including age, sex and activity. The diet of the population was a mainly terrestrial one which was typical for the period (Kelly, 2000, 316 and 322; Fibiger, 2010, 127; Lahane and Delaney, 2010, 48; Novak, 2015, 1304). However, different occurrences of the dental pathologies (dental caries, dental calculus and ante-mortem tooth loss) between the sexes probably indicate slight dietary differences between males and females. The females could have consumed more cariogenic food such as carbohydrates than the males whose diet might have had a stronger protein basis, likewise observed in a composite early medieval Irish population (Novak, 2015, 1299).

In comparison to populations in continental Europe the Irish sample showed a mostly lower caries but a higher dental calculus frequency. This combination of the two pathologies would, according to Šlaus et al. (2011, 588), usually indicate a protein-rich diet. As a result this could reflect a higher significance of dairy products in the Irish diet when compared to continental Europe.

In both, Ireland and continental Europe different frequencies of Schmorl’s nodes in males and females probably indicate a specific allocation of physical labour between the sexes (Šlaus, 2000, 205; Fibiger, 2010, 128; Novak et al., 2012, 446; Novak, pers. comm.). From the analysis of vertebral osteophytosis it could be concluded that this pathology is rather related to biological conditions such as body stature, weight and age but no reliable skeletal indicator of physical workload (Van der Merwe et al., 2006, 482; Weiss and Jurman, 2007, 436). The low occurrence of trauma in the Rathfarnham population probably indicates a relatively peaceful life in which fractures occurred occasionally as a result of accidents and in which trepanation was practised.

Author: Aika Katharina Diasch (best student of the MA in Archaeology, University College Dublin, year 2014-2015)

Full title of MA Thesis: An Osteoarchaeological Study of Health in the Early Medieval Population from Rathfarnham, Dublin (97F0149 - A Comparison of the Dental and Skeletal Indicators and Historical Sources)

Presentation Preference: Oral

In this study, stable isotope analysis of human skeletons from different populations representing various regions of Lithuania (16-19th c.c.) were performed. To track dietary evidences, animal bone samples from similar places and time period were analysed as well. The results showed significant differences in stable nitrogen isotope ratios between coastal, urban and inland site communities. Meanwhile, the carbon stable isotope ratios were less variable and showed a strong dependence on the C3 plant environment. Different strategies in subsistence economy could shape the stable isotope signals in these communities. Peasants in the countryside were able to farm their land and to be self-sufficient, while living in urbanized territories was quite different. Open markets and food supply from the outside enabled people to live out from other activities. Coastal community was characterized by the higher freshwater fish consumption. The availability of the food sources was much more restricted in the past compared with the modern time global supply.

It was already determined in numerous literature sources that stable isotope ratios can differ according to the certain environment (e.g. terrestrial vs marine), therefore another aim of our study is confirmation of the possibility of allocating human remains to a particular site according to their stable isotope ratios.
Food poverty in the UK is currently on the rise and evidence from reports of public health expenditure highlights both the cost of this problem to the public and the impact that poor diet can have on the social and physical aspects of peoples’ lives. There are many disciplines which can be used to examine the effect of food poverty on the British population, the three involved in the research behind this paper are, nutritional epidemiology, history, and archaeology. Each of these subjects has its strengths and weaknesses that modern studies have attempted to understand the changes in the nutritional profile of food poverty which is still prevalent today.

Nutritional epidemiology is concerned with the impact of nutritional quality on a population’s health, and is often involved in providing guidelines for public health policies. Concerned only with the recent past, but more focused on the present, nutritional epidemiology is a method for examining modern food poverty. Contrary to this, history only reveals information about past public health through records of the time, such as poverty surveys and government policy records. Evidence for poverty in the archaeological record can be found using landscape archaeology, the archaeology of buildings, and osteoarchaeology.

Although the approaches are very different, all three disciplines often have data about populations rather than individuals. Whilst nutritional epidemiology relies on the geographical or social aspects of individuals to define these groups, when working in archaeology it is possible to define groups by historical periods as well as the geographical location of the burial site and other social and cultural dimensions of any skeletal populations under investigation.

This paper aims to introduce a new method of studying diet using these three disciplines, and highlights the value of the approach in examining public health in the past and present, to make informed suggestions for the future. That modern clinical and surveys help to form an understanding of the past is indisputable, and the public is made aware of the osteological and historical evidence and research to place the dietary habits of these populations within a wider framework. For example, during the EBA in Anatolia, and especially between the early and late EBA, dramatic changes are seen in architecture, burial habits, and social and socio-political structure including the organisation of urban settlements, resources, food, labour, and trade. There is also an increased incidence of peri-mortem cranial traumatic injuries which are indicative of an increase in interpersonal conflict and arguably an increase in organised violence during the period. This is furthered by the building of fortifications and burnt layers at many EBA settlements in Anatolia. Despite the substantial social and socio-political changes during the period, the results show that during the EBA in Anatolia there is a significant degree of homogeneity in dietary habits both at an intra- and inter-site and region level, and across the millennia of the EBA within the C3 based. Furthermore, the results suggest that we can now begin to discuss an “EBA package” with regards to food resources.

This talk is the result of research as part of a doctoral focus examining the dietary habits of several Early Bronze Age (3000-2000 BC) populations in Anatolia. The investigated sites are from different environmental regions and consist of Late (north Anatolia, Samsun region, on the Black Sea coast), Tilig Höyük (south east Anatolia, Urfa region), Bademagac (south Anatolia, Antalya region), and Bakla Tepe (south west Anatolia, Irmı region). This research is incredibly significant as it is the first time that quantitative scientific methods have been used to address questions and hypotheses about dietary habits in the EBA period of Anatolia.

It is the first time that stable isotopes analyses have been used to study diet in Anatolian populations, and is the first project of its kind both in terms of methodology and scale. Analysis of carbon and nitrogen stable isotopes (δ13C and δ15N) was employed on bone collagen from ca. 200 human and faunal osteological samples taken from the Anthropology Lab of Hacettepe University, Ankara Turkey, and was conducted at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany. The research is a bioarchaeological one and therefore it utilises stable isotope analyses in conjunction with osteological and archaeological evidence and research to place the dietary habits of these populations within a wider framework. For example, during the EBA in Anatolia, and especially between the early and late EBA, dramatic changes are seen in architecture, burial habits, and social and socio-political structure including the organisation of urban settlements, resources, food, labour, and trade. There is also an increased incidence of peri-mortem cranial traumatic injuries which are indicative of an increase in interpersonal conflict and arguably an increase in organised violence during the period. This is furthered by the building of fortifications and burnt layers at many EBA settlements in Anatolia. Despite the substantial social and socio-political changes during the period, the results show that during the EBA in Anatolia there is a significant degree of homogeneity in dietary habits both at an intra- and inter-site and region level, and across the millennia of the EBA within the C3 based. Furthermore, the results suggest that we can now begin to discuss an “EBA package” with regards to food resources.

TH5-07 Abstract 16
Diet and identities in a mining community, Sweden - documents and isotopes
Author - PhD student Bäckström, Ylva, Lund University, Låttorp, Sweden (Presenting author)
Co-author(s) - Dr. Britton, K., King’s College, Aberdeen University, Aberdeen, Scotland, United Kingdom
Co-author(s) - Dr. Ingvarsson-Bååtström, A., Museum Gustavianum, Uppsala University, Uppsala, Sweden
Co-author(s) - PhD student Fjällström, M., Stockholm University, Stockholm, Sweden
Keywords: dietary patterns, the Reformation, late medieval-early modern, identities, Silverberg mining community, Uppsala Cathedral
Presentation Preference - Poster

What distinguishes the diet in late medieval and early modern society from today was a profound influence by religion and ideas about the body. During the 16th century, the Reformation brought forward a new dietary regimen. Undoubtedly, this change was probably neither easy nor fast, and it took some time for people to adjust to this new regimen. In this paper, isotopes (stable nitrogen and carbon isotopes in collagen) and documentary sources are presented, and intra- and interpopulation comparisons are made, to investigate this dietary shift and the influence of group identities on diet.

TH5-07 Abstract 17
On the Diet of the Urals Population of the Great Migration Epoch
Author - Prof. Matveeva, Natalya, Tyumen state university, Tyumen, Russian Federation (Presenting author)
Keywords: chemical analysis results of skeleton composition
Presentation Preference - Poster

This report proceeds the author’s works studying the bone chemical composition of individuals from Sargatka culture ancient graves of the forest-steppe of Western Siberia. Recently we have analyzed data on the population inhabiting in late Early Middle Age epoch, in particular the disintegration period of the Sargatka culture using the uniform methods. The chemical analysis results of skeleton composition (30 individuals) came from Ustyug-1 burial complex and were dated as later ones, although it was from the Trans-Urals region of forest-steppe zone as well. We examined the materials of 19 kurgans of the Tobol basin, Tyumen region, which were dated by IV-V centuries AD. The site was determined as one of the beginning of population formation of Bakalaykaya culture and time of assimilation of Kushannoreko, Sargatka, Khaskho, Karim culture groups and Middle Asia genesis group. The fact of the assimilation was based on the archaeological and anthropological sources. There are interferences values of ash and basic 13 minerals (Ca, P, Mg, Fe, Mn, Zn, Sr, Cu, Ni, Co, Cr, Pb, Pb) as markers of different diets. Macro- and micromineral composition of bone substance of buried people is shown as mean of selection as a whole and separately for men and women, as well as for children groups. The statistic significant differences displayed in greater values of Zn, Cu for women and children. There was ascertainment of scarcity with the past dietary tradition and the published data of culture of Sargatka, this lack of consistency was defined by nomadic food tradition of the people buried in Ust-yug-1 cemetery. There was a suggested idea that there was a relatively high wealth of populations from the point of view of mineral balance, based on comparison with modern medical data. We can suppose, that some individuals used stagnant water and wore copper decor (jewelry, clothing elements, have used copper cockwains) for some time. The information on the migration of nomads from the steppe zone, which was extracted from archaeological sources, was confirmed by chemical data.
GEOARCHAEOLOGY OF PREHISTORIC SETTLEMENTS: NEW INSIGHTS INTO USE OF SPACE, DWELLINGS, HOUSEHOLD ACTIVITIES AND LAND USE

Friday, 2 September 2016, 09:00-16:00
Faculty of Philology, Room 92

Author - Wattaz, Julia, INRAP, Paris, France (Presenting author)
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Keywords: geoarchaeology, prehistory, settlement

Presentation Preference - Workshop

Many archaeological studies of prehistoric domestic contexts (i.e., Mesolithic, Neolithic and Early to Middle Bronze Age) focus still on the characterisation of occupation surfaces and structures, in order to understand the function of the site and its spatial organisation. Yet, the task of identifying and studying occupation surfaces and site stratigraphy in prehistoric contexts is very challenging. For instance, Neolithic sites demonstrate a large variability in their stratigraphy. Occupation surfaces are often weakly expressed, mainly characterized by the concentration and presence of artefacts, or not preserved at all, due to natural erosion or recent ploughing. In some cases, only noticeable features such as postholes, pits and ditches can be detected - for example among LBK Longhouses or West European enclosures. The infilling of pits and ditches is generally related to dumping or to natural post-depositional processes while the function of the pits usually stays unknown (i.e. sunken-floor dwellings, sites, deep pits or ditchgruben). Multi-layered sites, characterised by massive accumulation of earthen building materials (i.e. mudbricks), such as the Balcan and Near Eastern tells raise a set of additional complications for understanding the stratigraphical record.

The geoarchaeological research sheds new light on these questions. By applying different approaches (i.e., geomorphology, stratigraphic analysis, micromorphology and geochemistry) geoarchaeologists are able to identify cultural and natural formation processes and to evaluate the state of preservation of the archaeological record - site taphonomy.

This paper presents the new developments in the geoarchaeological research, in which interdisciplinary approaches were able to improve our understanding regarding prehistoric use of space at both domestic and environmental contexts, from rural to proto-urban settlements. Interdisciplinary papers and posters are encouraged, as well as ethnoarchaeological and experimental studies.

TH5-10 Abstract 01
Investigating use of space: Geoarchaeological research at Çatalhöyük

Author - Dr. Shilts, Lisa-Marie, Newcastle University, Newcastle, United Kingdom (Presenting author)
Keywords: geoarchaeology, multi-proxy, use of space

Presentation Preference - Oral

Many methods have been applied at Çatalhöyük World Heritage Site, including micromorphology, microartefact and geochemical analyses, and micromorphology. Whilst interdisciplinary approaches have provided insights into use of space and activities, there is still a gap between macroscale and microscale approaches. The history of analyses provides an opportunity to highlight advantages and problems of different methods, and identify future directions for multi-proxy approaches in archaeology.

TH5-10 Abstract 02
They are still there! Identification and characterisation of Neolithic surfaces in Paris Basin

Author - PhD Onfray, Marylise, UMR 8215- Trajectoires, Paris, France (Presenting author)
Co-author(s) - Wattaz, Julia, INRAP, Paris, France
Co-author(s) - Demoule, Jean-Paul, UMR 8215- Trajectoires, Paris, France
Keywords: Late Neolithic, Occupation surfaces, Soil micromorphology

Presentation Preference - Oral

Late Neolithic soil occupation patterns in southern Parisian Basin are still not completely understood. In inhabited contexts, the characterisation of the architecture and the distribution of activity areas is really difficult. Few years ago, domestic sites were only known by few excavated sites. Nevertheless, very thin and massive anthropogenic layers were regularly discovered. These layers contain materials (potsherds and lithic fragments) which form more or less thick concentrations. They are located in different topographic positions: plateau, slope, bottom of the valley. The older are dated to the middle Neolithic and their number increases during the late Neolithic. They were judged as disturbed layers due to posterior erosion or modern ploughing but their real nature was not proved by extensive analysis. The question of their nature is still discussed: are they disturbed layers or preserved occupation surfaces? Until now, the second hypothesis was only suggested by the preservation degree and the spatial and stratigraphic repartitions of artefacts. Few geoarchaeological research were carried on this subject. Current research based on soil micromorphology lead to the identification of formation processes of these anthropogenic layers, using spatial samplings. It consists to sample in different points inside and outside the concentration of artefacts, in order to identify variations in sediments record. The micromorphological analysis shows that these layers are real preserved occupation surfaces. Moreover, they reflect different use of space which record several activity areas, inside or outside the buildings. The development of these occupation surfaces are highly influenced by the presence and the distance from the earthen and the stone structures.

The aim of this communication is to compare the first results of spatial analyses carried out on sites set either on plateau (site of Pouardy) or on slope (site of Pusigny).

TH5-10 Abstract 03
Building in the detail: micro-stratigraphies of Neolithic structures at the Ness of Brodgar, Orkney

Author - Dr. McInerney, J., University of Bradford, Bradford, United Kingdom (Presenting author)
Co-author(s) - Card, University of the Highlands and Islands Archaeology Institute, Kirkwall, United Kingdom
Keywords: micromorphology, occupation surfaces, structure biographies

Presentation Preference - Oral

Since 2004, excavations at the Ness of Brodgar, within the ‘Heart of Neolithic Orkney’ World Heritage Site, have revealed a large complex of monumental Neolithic structures spanning over a millennium of activity. These structures show evidence for complex biographies potentially reflecting both ritual and domestic activity. Excellent preservation of in-situ deposit sequences comprising occupation and surface layers are complemented by rich and complex artefact assemblages, unique artwork, and well-preserved suites of environmental material. An extensive and ongoing programme of micromorphological sampling has complemented the excavation strategy within the Ness of Brodgar structures, with the aim of addressing questions of building function and significance, settlement organisation, the use of interior space, and patterns of resource utilisation.

This paper presents the analysis of micromorphological sequences from two key structures currently undergoing excavation: Structure 1 and Structure 8. These vary significantly in size, shape, internal layout, the depth and complexity of surviving deposits, and episodes of remodelling through time. Requiring two very different approaches to sampling, the resulting micromorphological sequences highlight the importance of detailed integration not only with excavation strategy, but also supporting geoarchaeological and environmental techniques. Structure 1 shows a very detailed and clearly defined sequence of interior deposits which provide a unique insight into the complex biography of a building which saw extensive remodelling through time. Here, the micromorphological sample set examines an extensive vertical sequence of in-situ deposits adjacent to the central point of the structure and its large monumental hearth. These span several episodes of carefully constructed surface which alternate with occupation related deposits rich in anthropogenic inclusions. Of particular interest is the changing composition of these surface constructions through time, and the potential relationship of this to internal layout and the remodelling of the building as a whole – do the compositions of these surfaces have a significance beyond the practical?

Contrasting with this is the sample set from the very different Structure 8. Over 18m long and featuring a large and diverse set of features such as cists, hearths, internal divisions and recess areas indicating potential specialist activities. Structure 8 shows a far thinner sequence of surviving internal deposits - the result of a short life span due to subsidence and collapse. This prompted a very different micromorphological sampling strategy. Individual samples precisely located at points of interest within and adjacent to not only key structural features, but locations referencing the interior geography of the building provide an opportunity to explore both the micromorphotactic of specific areas within Structure 8, and the use of space within the building through time.

TH5-10 Abstract 04
Canals fills archives: environment and water management in Sarazm (Tajikistan) during Bronze Age

Author - PhD Student Caz, Lucie, University Panthéon-Sorbonne, Nanterre, France (Presenting author)
Co-author(s) - Wattaz, Julia, INRAP, Paris, France
Co-author(s) - Pattit, Christophe, University Panthéon-Sorbonne, Nanterre, France
Co-author(s) - Fouache, Eric, University Panthéon-Sorbonne Abu Dhabi, Abu Dhabi, United Arab Emirates
Keywords: Canals sedimentary fills, Geoarchaeology, Micromorphology

Presentation Preference - Oral

This session aims to present the new developments in the geoarchaeological research, in which by an interdisciplinary approach researchers were able to improve our understanding regarding prehistoric use of space at both domestic and environmental contexts, from rural to proto-urban settlements. Interdisciplinary papers and posters are encouraged, as well as ethnoarchaeological and experimental studies.
TH5 Science and multidisciplinarity in archaeology

Urban settlements playing a major role at the La Tène period

In this way we can draw a “biography” of a single built space, useful to understand cultural architectural patterns, not always visible in the macroscopic archaeological record.

To date, more than 600’000 artefacts and 900’000 animal bones have been recovered, mostly from infilled storage or cellar pits. Numbering more than 500, these represent the most frequent archaeological structures in the settlement. Recent interdisciplinary investigations showed that the majority of the archaeological findings are associated with dark sediments which contain plenty of inorganic and organic components such as ashes, claud and burned bone fragments as well as charred plant remains and coprolite fragments. Those dark, calcareous sediments may clearly be addressed as “occupation layers” and form a major source of material used to fill in the settlement’s pits. Geoarchaeological investigations showed that the pits were infilled in a short time in the course of just one or two distinct events. Thus the question is raised as to how and where those dark sediments were formed before they were used as backfill.

To a Mexican Geoethnoarchaeology

The presence of perishable dwellings, built with wood and earthen materials, that normally don’t leave clear traces except for post holes, make the comprehension of built spaces very difficult. In northern Italy, several types of dwellings – dating back to the 2nd millennium BC – are archaeologically documented.

In order to understand the nature of the buildings and their relationship with courtyard spaces, a spatial geoarchaeological sampling has been carried out in the site. A first attempt, based on soil micromorphology, is here presented: both the inside and the outside of a presumed roofed space are sampled.

The analyses focus on the local pedotectonic markers, on the trampling traces and on the provenance and nature of different soil components. The aims of these first observations are to recognize the presence of roofed spaces, to understand the real extent of the building floors and, generally, that of the dwellings; finally, they tend also to define the evolution of the building during its life.

In this way we can draw a “biography” of a single built space, useful to understand cultural architectural patterns, not always visible in the macroscopic archaeological record.

TH5 10 Abstract 08

Use of space in metalworking - Spatial analysis of working areas by systematic soil sampling

Metallurgy is often considered only in terms of the primary technological processes involved, but is in fact a complex of processes taking place within a more or less well defined “room” or space. Instead of only focusing on what is going on within the crucible or forger’s hearth, it is therefore important to see what is going on around the hearth. Geoarchaeological investigations are important to see both, the hearth itself as well as a larger or smaller workspace. The workspace can be defined as a building with solid walls, but may also be more undefined, or even a network of independent areas. A workshop might just be defined by the process as “the place where you sit down to work”,

TH5 10 Abstract 07

Firing Divices in Tarascan Land, Zipiajo, Michoacán, Mexico:
To a Mexican Geoethnoarchaeology

To date, more than 600’000 artefacts and 900’000 animal bones have been recovered, mostly from infilled storage or cellar pits. Numbering more than 500, these represent the most frequent archaeological structures in the settlement. Recent interdisciplinary investigations showed that the majority of the archaeological findings are associated with dark sediments which contain plenty of inorganic and organic components such as ashes, claud and burned bone fragments as well as charred plant remains and coprolite fragments. Those dark, calcareous sediments may clearly be addressed as “occupation layers” and form a major source of material used to fill in the settlement’s pits. Geoarchaeological investigations showed that the pits were infilled in a short time in the course of just one or two distinct events. Thus the question is raised as to how and where those dark sediments were formed before they were used as backfill.

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In this way we can draw a “biography” of a single built space, useful to understand cultural architectural patterns, not always visible in the macroscopic archaeological record.

TH5 10 Abstract 06

Geoarchaeological investigation of waste disposal practices at the Lateño settlement Basel- Gasfabrik

The late Iron Age settlement Basel-Gasfabrik is located in north-western Switzerland on the left bank of the Rhine River. Since 1911, numerous excavations revealed an unfortified settlement with domestic and economic structures covering an area of about 1550x1440 m², which is characterized by a number of associated cemeteries in short distance. Basel-Gasfabrik is among the large, unfortified, proto-urban settlements playing a major role at the La Tène period and usually connected with trade and craft production, both of which also apply to Basel-Gasfabrik.

TH5 10 Abstract 05

Geoarchaeological portrayal of decayed dwellings at the Bronze Age settlement of Solarolo (Italy)

Since 2008 the University of Bologna has been carrying out archaeological researches in Solarolo, a Bronze Age village located in the southeastern part of the river Po plain, in northern Italy. The preserved stratigraphy refers to the central phase of the Italian Middle Bronze Age (about 1550-1450 BC).

The presence of perishable dwellings, built with wood and earthen materials, that normally don’t leave clear traces except for post holes, make the comprehension of built spaces very difficult. In northern Italy, several types of dwellings – dating back to the 2nd millennium BC – are archaeologically documented.

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In this way we can draw a “biography” of a single built space, useful to understand cultural architectural patterns, not always visible in the macroscopic archaeological record.
or by the room as seen in medieval buildings serving as multi-purpose workshops. The surrounding landscape and the social context of the "workshop" might also influence its organisation.

New methods of systematic sampling of workshop floors and working areas found at archaeological excavations, together with analysis of process waste, provide a picture of the physical organization of work within "workshop". I this way the different processes going on in a workshop can be defined in detail, as well as the physical place where they take place. Even movements of the craftsmen between the different parts of the workshop might in some cases be visible. The organization of the workshop and of the tools used, charcoal, and the dragging of the smaller fractions of debris such as hammerscale, from the areas in which they originally have been deposited.


***TH5-10 Abstract 09***

Function, environment and dating of Mesolithic sites in Champagne: malacological answers

**Author** - Granai, Salome, GeochArCh, Vixville-sous-les-cotes, France (Presenting author)

**Keywords** - malacology, Mesolithic, palaeoenvironment

**Presentation Preference** - Oral

In the past two years, in Champagne (France), malacological investigations have been carried out in pits dated from Early Mesolithic to Late Neolithic. In 2014, at Rouilly-Saint-Loup Le Champ au Loup (Aube), a first analysis of three pits has led to assess the scope of malacological results in such structures. The results of this first exploratory study have prompted the pursuit of larger-scale investigations, in 2015, at Recy Le Parc de Référence (Marne), where malacological assemblages of about forty structures have been analysed. The presence of abundant malacological remains within the most structures demonstrates that they have been left open after their digging and then filled gradually by a natural accretion of sediment and organic matter. In addition, the composition of molluscs living in contemporary environments allows two scenarios: either these two sites has enabled to reconstruct their environment and its evolution, or the studied structures have been dug in a forest environment but the proportions of the different molluscan species vary through time. The malacological successions found in Champagne are echoed in the malacological reference series dated from the first part of the Holocene in the Paris-Basin and its margins. In light of these reference series, some radiocarbon dating from Rouilly-Saint-Loup and Recy are questioned.

***TH5-10 Abstract 10***

Humans and Early Holocene environment in southern Cyprus: The case of Klimonas (PPNA)

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**Keywords** - Cyprus, Geomorphology, Neolithic

**Presentation Preference** - Oral

The site of Klimonas, in the district of Limassol in Cyprus, constitutes the most ancient human village in the island. Klimonas was occupied from c. 11 000 to 9 500 cal. BP, during the PPNA, and around 8000 cal. BP, during the PPNC. Malacology, charcoal, and the dragging of the smaller fractions of debris such as hammerscale, from the areas in which they originally have been deposited. A number of examples ranging from the organisation of one roasting and iron smelting sites in the Iron Age to medieval smithies are presented.


***TH5-10 Abstract 11***

From water to land and back: multidisciplinary researches at Marine Cave of Bergeggi (Italy)

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**Keywords** - Geomorphology, Prehistory, Submerged site and cave

**Presentation Preference** - Oral

In late nineteenth century, the geologist Arthur Issel first recognized the importance of the Marine Cave of Bergeggi (Bavona – Liguria, Italy), where he found a complete stratigraphy referring to Quaternary, with different stages of marine transgression and regression. The site is fact known in the largest karst cave and the most important coastal cave of Liguria, with a submerged and an emerged part, both shaped by marine processes that occurred during different sea level changes. After these earliest researches, and during many decades, the cave has been then examined both by geologists and by anthropologists, with different aims, often not converging. While on the one hand the possibility to examine geological sea-level markers has allowed scientists to achieve information about the geological sequences of this trait of coast, and on the other hand, anthropologists and archaeologists have limited their studies to the recovery of artifacts coming from the emerged section of the site, without running proper researches. This kind of investigation has lasted until the last quarter of the 20th century, when the archaeological study of the cave has been abandoned. In recent years, a team of geomorphologists has then identified some marine and continental deposits, landforms of marine origin (i.e. marine wall grooves and L. Lithophaesa bands), as well as one of the best documented marine wall grooved to M.S. 5.5 of the whole Tyrrhenian coast.

In the light of these new data, and thanks to the possibility to examine the submerged section by diving directly on site, the writer has then conducted, in 2014, a non-invasive archaeological survey of the whole site, including both the emerged and the submerged section. The possibility to compare the data achieved during these surveys to those obtained by geo-morphologists has then permitted to propose a sequence of human occupation of this cave during prehistory. The studies conducted by these latter, in fact, even if unfortunately limited to the emerged section, have given us the first absolute dating of the geological layers of the cave. More in detail, the chance to observe the effect of the sea on the general topography of the cave, as well as on the stratigraphy of the different funnels that form the emerged and the submerged section, has permitted to propose a possible diachronic development of the site, allowing us to recognize four different stages, dating from the middle Palaeolithic to the Iron Age, when the cave has been in use in different parts. All these stages have then been related to archaeological materials found during this and during earlier campaign, studied by the writer on permission of the Archaeological Museum of Florence.

***TH5-10 Abstract 12***

Subalpine soil memory and legacy (French Alps)

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**Keywords** - human activities, legacy, subalpine ecosystems

**Presentation Preference** - Oral

In the Alps, humans used the subalpine area since the Mesolithic: first used for hunting and gathering, then pastoralism suggested since the Neolithic (Giguet-Covex et al., 2014; Ponel et al., 2011; Schéder et al., 2015). This activity intensified during the Bronze Age (Ponel et al., 2011; Roepke and Krause, 2013; Walsh et al., 2014). Subsequent fluctuations in pastoral pressure are specific to each site. Mining also developed at high altitude, especially during the Medieval Period (Gaedon et al., 2012; Py et al., 2014). All these activities impacted mountain ecosystems. Some palaeoenvironmental studies also revealed long-term impacts, especially on plant cover and vegetation (Bosset et al., 2013; Giguet-Covex et al., 2011; Panou et al., 2015). However, until recently, little was known about the legacy of these activities on archaeological sites. Here, we propose to apply geochemical analyses (XRF, GCxGC, HS-qPCR…), botanical survey and environmental DNA (eDNA) analyses on mountain archaeological soils, to track the “soil memory” and the “ecosystem memory” (i.e. the legacy).

A series of on- and off-site samples were taken from different structures (enclosures and complex of huts/cabins) dated to the Bronze Age, Medieval and modern periods, across the Faravel plateau (2107-2380 m a.s.l, French Alps) (Walsh and Mocci, 2011). Samples were also taken at higher altitudes where the pastoral pressure is very low today. Surveys outside the pastoral structure will be used to assess the modification of plant cover linked with the use of the structure. The study of plant environmental DNA (eDNA) allows to determine the presence and abundance of species that cannot be collected with seed or pollen trapping techniques. This approach is currently used in subalpine areas to follow the evolution of plant communities impacted by anthropogenic activities.
This paper will present, in particular, results from XRF analyses, which reveal differences in phosphorus (P) content on and off site. We will also detail the ecological preferences of plants relative to the nutrient content on and off site. The presence of certain plants exclusively inside structures (e.g. Quercus robur L.) is an indicator of the influence of the past human activities hundreds of years ago on these micro-socio-ecological systems. However, this "legacy effect" is not apparent on the Bronze Age (4200 years old) enclosure, which raises the question of the time required for the resilience. Another interesting result is the presence of lead inside the modern structures. These results reveal the soil memory effect linked with ancient mining activity. Lead in soil and peat cores taken around the study area revealed lead pollution during both, the Roman and the Medieval periods. The presence of mines used between the 10th and 13th centuries (Ty et al., 2014), at least attests the local origin of the pollution for the Medieval Period. These results support the assumption that the lead detected in soils from the medieval cabin is related with the medieval mining activity, the hut being probably used for (stocking and) metalurgical activities.

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THS-10 Abstract 13

**Title:** Gone with the winds: huts or tree wind-throws at Late Prehistoric open-air settlements of NW Iberia

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**References:**

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THS-10 Abstract 14

**Title:** At the Foot of the Cliff - exploring early human occupation of the inlands of southern Italy

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**Keywords:** geophysical prospection, methodology, pre- and protohistoric archaeology

**Presentation Preference:** Oral

In mountainous landscapes, strong landscape taphonomic processes go on for long periods, detecting and assessing the evidence for prehistoric occupation can be very difficult. In this paper the authors, from the Universities of Groningen and Amsterdam (Netherlands), highlight occupation remains in a landscape context which is hard to investigate, but which also provides unique site preservation conditions: namely, debris slopes at the foot of steep limestone rock faces.

We present recently obtained results from the Rural Life in Prehistoric Italy project, which aims to develop improved approaches for the detection and study of ephemeral pre- and protohistoric remains in Mediterranean environments. The earliest settlement remains recorded in the basin of the Ragoneto River, our study area in Calabria, southern Italy, are located at the tip of such debris slopes covering the foot of South- and East-facing limestone scarp. These remains present as very dark, fine-grained deposits containing fragments of pottery, bone and charcoal interpersed with dark patches, which are difficult to detect in archaeological surface surveys due to the remoteness, extreme relief, ongoing deposition processes, and adverse vegetation. However, our multidisciplinary investigations (including soil studies, geophysical prospection and high-resolution archaeological studies) show that such sites contain surprisingly well-preserved remains, including a wealth of environmental data on early subsistence strategies.

The paper focuses on these debris slope sites. Site RB12a was initially exposed by quarrying activities, revealing deposits with pottery, bone, and charcoal, a surface survey of the wider area revealed several more protohistoric artefact scatters and at least two more ‘black earth’ deposits within the debris slope below the Timpa SantAngelo limestone cliff, indicating long-term use from the Middle Neolithic to Bronze Age. The second site, RB15a, is located in a similar South-facing debris slope, but is exposed by the incising gully of a seasonal stream; the archaeological stratigraphy in the gully section revealed deposits and materials from the Late Neolithic to Iron Age. At the third site, RB130a, located in the debris slope East of the Timpa di San Lorenzo cliff, discovery was aided by erosion caused by goat and tourist trampling; we excavated a small test pit which yielded a surprisingly deep stratigraphy of 1.90m, with three distinct Middle Bronze Age phases. In this paper, we will show how we adapted our research strategy to investigate these three sites, focusing on their formation, on the well-preserved botanical and zoological records indicative of early upland exploitation, and on the implications this has for our understanding of late pre- and protohistoric settlement and land use strategies in the Mediterranean uplands.
remained undetermined for a big proportion of features due to complete absence of artefacts. Therefore, the essential tasks of geoarchaeological investigation was to trace anthropogenic criteria, if there were any. Multivariate statistics were performed for up to 20 variables including element geologically relevant, which was indeed difficult to directly interpret chemical soil data in term of ancient human activity. It is possible to trace archaeology, even if there is no material evidence, and this is of great practical relevance to numerous sites of so far un-established archaeological value.

TH5-10 Abstract 16

Tracing the ditch from Zhabotyn Early Iron Age settlement (Ukraine) using magnetometry

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Presentation Preference - Oral

At the end of IX – beginning of XIII century BC revolutionary changes occur in of Middle Dnieper area (Ukraine), relating to Cherniakskaya culture. All settlements and villages of Cherniakskaya culture, located mainly on the first and second terraces of the river, suddenly cease to exist. New settlements occur in a completely different topography, on the high areas of the watershed and the plateau. These are the settlement of the so-called Zhabotyn phase distinguished after eponymous and reference Zhabotyn settlement. New settlements also have a large area - from 10-20 to 100 hectares and are arranged in clusters. All of them have no visible fortifications, but they are located on the topographical plots, which provide natural protection, being surrounded, usually, on three sides by deep gullies.

New research carried out on Zhabotyn settlement provided new information about its topography features and the defense system. In the central part of the settlement the ditch was revealed and partly excavated. The ditch divides the settlement with total area of 50 ha into two parts. The ditch was recognized from magnetic survey and traced along 180 m. Total depth of the ditch is 4.20 m. The ditch is observed from the depth 0.8-1 m. It is obvious that the ditch was formed mainly due to later building horizons. The width of the ditch corresponds with the width of the ditch in the upper part (to the depth 2.30 m). The ditch was laid on early but not the initial stage of settlement being, it had been preceded by earlier constructions. Archiac constructions and complexes synchronous to ditch were observed both sides of it. For the new research purposes the ditch is controversial. We can assume that it was dug for the defense, as evidenced by its characteristic profile (wall are almost vertical in the lower part of the ditch and the bottom is very narrow). But defensive ditches, as a rule, correspond to terrain, shielding from the open field. Defensive ditches were dug on opposite sides of the village, located on a narrow headland or surrounded by gullies. The role of the ditch could be not purely defensive, but religious or “social”, separating two areas of the settlement with different purposes.

TH5-10 Abstract 17

Transcending disciplines in integrated studies of the Early Iron Age sites in Slovenia

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Keywords: Early Iron Age, integrated studies, Transcending disciplines Presentation Preference - Oral

Integrated studies of the Early Iron Age landscapes have in the recent years witnessed a tremendous upswing. Archaeology has thus become a melting pot for diverse disciplines, which in a way also met their borders in complex conditions of prehistoric settlements and their landscapes. Our first research step was always aimed at the understanding the basic geology of the area, which was studied with the help of ALS derived data. The next step we took was a geological and geomorphological field surveys, whereas selected crucial areas were researched also with various geophysical methods, e.g. magnetic method using measurements of total magnetic field by applying corrections of diurnal variations using base station as well as magnetic polarization in gradient mode, GPR method from very low to high frequencies (50-450 MHz), low frequency EM method and measurements of top soil magnetic susceptibility.

The groundtruthing of the identified features, natural or anthropological, was then conducted to determine the areas for intensive geophysical surveys, using a range of different techniques and analytical methods, covering wide areas of the settlement and its surroundings, including iron working areas, the flat cremation cemeteries or barrow cemeteries.

With the next step, the geochemical mapping with a XRF, which we have carried out on one settlement so far, has invited also chemistry into the circle of disciplines, creating the integrated maps of the researched sites. Preliminary conclusions on archaeologically relevant correlations between different data sets are based on multivariate statistical analyses adopted to specific natural settings on metamorphic rocks.

As the last field research step we have applied low- and medium-invasive archaeological methods as drilling or test-trenching. The wide range of data, which was created by applying different methods deriving from various disciplines, has ‘forced’ us into not only interdisciplinary but rather transdisciplinary research. Under such circumstances scientists from various disciplines can not only do their research, but have to combine and intertwine it with others to produce common results, which are not a sum of the included data, but its multiplied product.

(Further co-authors: Matej Dolinec, Nina Zupančič, Manca Vinazza, Igor Medarčič, Matjaž Morji, Patra Basar)

TH5-10 Abstract 18

Resources & disposal in an island landscape: microarchaeology at the Ness of Brodgar, Orkney

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Keywords: geoaarchaeology, neolithic, orkney

Presentation Preference - Poster

Pilot work at the Ness of Brodgar have shown a range of deposits in middens, including ashes, burnt bone and organic remains. This research is investigating the materials being exploited, through analysis of these ash deposits and how this varied spatially and through time. Using a combination of micromorphology, geochemistry and pyrolysis analysis we can detect traces of fuel use that are often missing from the charred macrobotanical record.

TH5-10 Abstract 19

Microbiological and environmental biominalization in the Neolithic hypogeoal Hal Saflieni, Malta

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Keywords: Biodeterioration, Biomineralization, Geomicrobiology

Presentation Preference - Poster

Work carried out within the tender H2023/2015 committed by Heritage Malta to Ecogeo srl di Bergamo, Italy and Joseph Cachia & Son Limited, Malta.

The phenomenon of the megalithic architecture developed in the Maltese Islands during the Neolithic between 3500 and 2500 BC yielded some of the oldest free-standing megalithic structures anywhere in the world.

The Hal Saflieni Hypogeum is an underground rock-cut burial site, with both carved and built elements similar to the architecture found above ground. It is organized on three levels, which were progressively carved starting from the surface level.

The oldest level dates from about 4000 BC; subsequent chambers were added later and filled with funerary deposits up to the Tarxien Phase (3000-2500 BC).

The Middle and Lower levels were delicately carved by a variety of tools, currently under study. Specialized both for excavating the soft bedrock, i.e. the Globigerina limestone, and for the final sculptural profile to be obtained and painted. Indeed, ceilings and the uppermost exposed walls, were painted with varying red ochre designs, such as hexagons and spirals. These are currently threatened by several mechanisms of rock surface alteration and biotransformation. During a two season campaign in 2015-2016, microbiological, palyno-micrological and fluorescence studies were carried out in order to improve the understanding of the deterioration mechanisms active within the hypogeum. The study of microbial communities was approached by molecular analysis (Next Generation Sequencing), direct observation in light, fluorescence, electron microscopy and MALDI-TOF (Matrix Assisted Laser Desorption/Ionization Time-of-Flight) mass analysis technique.

The pollen influx to the hypogeum was studied both on traps to measure the airborne fraction, and on the sediment recently collected at the floor surface. As the last field research step we have applied low- and medium-invasive archaeological methods as drilling or test-trenching. The wide range of data, which was created by applying different methods deriving from various disciplines, has ‘forced’ us into not only interdisciplinary but rather transdisciplinary research. Under such circumstances scientists from various disciplines can not only do their research, but have to combine and intertwine it with others to produce common results, which are not a sum of the included data, but its multiplied product.

(Further co-authors: Matej Dolinec, Nina Zupančič, Manca Vinazza, Igor Medarčič, Matjaž Morji, Patra Basar)
Through electrical topography, the rock surface was indirectly explored to a depth of 10 cm to identify any subsurface alterations.

An experimental survey of UV fluorescence of some rock surfaces provided further information on biomineralization and revealed ochre designs which had been obscured by recent and old incrustations and biomineralization. Finally, the surface distribution of biomineralization, biofilm and cutans types was mapped.

TH5-10 Abstract 20
Housebuilding adaptation to the environment in the Neolithic of the south of Western Siberia

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Keywords: Environment, Housebuilding, Neolithic, Western Siberia
Presentation Preference - Poster

Natural capabilities and intellectual basis (set of skills and knowledge) of people at a particular time inseparably connected and could be considered as an adaptive resource of ancient groups.

Within this approach we have analyzed the archaeological materials of excavations of the Neolithic settlements on the Mergen lake, which have been carried out for several years in the forest-steps of Western Siberia. We focused on the details to illustrate the adaptation techniques of housebuilding to the environment in the mid-Holocene. On the geoarchaeological data, supplemented paleontological and phytoliths on-site data, we reconstructed significantly different landscape around the settlement in the Early Neolithic (6-5 thousand BC), than today’s. Continuously-inhabited settlement was located directly at the lakeshore and surrounded by open steps landscapes, almost treeless. The climate was drier, although episodes of extreme flooding are also marked by stratigraphic and palynological data. Apparently later in the Chalcolithic (>3 thousand BC) on this site were only seasonal constructions, but other constant settlements have been found on elevated terraces. Forest-steppe landscapes with birch forests were widespread at that time there.

The dwellings in the upper stages was classified on preserved traces of ground constructions, organic materials and archaeological finds, we made a graphic reconstruction of the external appearance of buildings and analyzed the dynamics of housebuilding traditions. We compared the archaeological and paleoecological data and focus on the structural features of the houses, in particular, single-dugouts and 6 light onground houses, accessibility of natural materials for the construction, episodes of backfill (raising) floor, the internal structure of living quarters, the specifics of the heating, ventilation and drainage systems, anthropogenic pressure on the vegetation around the settlement. An important addition was a trasological study of the function of stone and bone implements using for building. The revealed facts indicate a high degree of adaptability of ancient settlers allowing to exploit for a long time the compact ecological niche near the lake.

TH5-10 Abstract 21
Geoarchaeology of Capsian settlements in eastern Maghreb: spatial organisation of outside areas

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Keywords: Capsian settlements, Geoarchaeology, the eastern Maghreb
Presentation Preference - Poster

The geoarchaeological research on Capsian settlements in the eastern Maghreb region is based on soil micromorphology. This research is important to understand the systems of settings of these nomadic and/or sedentary populations, by the characterization of the sedimentary records related to activities and their organisation. The micromorphological analysis reveals complex occupation dynamics, dominated by anthropogenic processes interacting with natural processes. Occupation surfaces show a great variability of sedimentary micro-facies according to 1) the nature of activities, 2) their spatial localisations, 3) micro-local climatic conditions and 4) the frequency degree of soils. In the outside areas, the occupation surfaces reflect differentiated spaces: areas near to the buildings or combustion structures, domestic wastes areas, passageways areas and multifunctional areas still characterized by several types of activities. Sedimentary archives contribute to increase our knowledge of the organisation and the functional modes of household spaces of Capsian settlements.

The aim of this communication, is to present new results about formation processes of occupation surfaces of outside areas, from several Capsian sites from Eastern Maghreb: Doukane, El Koutita (Bilia-Tunisia), Kef Elizain (Kairouan-Tunisia), El Mektet (Gafsa-Tunisia) and SMH-1 (Hergla-Tunisia).
**TH5-11 Abstract 01**

**Digital media as an effective platform to archaeological data dissemination**

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**Keywords:** 3D models, Information System, open-source software

**Presentation Preference:** Oral

The Unit of Archaeology of the University of Minho (UAUM) start to be concerned about digital preserving of the archaeological records in the nineties, due to the large amount of records (both graphic and alphanumeric) mainly gathered during the rescue excavations carried out in the city of Braga since 1976. In order to facilitate the management and preservation after 1994 all the archaeological records start to be regularly digitized and stored in an Oracle DB. Later in 2000, as part of UAUM's information system strategy, these data were migrated to a MySQL database. Simultaneously, to ensure a continuous update and management of the archaeological records start to be regularly digitized and stored in an Oracle DB. Later in 2000, as part of UAUM's information system strategy, these data were migrated to a MySQL database. Simultaneously, to ensure a continuous update and management of these data, a new Information System (2ArchIS) was created in order to allow researchers to have an easier access to the records. This system is based on an open-source software (Open Source GIS - QGIS) and it uses several software modules (ArcGIS, Blender, Inkscape, etc.) to support several kind of analysis. This system also integrates archaeological 3D models that are created either using constructive solid modelling techniques or computer vision techniques such as structure from motion (SfM) or dense stereo reconstruction algorithms. In fact it is possible to use artefacts, as coins, ceramics or architectural elements both for cooperative research and dissemination purposes. All the 3D information is important not only for rendering and for 3D representation purposes, but also to be processed with visualization filters to enhance the knowledge about the archaeological record. This data is perfectly compatible to be processed with the Visualization Toolkit (VTK) from Kitware Inc., which is an open-source software system for 3D computer graphics and visualization. Some visualization procedures have already been implemented to filter scalar information of the archaeological data for contouring purposes or even to carry out manual segmentation over a 3D model, working in the whole process from the birth of the research question until the answers with the help of R.

**TH5-11 Abstract 02**

**ArchSeries: an R package for transparent estimation of chronological frequency distributions**

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**Keywords:** chronology, R, uncertainty

**Presentation Preference:** Oral

Archaeologists often wish to plot the chronological frequency distribution of a given entity – for example a feature category, a plant or animal species, or an artefact type – within a specific site or region. Since each archaeological occurrence is subject to chronological uncertainty, and since dating resolution varies widely, estimating a single distribution from numerous occurrences is a non-trivial task. This is particularly problematic where data are combined from multiple sites or interventions with a wide range of different chronological break points and sources of dating information – for example sites with a long history of excavation, or urban areas with complex stratigraphy and a high concentration of development-led archaeological. Researchers are often forced to fall back on a least-common-denominator approach, trading resolution for comparability by combining data into broad period categories.

This paper presents an R package for dealing with this situation without surrendering the original dating resolution. Designed originally for meta-analysis of zooarchaeological remains from numerous historical-period sites across London (used here as a case study), ArchSeries is built around functions for estimating frequency distributions using either (a) aoristic analysis or (b) simulation. Initially based upon uniform probability distributions within archaeologically defined limits, the simulation approach is currently being expanded to allow integration of chronological archaeological with radiocarbon dates. The package also feature a variety of functions for plotting the resulting frequency distributions along with their associated uncertainty. Finally, there is a tool for adjusting results according to the chronological distribution of research intensity.

With raw, context-level archaeological datasets increasingly being made publicly available, it is hoped that ArchSeries will facilitate transparent re-use and meta-analysis of frequency data while allowing researchers to retain the full available chronological resolution.

**TH5-11 Abstract 03**

**Consumption patterns and morphology of cattle in a Late Neolithic settlement Polgár-Csoszalom**

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**Keywords:** Free software, Statistics, R, Zooarchaeology

**Presentation Preference:** Oral

In the last decades the zooarchaeological analysis of large sites shed lights on the limits of the interpretation of animal bones and respect the techniques and methods in the research.

The main question is, how can we interpretting these huge datasets? Which methods can help us to visualize this incredible sample size? And finally which software(s) can help us in this quest? For the evaluation of raw data from the Late Neolithic (5th millennium BC) settlement of Polgár-Csoszalom is a perfect case study for the archaeological adaptation of one of the widely applied open-source statistical software: R.

Through the wide range of animal bones I focused on the meet consumption of the main domestic species at the site, the cattle. But the question is, how can we earn more information about these animals with using only a FOSS to the research? R offers numerous possibilities and ways for the data analysis and visualisation, but in this case study I would like to show the whole process from the birth of the research question until the answers with the help of R.
TH5-11 Abstract 05
Putting the pieces back together: automated refitting using open source software

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Keywords: Automated refitting, Bognor, Open source software
Presentation Preference - Oral

Refit analysis is a powerful tool that can be used to address questions regarding taphonomy and assemblage formation processes, technology and spatial organisation. However, it is a method constrained by a reliance on human experts and time, and is further limited by factors such as assemblage size, raw material characteristics and technology. The time required to conduct refit analysis increases exponentially with assemblage size, while success rates decrease. Further, error rates in refitting remain untested, although inter-analyst variability in terms of experience and skill is clearly an important factor. A refit study can rarely be considered as complete, which can create uncertainty over the extent to which past human behaviour reconstructed through refitting is representative of the full suite of behaviours represented at a site. The ‘Fragmented Heritage’ project is addressing this situation through the development of a new digital method for refitting that draws on techniques from the field of optical metrology and utilises free open source software.

This paper presents a case study of part of the GTP17 assemblage (the Horse Butchery Site) from the Lower Palaeolithic site of Bognor, UK, to demonstrate the new digital method of refitting, discusses how the system might be further developed and explores its potential for improving understanding of past societies.

Acknowledgements: This research is part of the Fragmented Heritage project funded by the Arts and Humanities Research Council (AH/L00688X/1).
TH5-12 Abstract 02
Methodology and perspectives. Use of metal detectors in the Little Poland region
Author - MA Bulas, Jan, Jagiellonian University, Kraków, Poland (Presenting author)
Keywords: Iron Age, Little Poland Upland, metal detector
Presentation Preference - Oral

In Poland, as in most European countries there is an ongoing debate about the risks associated with the use of metal detectors by treasure hunters while illegal surveys. This topic largely overshadowed subject of methodological use of metal detectors during archaeological excavations, and during field-walking surveys. The discussion within the scientific community, which was also held in Poland, mainly in the 90s and in the first decade of the twenty-first century, above all was limited to a debate whether the use of metal detectors in general should be allowed during scientific research or not. The subject of methodological application of this tool was virtually ignored.

The aim of the paper is to present a reflection on the advantages associated with the use of metal detectors during archaeological excavations and field surveys in characteristic hilly terrain of the Little Poland Upland. This reflection will be based on the experience of the last decade of research in the area, primarily on the various Iron Age sites. The presentation will address the issue of the relationship between topography, geological and archaeological stratigraphy of individual sites and the results of a metal detector prospecting. Research at several archaeological sites allowed to statistically verify what percentage of the finds is localized in layers intact by agricultural work, and how much of them lies in the top soil. The presented study will therefore provide an example of a case study associated with a specific geographical area and sites dating back mostly to the Iron Age.

TH5-12 Abstract 03
Strategies of Detectoring Research in Mountain Areas of Slovakia
Author - Dr. Homak, Milan, VIA MAGNA s.r.o., Voutky, Slovakia (Presenting author)
Co-author(s) - Dr Mgr. Kvietok, Martin, Central Slovakia Museum Banska Bystrica, Banska Bystrica, Slovakia
Keywords: Detectoring, mountain areas, Slovakia
Presentation Preference - Oral

The hillfort is a typical settlement unit for mountain areas of Slovakia. Our paper presents strategies of detecting research in mountain areas of Slovakia based on research of recent years. Due to the large number of localities affected by mass detectoring, archaeologists must face the question of how to effectively approach the detecting renaissance of said types of archaeological localities so as to be “step ahead” of illegal robbers. Intensive and unregulated mass detecting has been occurring during the last quarter of century not only in Slovakia and Romania, but also in Hungary, Croatia and Slovenia. In order to conduct a survey as thorough as possible the selected areas were ploughed in order to investigate the contents of the upper layer. A repeated survey is needed after every plowing (twice a year). Our case studies will hopefully present that despite this method being time and energy consuming it is however rewarding in a fact that the finds from the upper layer can be thus safeguarded for proper archaeological research.

TH5-12 Abstract 04
The hilltop settlement Gradišče above Bašelj: metal detecting survey vs. archaeological research
Author - Karo, Špela, Zavod za varstvo kulturne dediščine Slovenije, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Knific, Timojač, Narodni muzej Slovenije, Ljubljana, Slovenia
Keywords: archaeological research, Gradišče above Bašelj, Slovenia, metal detecting survey
Presentation Preference - Oral

Gradišče, a Late Antique and Early Medieval hilltop settlement, rises above the village of Bašelj, north of Kranj, Slovenia. The first archaeological finds discovered at the top of the sharply peaked hill of Gradišče, were unearthed in 1908, during the construction of a hunting lodge. Thirty years later, landscape maintenance works around the lodge revealed more finds. The finds were sufficiently interesting to prompt archaeological excavations, which were conducted in 1939 under the direction of the National Museum in Ljubljana. In the following decades interest in the site almost died out. However, around 1990, new finds started to emerge, acquired by treasure hunters with metal detectors. In 1992, an archaeological team conducted a topographical survey with a metal detector. The site was revealed to be highly endangered due to the fact that the artefacts were very close to the surface. In the following years, rumours of new illegal detector finds prompted the decision to complement the topographical survey of the site and, in 1998, a team of archaeologists from the National Museum of Slovenia conducted a revision excavation, which confirmed existence of the settlement from the 5th–6th century and uncovered another layer with numerous iron objects and ceramic fragments, from the period between the end of the 6th century and the mid 10th century.

In the recent years, a lidar scanning and a geophysical research of the site and its surroundings were carried out, confirming numerous built structures inside the settlement. One of these, a tower built outside the defence wall was excavated in 2015. The new discoveries of the architectural remains, therefore, offer a great opportunity to compare the settlement’s structure with a distribution of small metal finds, recorded during the previous topographical surveys. Moreover, the presentation also gives a short overview on the national legislation regarding the search for archaeological remains and use of technical means for this purpose.

TH5-12 Abstract 05
Archaeology of the plough-soils
Author - Marik, Jan, Institute of Archaeology of the CAS, Prague, v. v. i., Prague, Czech Republic (Presenting author)
Co-author(s) - Frank Danielisova, Alzbeta, Institute of Archaeology of the CAS, Prague, v. v. i., Prague, Czech Republic
Keywords: central places, metal detector prospection, plough-soils
Presentation Preference - Oral

Several projects during the last years were focused on the large scale prospectives of the complex settlements that are considered as central (the oppida, early medieval strongholds). Because such sites are notorious among treasure hunters a thorough metal detector survey, beside traditional surface prospectations and geophysics, was conducted on the selected areas within and outside of the sites’ fortified bounds. Apart from the obvious interest the principal aim of the survey was to remove (as much as possible) the metal objects from the topsoil. Majority of these settlements were turned out to fields during the Middle Ages, most of these remain so until today. The basic idea behind the “archaeology of the plough-soil” is that upper layer of 20-30 cm contains dislocated finds removed from their original contexts in the cultural layers or upper parts of the sunken features. However, this dislocation is not as substantial to prevent us from detecting patterns related to the original spatial structure. In order to conduct a survey as thorough as possible the selected areas were ploughed in order to investigate the contents of the topsoil in detail. In order to get the maximum results a repeated survey is needed after every ploughing (twice a year). Our case studies will hopefully present that despite this method being time and energy consuming it is however rewarding in a fact that the finds from the upper layer can be thus safeguarded for proper archaeological research.

TH5-12 Abstract 01
Science and multidisciplinarity in archaeology
Author - MA Bulas, Jan, Jagiellonian University, Kraków, Poland (Presenting author)
Keywords: Iron Age, Little Poland Upland, metal detector
Presentation Preference - Oral

In Poland, as in most European countries there is an ongoing debate about the risks associated with the use of metal detectors by treasure hunters while illegal surveys. This topic largely overshadowed subject of methodological use of metal detectors during archaeological excavations, and during field-walking surveys. The discussion within the scientific community, which was also held in Poland, mainly in the 90s and in the first decade of the twenty-first century, above all was limited to a debate whether the use of metal detectors in general should be allowed during scientific research or not. The subject of methodological application of this tool was virtually ignored.

The aim of the paper is to present a reflection on the advantages associated with the use of metal detectors during archaeological excavations and field surveys in characteristic hilly terrain of the Little Poland Upland. This reflection will be based on the experience of the last decade of research in the area, primarily on the various Iron Age sites. The presentation will address the issue of the relationship between topography, geological and archaeological stratigraphy of individual sites and the results of a metal detector prospecting. Research at several archaeological sites allowed to statistically verify what percentage of the finds is localized in layers intact by agricultural work, and how much of them lies in the top soil. The presented study will therefore provide an example of a case study associated with a specific geographical area and sites dating back mostly to the Iron Age.
TH5-13

NOVEL APPROACHES TO UNDERSTANDING PALAEOENVIRONMENTAL AND PALAEOCLIMATIC CHANGE, AND THEIR IMPACT ON PAST HUMAN AND ANIMAL BEHAVIOUR

Saturday, 3 September 2016, 14:00-18:30
Faculty of History, Room 330

Author - Jones, Jenifer Rose, University of Cantabria, Santander, Spain (Presenting author)
Co-author(s) - Dr. Britton, Kate, University of Aberdeen, Aberdeen, United Kingdom

Keywords: Bioarchaeology, Palaeoclimate, Palaeoenvironment

Presentation Preference - Oral

Changes in past environments, climates, and faunal ecology had huge impacts on human populations, from the extinction of the Neanderthals, to the origins of agriculture, the formation of early societies and technological and cultural change. Understanding the scale and frequencies in these changing environments is crucial in determining the impact of these events on archaeological populations, on regional and site-specific, as well as global levels.

In recent years new developments in the field of environmental archaeology including the advancement of biomolecular techniques, have enabled palaeoenvironmental changes to be characterised on a range of scales, from analysis of individual animals, and archaeological sites, to regional reconstructions. Using holistic and multi-evidential approaches it is possible to achieve a more comprehensive understanding of palaeoenvironmental and palaeoclimatic changes within archaeological sites and populations.

This session seeks to explore new micro- and macro-scale approaches towards reconstructing palaeoenvironments, palaeoclimates, and faunal palaeoecologies to answer key questions related to the impact of palaeoenvironmental and palaeoclimatic changes on past human and animal populations.

TH5-13 Abstract 01

Environmental conditions and Mesolithic-Early Neolithic sites in the basin of Vozhe Lake (Russia)

Author - Dr. Kosorukova, Natalia, Chernevoy State University, Chernevoy, Vologda region, Russian Federation
Co-author(s) - Kulkova, Marianna, Herzen State University, St.Petersburg, Russian Federation (Presenting author)

Keywords: Fat-15 sites, Early Neolithic sites, Paleoklimat, environment of Holocene, pit-bog settlements, Vozhe Lake

Presentation Preference - Oral

The pit-bog sites are located in the basin of Vozhe Lake in the Vologda region of Russia. The Pogostilne 15 site is dated to middle Mesolithic period, but the Karakavka 4 site belongs to the Early Neolithic period. The archaeological finds were found under layers of peat and gyttja, and the alluvial sand and clay deposits. The numerous finds from bones, flint, shale, wood, ceramics, and metal bones and remains of wood fishing constructions were excavated. The application of geochemical, pollen and radiocarbon methods gave the possibility to reconstruct the palaeo-environment and to clarify the chronology of sites. The investigations of cultural layer successions on these sites allow us to trace not only changes in the material culture of the ancient people, but also the environmental development during the period from the beginning of the eight (Boreal period) to the middle of the sixth millennium BC (Atlantic Period), and the way ancient people interacted the natural environment. The human groups occupied this area around ca.7800 cal BC. In the end of Boreal in beginning of Atlantic period the interruption of sedimentation occurred. The next stage of sedimentation was in the period of water level increasing. The climate became warmer. The large-leaved trees were spread. The early Neolithic people occupied the Karakavka 4 site around ca.6300 cal BC. Probably, the favorable environment was the main factor that attracted the ancient people at this place of the lake. The wood fishing constructions belongs to this period. The birch layer is not too much as a in the layer of beginning of Atlantic period. It could be explained by the decreasing of water level, lake eutrophication and the decreasing of lake productivity. The differences in landscape conditions in Boreal and Atlantic periods in the Vozhe Lake basin have influenced on the changes of economic strategy of ancient people. The investigations were support by RFBR, project 14-06-98806.

TH5-13 Abstract 02

Baltic Sea Lithuanian coastline changes in Mesolithic: landscape and peoples subsistence economy

Author - Prof. Žukus, Vladas, Kaipėda University, Kaipėda, Lithuania
Co-author(s) - PROF. Girininkas, Algirdas, Kaipėda University, Kaipėda, Lithuania (Presenting author)

Keywords: Mesolithic inhabitants, Palaeoenvironmental situation, the submerged prehistory

Presentation Preference - Oral

The submerged prehistory of the eastern Baltic has attracted great archaeological, geological, pollen, macrofossil, diatom, radiocarbon analysis the last years. The exploration was concentrated in order to localize the former Yoldia Sea and Ancylus Lake coasts, their shoreline underwater landscape reconstruction (coastal vegetation, relics of composition, their age, pollen, diatom analysis) and their potential settlement development in Lithuania waters. Studies in 2014-2015 revealed northern part of the Curonian plateau (underwater peninsula) sea bottom formation and cost lines in the 15-30 m depths. Yoldia Sea and Ancylus Lake shore drought coastline landscape studies were compared with the data from the Samogitian Highland (West Lithuania) ongoing pollen, diatom and archaeological investigations, which showed that the Mesolithic period of human living and farming conditions were different. Palaeoenvironmental situation plays a leading role in the reconstruction of the human settling during the Early Holocene in coastal and continental area of Lithuania. Relict submerged forest vegetation composition remains confirms that the natural conditions at the first period of Baltic coastal water basin were favorable to live and succeed in farming for Early Mesolithic Kunda (Pulli) and Maglemose cultural communities. The tested area was favorable place for human settlement which included coastal fauna, coastal migratory birds and marine resource, seals especially in the Late Pre-Boreal and Early Boreal. Yoldia Sea and Ancylus Lake shore zone examined small lake surroundings could have been settled by Mesolithic inhabitants. In the first case – early Mesolithic Kunda culture (Pulli stage), and second – Maglemose settlers.

TH5-13 Abstract 03

Mediterranean foragers exploited cetacean strandings caused by climate change around 8,200 years ago

Author - Dr. Mannino, Marcello Antonio, Aarhus University, Herlev, Denmark (Presenting author)

Keywords: carbon and nitrogen isotope analyses, cetaceans, hunter-gatherers

Presentation Preference - Oral

Cetacean strandings occur globally along coastal regions for a wide range of causes. It has been hypothesized that climate-driven environmental changes associated with global warming may dramatically increase cetacean mortalities. However, the compounded effects of natural and anthropogenic factors often make it difficult to establish the cause of present-day strandings and mortalities. Here we show that environmental changes driven by the abrupt climatic event of 8,200 years ago are linked to increased cetacean strandings in the Mediterranean Sea. We found that, at this time, portions of many carcasses of four Odontocetes (i.e. Globicephala melas, Grampus griseus, Delphinus delphis and probably Physeter macrocephalus) and one Mysticete (Balaenopteridae sp.) were butchered by the hunter-gatherers occupying Grotta dell’Uzzo. Stable isotope analyses on bone collagen from a large sample of remains recovered at this cave in NW Sicily show that only a red fox and a human that lived around 8,200 years ago acquired at least 40% of their protein from cetacean meat. The fact that a fox fed on cetaceans, and the absence of whaling technology, suggests that stranded animals were exploited. Numerous carcasses should have been available yearly for at least a decade for a human to obtain such high proportions of cetacean protein. Frequent strandings probably resulted from starvation-induced disorientation linked to the impacts on primary producers, and consumers up the food chain, of year-on-year decreases in sea surface temperatures and salinities around 8,200 years ago. We hypothesize that the cetaceans beached at a locality south of Grotta dell’Uzzo, because, at lower sea levels, the SW corner of the Gulf of Castellammare was an acoustical ‘dead zone’, such as mass stranding hotspots worldwide. Our study confirms that climate-driven environmental changes associated with the ongoing global warming represent a serious threat to cetaceans in the near future.

TH5-13 Abstract 04

Changes in seawater temperatures in northern Iberia during the Late Pleistocene and Early Holocene

Author - Dr. Gutiérrez-Zugasti, Igor, Instituto Internacional de Investigaciones Prehistóricas de Cantabria, Santander, Spain (Presenting author)
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Co-author(s) - Bailey, Geoffrey N., University of York, York, United Kingdom

Keywords: carbon and nitrogen isotope analyses, cetaceans, hunter-gatherers

Presentation Preference - Oral

Cetacean strandings occur globally along coastal regions for a wide range of causes. It has been hypothesized that climate-driven environmental changes associated with global warming may dramatically increase cetacean mortalities. However, the compounded effects of natural and anthropogenic factors often make it difficult to establish the cause of present-day strandings and mortalities. Here we show that environmental changes driven by the abrupt climatic event of 8,200 years ago are linked to increased cetacean strandings in the Mediterranean Sea. We found that, at this time, portions of many carcasses of four Odontocetes (i.e. Globicephala melas, Grampus griseus, Delphinus delphis and probably Physeter macrocephalus) and one Mysticete (Balaenopteridae sp.) were butchered by the hunter-gatherers occupying Grotta dell’Uzzo. Stable isotope analyses on bone collagen from a large sample of remains recovered at this cave in NW Sicily show that only a red fox and a human that lived around 8,200 years ago acquired at least 40% of their protein from cetacean meat. The fact that a fox fed on cetaceans, and the absence of whaling technology, suggests that stranded animals were exploited. Numerous carcasses should have been available yearly for at least a decade for a human to obtain such high proportions of cetacean protein. Frequent strandings probably resulted from starvation-induced disorientation linked to the impacts on primary producers, and consumers up the food chain, of year-on-year decreases in sea surface temperatures and salinities around 8,200 years ago. We hypothesize that the cetaceans beached at a locality south of Grotta dell’Uzzo, because, at lower sea levels, the SW corner of the Gulf of Castellammare was an acoustical ‘dead zone’, such as mass stranding hotspots worldwide. Our study confirms that climate-driven environmental changes associated with the ongoing global warming represent a serious threat to cetaceans in the near future.
The influence of past climate change on hunter-fisher-gatherer societies is a highly debated topic during recent years. The increasing interest in human-environment interactions has resulted in development of more accurate methods and techniques for paleoenvironmental reconstruction. Thus, molluscan remains recovered from archaeological shell middens can provide information on past climatic and environmental conditions, as well as human subsistence practices. Seawater temperatures (ST) can be reconstructed using geochemical techniques such as the analysis of stable oxygen isotope ratios on marine mollusc shells. In this paper we aim to reconstruct the evolution of ST in northern Iberia (Spain) from -50 ka to 7 ka cal BP using oxygen isotope ratios obtained from the limpet Patella vulgata (Linnaeus, 1758). Modern and archaeological specimens from seven sites were analysed, producing a long-term record of environmental changes. Results suggest that important changes in ST took place during the time period investigated, with significantly higher seawater temperatures during the Holocene compared to the Late Pleistocene. Results also show a close association between P. vulgata estimated ST and data from the Greenland NGRIP ice core and from deep-sea sediment core MD05-2042 (located off western Iberia), suggesting that ST in northern Iberia followed a global pattern.

**TH5-13 Abstract 07**

**Changing mammal communities influence Neanderthal and Anatomically Modern Human food resources**

**Author** - Knul, Monika, Bournemouth University, Poole, United Kingdom

**Co-author(s)** - Stewart, John, Bournemouth University, Poole, United Kingdom

**Keywords**: Faunal palaeoecology, Food resources, Neanderthal

**Presentation Preference**: Oral

Neanderthal extinction has been approached from many perspectives in recent years, one of which is the difference in diet between Neanderthals and Anatomically Modern Humans (AMH). Difference in diet between the species may have influenced their ability to respond to climate change, i.e. the ability of AMH to diversify food resources has been suggested to have been advantageous and responsible for increases in population density. Both Neanderthal and AMH relied heavily on meat resources as proven by both zooarchaeological studies and stable isotope studies. It has been claimed that Neanderthals exploited species for food that are often associated with warmer, more forested environments. Meanwhile, AMH apparently exploited a more diverse array of species, however, most of these are associated with more open, cooler habitats. These observed differences in resource exploitation by the different hominins have undergone little statistical testing, thus the aim of this paper is to test if these observations remain probable after statistical testing and interpret the data in more detail, as was previously impossible.

We conducted statistical analyses on a dataset that consists of radiocarbon dates from over 400 archaeological sites and associated fauna, with a geographic range of Europe limited to the East by the Urals and Caucasus and a temporal scope of 60-10 ka BP. The faunal part of the database comprises of mammals that are of medium to large size. The multivariate analyses are run on different aspects of the fauna: the herbivore, omnivore and the carnivore guild are tested separately and together. The temporal component, which reflects the palaeoenvironmental and palaeoclimatic changes, is taken into account by running the analyses over meaningful time-intervals. Principal Component Analysis (PCA) is used to study the differences in resource exploitation between Neanderthals and AMH. Improvements in radiocarbon dating allow us to track changes in diet through time and space for both Neanderthals and AMH. We used Cluster Analysis (CA) in a GIS setting, showing that sites cluster according to similar species composition through time and space.

The PCA confirms that Neanderthals are indeed more closely associated with species living in forested environments and AMH are more closely associated with species living in open environments. The geographical application of CA shows that there are geographical changes through time and space in species composition of archaeological sites, and this suggests that both Neanderthals and AMH have changed their diets through time and space. These analyses increase our understanding of the hominins adapting to changing climates and the results may be used in modelling the demise of Neanderthal populations.
with strontium isotope analysis) is commonly used to infer childhood geographical origin. However, given that dietary tissues form incrementally, and only capture isotopic inputs from a fixed period (i.e. during their formation), their analysis only offers short-term records that (depending on sampling strategy) can encapsulate seasonal biases. The oxygen isotope analysis of other skeletal tissues and fractions, such as bone collagen or bone phosphate, offer the potential to provide evidence of longer-term mean oxygen isotope values and infer the composition of drinking water in later life. Not only could this be useful as an indicator of later life mobility, but also as a palaeoecological proxy or even as an indicator of certain cultural dietary practices (given that, in some cases, culinary preparation techniques can significantly alter the composition of dietary water). Prior to routine archaeological application, however, the investigation of inter-tissue, methodological and taphonomic (diagenetic) factors affecting oxygen isotopes in skeletal remains is necessary.

Here, we present oxygen isotope data (818O) generated from multiple tissues deriving from the same archaeological individual from Medieval and Post-Medieval British sites with the aim of exploring inter-tissue/inter-fraction variation as well as geographical and temporal variability. Individuals were selected from different geographically localised locations (Yorkshire, London) representing both rural and urban populations. Oxygen isotope values were determined in bone and tooth phosphate (818Op), tooth carbonate (818Oc), and also in bone collagen (818O collagen). Isotope analyses were combined with FTIR in order to provide additional insights into sample integrity. The implications of this research for the planning of future archaeological isotope investigations and sampling strategies will be explored.

TH5-13 Abstract 09
Stable Isotope Markers of Herd Management in Prehistoric Croatia

Author - Zavodov, Emily, The Pennsylvania State University, University Park, United States of America (Presenting author)
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Keywords: animal management, Croatia, stable isotopes
Presentation Preference - Oral

We use stable carbon, nitrogen, and sulphur isotope values as proxies of diet and local environment to highlight differences in herding and management practices between domesticated species in prehistoric Croatia. Bone samples from known domesticated (sheep, goat, cow, and pig) and wild species (deer and wild boar) are taken from sites in two distinct Croatian landscapes: central Dalmatia and Lika. Sampled Dalmatian sites are all Neolithic coastal open-air villages with evidence of a heavy reliance on domesticated species and possible seasonal transhumance routes between valleys and the nearby Dinaric Alps. Iron Age settlements in Lika, in contrast, are located on rugged karstic terrain and ringed by mountains that made movement of livestock to the sea unlikely. We expect stable isotope values to reflect differences in management strategies (i.e., transhumance vs. local grazing), and explore the use of sulphur as a tool for both more fine-grained dietary analyses and an environmental indicator. Analysis of faunal stable isotope values from these geographically distinct sites constitute the first step in addressing questions of prehistoric animal husbandry development, spread, and ultimate divergence during the Holocene.

TH5-13 Abstract 10
Changing cultures, changing environments

Author - Pitt, Jacqueline, Bournemouth University, Bournemouth, United Kingdom (Presenting author)
Keywords: Human-animal interactions, Palaeoecology, Zooarchaeology
Presentation Preference - Oral

Climate and environment are critical factors for the survival of every living species. Animals and plants are not only conditioned by, but also change their environments. The interaction between different species and their environments changes over time and as such can be very informative, but identifying this complex relationship in the archaeological record is challenging.

The domestic chicken presents an interesting case study. Introduced into Europe during the Iron Age as a non-native species, its novel presence necessitates altering its ecosystem, both in terms of inter-species relationships and on account of humans altering the local environment to accommodate this newly-domesticated exotic bird. Application of ecological community models to archaeological faunal data forms the basis of a macro-scale approach to explore the complex network of interactions that determined past ecosystems. Europe-wide comparison of faunal and floral evidence at site level from the period prior to the introduction of the chicken up until the end of the Roman Empire enables us to better understand how changes in climate and attitudes over time have been influenced by, and shaped, the environment within which these communities existed.
The work was performed as part of research "Structural and spatial study of monuments as a paradigm of the archaeological research of history of a particular region (for example, the tract) Adzhieh (and the settlement “Belinsky”)" in the Tula State Lev Tolstoy Pedagogical University (reference number 2014/389 Ministry of Education of Russia, research № 1709).

TH5-13 Abstract 13

Geomorphology and early Neolithic migration routes into the Transylvanian Depression

Author - Persoiu, Ioana, Stefan cel Mare University, Suceava, Romania (Presenting author)

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Keywords: Carpathians, Early Neolithic, migration routes

Presentation Preference - Poster

In this paper we discuss the geomorphological conditioning of the migration routes of the early Neolithic communities into the Transylvanian Depression (Carpathian Mts., East Central Europe), as reflected by the spatial and temporal distribution of the Starčevo – Criş archaeological sites in the western part of Romania. The inventoried archaeological sites are located along rivers, preferentially positioned in the floodplain and low fluvial terraces; between 70 – 450 m asl, with few sites at higher elevations along rivers in the mountainous areas. The main access route across the Carpathian Mts was eastward from the Pannonian Basin, along the Mureş River. During Starčevo – Criş III, the communities were present only in the western part of the Transylvanian Depression, at the edge of the Apuseni Mountains. They have split along the main rivers and some small tributaries, and moved to the north, along Somuégi Mic River and its right side tributaries. Starting with Starčevo – Criş II, the number of the early Neolithic communities has increased, mainly along Mureş River and its main tributaries (Târnava Mică, Târnava Mare, Argeş), associated with a slow eastward movement. A secondary eastward route was along the low alluvial plains (known as The Western Romanian Plain) of Mureş, Criş and Someş Rivers. Here too, the peoples moved from the area of Mureş alluvial plain to the NE. They arrived in the perimeter of the Someş alluvial plain only during Starčevo – Criş III and IV. From there, further to the east, neolithic sites are generally absent along the main (1-5 km wide) floodplains but present in the hilly area (crossed but smaller and narrower valleys), suggesting a possible geomorphologic control on the spreading routes. The third route was along Olt River and seems to have occurred only during Starčevo – Criş III and IV. These communities moved to the east, along the main river and occupied Brăgâş Depression and other small scale intramountain basins, at the eastern edge of the Transylvanian Basin. However, it is controversial whether Neolithic populations have crossed the Carpathians south to north to reach this route, or have spread eastwards, branching off route I above.

Based on these observations, the authors discuss the natural condition in some specific case studies, in order to offer answers to some key questions (I) Why Someş Mureş – Some Valley seems to had been avoided by the early Neolithic communities? (2) (2) Were the Carpathians crossed only along the Mures river, west to east, or did Neolithic populations used two routes, the second along the Olt river, south to north(?) Are there preferential routes in the western alluvial plains, being known the complex fluvial relief in the area (abandoned palaeomeanders, extended wet zones, isolated fluvial relics, low fluvial terraces)?

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TH5-13 Abstract 14

North Atlantic and Labrador seasonal climate: isotopic evidence from micromilled bivalves and wood

Author - Timsic, Sandra, University of Saskatchewan, Saskatoon, Canada (Presenting author)

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Keywords: micromilling, seasonal climate, tree-rings and bivalves

Presentation Preference - Poster

High-resolution records are exceptionally important for reconstruction of past environmental and climatic conditions. Micromills are particularly important devices because they obtain discrete samples at high temporal resolutions, thus allowing for reconstructions of intra-annual environmental and climatic variability. Seasonality of temperature and precipitation are one of the most significant parameters of climate that directly influences terrestrial and marine environments. Here, we present sub-seasonal climate data obtained using our custom-designed robotic micromilling device from bivalve shells retrieved from a North Atlantic core near Iceland and a wood disc from a white spruce tree collected near the tree line in coastal Labrador.

We provide the first whole Holocene temperature record of seasonality for the North Atlantic, a climatically important region with significant transregional effects. Thirty-five well-preserved aragonitic bivalves were extracted from a marine piston core from NW Iceland and sequentially micromilled concordant with growth banding. Carbonate aliquots were subsequently analyzed for δ18O(CaCO3) values to obtain snapshots of ambient seawater temperatures at a sub-monthly resolution. Our data suggest that the
TH5-14 Abstract 01
Towards a global history of human land use over the Holocene
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Keywords: Agriculture, Holocene, Land use
Presentation Preference - Oral
This paper outlines the aims of the PAGES-funded Landcover6k project (http://www.pages-igbp.org/en/landcover6k/intro), an international and interdisciplinary working group dedicated to reconstructing global Holocene land use and land cover. The initial goal of this effort is to critically evaluate and improve models of anthropogenic land cover change being employed by climate scientists and ensure these are archaeologically robust and are well-informed by current understanding of human land use history.

TH5-14 Abstract 02
Long-term Patterns of Human Land Use in the Temperate Woodlands of Northeastern Mississippi, U.S.A.
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Keywords: Climate change, Land Use, Southeastern U.S.A.
Presentation Preference - Oral
Decades of archaeological survey and excavation in the upper Tombigbee River drainage of Mississippi, southeastern U.S.A., have produced a large body of data related to demographic, settlement, and subsistence patterns over the course of the Holocene. Using seriations of ceramics and hafted bifaces and absolute dating results, we chart fluctuations over time in human population densities and the exploitation of a range of resources. Marked changes in human landscape use are seen to have occurred during 1) the mid-Holocene, when climate change led to fluctuating environmental conditions; 2) ca. 500 BCE – 1000 CE, when human population growth related to the advent of sedentariness led to increasing hunter-gatherer pressure on local-scale environments; and 3) the adoption of agriculture at ca. 1000 CE, which was selected for in the face of such pressures. We also discuss the different roles that construction of monumental architecture may have played across the changing selective environment over the course of the Holocene.
Integrating syntheses of land use by archaeologists, historians, and historical geographers, we present a preliminary meta-analysis of land use, including different modes of land use - foraging, agriculture, pastoralism, and urbanism - by indigenous and European groups in the region. Our treatment considers eastern North America, the Great Plains of North America, and Middle America, including Mexico. We focus on specific time periods within the Middle and Late Holocene, as land use rapidly transformed from generalized foraging, to specialized foraging, to intensively managed commodification (including forms of pastoralism) and later agriculture, with urban centers appearing by 1000 AD in various parts of North America. We conclude with the historic era, 1850 CE, by which time agriculture and other land use practices were industrialized. Land use characterizations such as these are the foundation for the construction of higher fidelity models of recent climate change. This effort contributes to LandUse 6k, a global collaboration to document land use around the world and through time, in order to achieve a better understanding of anthropogenic involvement with climate change. We seek input from scholars of European archaeology on method and implications.

THS-14 Abstract 05

Intensity of human impact inferred from pollen l-and-cover reconstruction and archaeological models

Author - Prof. Dreslerova Dagmar, Institute of Archaeology of the CAS, Prague, Prague 1, Czech Republic (Presenting author)
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Keywords: archaeological modeling, Reveals, vegetation cover

Presentation Preference - Oral

Recent global change accelerates the need for understanding of human-climate relationship and for quantification of anthropogenic land-use change in the past. We inferred human impact both from the pollen-based land-cover reconstruction and from archaeological data. We present a current state of the research concerning this cross validation for the Holocene period in the selected regions of the Czech Republic.

We used pollen data from the PALYCZ database (http://botany.natur.cuni.cz/palycz) and recalculated them by the REVEALS model into vegetation estimates. The algorithm considers pollen productivity, pollen dispersal and deposition, when interpreting fossil pollen assemblages. The setting of model parameters was adopted from the previous testing, in which the model was adjusted to the recent vegetation in the same regions. Actual regional vegetation (60 km radius) was obtained by combining the CORINE Land Cover map with forest inventories, agricultural statistics and habitat mapping data. Among the vegetation estimates of different taxa, Cerealia was considered as indicators of crop cultivation, pastoral management and deforestation in general.

Archaeological data was taken from the Archaeological database of Bohemia. The intensity of human impact was inferred by applying of the economic model of a prehistoric community and its consequences to the surrounding environment. Special attention was paid to estimate the amount of cells that could be grown in different prehistoric periods. Pollen-based and archaeology-based cereal estimates show very similar pattern when compared relatively. However, absolute area of pollen-based Cerealia is ca. 10 times higher than the prediction of the archaeological model. We interpret the mismatch by providing sources of possible biases.

REVEALS model assumes that pollen record originates from one large site or several small sites in the even vegetation mosaic, but vegetation in our study area is distributed very unevenly, i.e. sites in the region with the highest signal of cereal are oxbow mires surrounded by cereal patches, so the radius of the region might be smaller than 60 km.

We calibrated pollen productivity in the recent landscape, where autogamous Trifolium prevail, however pollen productivity of prehistoric cereal species could vary in the time. Moreover, large grains of wild grasses (Oryzae maximus) could be often classified as cereals.

Miscalculation of human influence on vegetation derived from archaeological data; existing estimates based mostly on assessed past population densities are still very problematic. Although we do not know what is the contribution of each bias, we critically evaluate widely used REVEALS model and significantly contribute to the understanding of human land use history in Czech Republic.

This research was supported by the Czech Science Foundation grants No. 13-111935 and 16-10100S.

THS-14 Abstract 06

Animal subsistence in the Eneolithic period from South-East Romania

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Keywords: Eneolithic, Romania, Zooarchaeology

Presentation Preference - Oral

The presence of the first tell settlements in the southeastern Romania and their development between 4700-3500 BC allowed some observation about animal paleoeconomy evolution over several cultural sequences (Boian, Gumelnita, Salcuta and Cernavoda I). Thus, the existences of numerous tell settlements with a complex stratigraphic and chrono-cultural sequences attested (e.g. Harsova, Vladiasceasa, Casdicareale, Vistanesti, Dragareas, Olt, Gumelnita) gave us the opportunity to record some changes in the livestock and hunting activities. Regarding the livestock activity, cattle and sheep/goat which prevail, shows highly significant variations by region. The slaughtering curve study of sheep indicates that the cattle are grown for milk while sheep/goat is bred for meat. In this manner, between the two types of animals we remarked a complementarity in animals’ products. Our study also captures the pig growing importance from 5% to 25% since the beginning of the first tells settlement, so this is closely linked to the sedentary lifestyle of the Eneolithic populations. Additionally, we remark a transformation of the hunting practice, as the habitat shift to the forested environment implied a more intensive use of fire as hunting tool and the formation of a shifting, slash-and-burn mode of cultivation. The long-term functioning of such a system would lead to the appearance of large, deforested areas (grasslands and parklands) of anthropogenic origin, in the second part of the fourth millennium BC. The main aim of the presentation will be to evaluate that model, with the use of new archaeological, paleoecological and paleoenvironmental data, obtained i.a. in the settlement of the TRB at Mocza (the Ploieşti district). In the view of these data, it seems that the aforesaid model can be applied only to certain areas of the upper Vidin basin, mainly in lowlands. Economy and settlement of Neolithic groups living in the fourth millennium BC in other ecological contexts, remains not associated with broad-scaled, extensive human interference in the environment. Consequently, the presentation will also be an attempt at explaining and understanding the causes of this variability.

THS-14 Abstract 07

Middle Neolithic transformations of food economy in the upper Vistula basin (SE Poland)

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Keywords: food economy, Funnel Beaker Culture, South-Eastern Poland

Presentation Preference - Oral

In the first half of the fourth millennium BC, in the upper Vistula basin, from the perspective of the past material culture, the last units of the Long-Neolithic-Politze Culture (included to the so-called Danubian Neolithic) disappeared. In that period a new archaeological model was modelled by J. Kruk, in the 1970s and 1980s. These transformations would consisted of overcoming of ecological and topographical constraints (barriers), characteristic of Danubian Neolithic, and including into the Neolithic some virtual all landscapes of a given territory ("second stage of Neolithisation"), i.e. western part of Lesser Poland in our case. These processes would involve a much more widespread use of fire as a basic agrotechnological tool and the formation of a shifting, slash-and-burn mode of cultivation. The term long-term functioning of such a system would lead to the appearance of large, deforested areas (grasslands and parklands) of anthropogenic origin, in the second part of the fourth millennium BC. The main aim of the presentation will be to evaluate that model, with the use of new archaeological, paleoecological and paleoenvironmental data, obtained i.a. in the settlement of the TRB at Mocza (the Ploieşti district). In the view of these data, it seems that the aforesaid model can be applied only to certain areas of the upper Vidin basin, mainly in lowlands. Economy and settlement of Neolithic groups living in the fourth millennium BC in other ecological contexts, remains not associated with broad-scaled, extensive human interference in the environment. Consequently, the presentation will also be an attempt at explaining and understanding the causes of this variability.

THS-14 Abstract 08

High resolution record of land use, vegetation and erosion history from Lake Skogstjern

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Keywords: land use, vegetation, erosion, palaeoenvironments

Presentation Preference - Oral

The connections with the environment are strengthened, a vital thing for an efficient exploitation of local potential.
A varve preservation record of climate change and human impact from Lake Tiefer See (NE Germany)

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Keywords: human impact, lake sediment, varve chronology

Presentation Preference - Oral

Annually laminated (varved) lake sediments represent unique archives in continental areas providing both, precise chronologies and seasonally resolving proxy data. Lake Tiefer See in NE Germany provides such an archive for an integrated multi-proxy study based on high-resolution sediment analyses. Lake Tiefer See was formed during the last glaciation and is part of the Klostern Lake Chain, a subglacial channel system that crosses the Pomeranian terminal moraine. Coring campaigns at the deepest part of the lake (62 m water depth) yielded 7 sediment profiles. From these individual profiles a 7.7 m long continuous composite profile has been compiled covering the past ~8000 years. The chronology of the core sequence is based on a multiple dating approach including varve counting, radiocarbon dating of terrestrial plant remains and tephrochronology. We present a combined approach of microfossiles analyses using thin sections, μ-XRF analyses on split sediment cores, geochemical analyses of bulk samples, diatom and cladocera analysis and reconstruction of vegetation openness from pollen data. Furthermore, we include archaeological data from the study area characterizing human settlement phases.

The sediment record of Lake Tiefer See exhibits distinct decadal- to centennial-scale alternations between well- and non-varved intervals with an increasing trend of non-varved periods since ~4000 cal yr BP. These non-varved episodes generally coincide with phases of increased vegetation openness as reconstructed from pollen data. Predominantly varved intervals before AD 1924 are characterized by low productivity and concur with closed forests in the lake catchment. In contrast, well-preserved varves after AD 1924 are linked to increased lake productivity likely due to anthropogenic eutrophication. In this study we discuss the influence of climate change affects on varve preservation. We propose that the observed long-term increase of non-varved intervals is linked to gradual climate change in the Late Holocene triggered by insolation change, whereas superimposed centennial- and decadal variability of varve preservations caused by a complex interaction between human activity and short-term climate changes. We furthermore discuss possible relationships between known climate variability and human history at Lake Tiefer See.

This study is a contribution to the Virtual Institute of Integrated Climate and Landscape Evolution Analysis – ICLEA – of the Helmholtz Association (grant number VH-VI-415) and uses infrastructure of the Terrestrial Environmental Observatory (TERENO) of the Helmholtz Association.
The main focus of this presentation will be the carpological data available for northwest Iberia, including unpublished material. Carpological data from late prehistoric and protohistoric sites allowed the identification of key-moments in agricultural history, such as the introduction of some crops and the development of new social-ecological systems. These key-moments include the Middle/Late Bronze Age (c. 1800 – 700/600 BC) and the Iron Age (700/600 BC to the 1st century BC) and correspond to significant changes in human societies as suggested by data regarding the evolution of settlement, technology and economy, and other features.

Developments in storage facilities are also recorded. Especially, underground storage (pits), that proved to be an important strategy for long-term preservation. Moreover, the palaeoenvironmental records suggest significant changes on several levels such as soil cover. Increasing erosion events occur as the result of anthropogenic deforestation to obtain farmland and pasture. Besides their clear differences, these two important moments revealed important economic and social changes. Human communities became sedentary and a process of territorialization took place, enhancing the connection between settlements in northwest Iberia, a region where good agricultural soils are not abundant.

In the first moment (Middle/Late Bronze Age), the oldest evidence of millet (*Panicum miliaceum*), a spring crop, suggests changes in agricultural practices and territorial strategies. During the Iron Age, an agricultural system based on a diversity of crops, namely different cereals, existed. In particular, hulled wheats (*Triticum dicoccum* and *Triticum spelta*) which were good choices for undermanning and erosive soils.

These different environmental and archaeological records will be presented in order to address the main changes in land cover and land use, namely their relation with the evolution of agricultural strategies and social-ecological systems in Northwest Iberia.

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**THS-14 Abstract 12**

The anthropization of the Cantabrian Mountains (NW Iberia) during the Later Prehistory

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**Keywords:** Anthropization, Landscape Archaeology, Later Prehistory

**Presentation Preference:** Oral

This paper attempts to provide a historical narrative that accounts for the biography of the cultural landscapes of the Western part of the Cantabrian Mountains based on a social interpretation of archaeological data and paleoenvironmental sequences. A diachronic perspective is adopted drawing on in the theoretical and methodological framework of Landscape Archaeology. This is achieved by analyzing the patterns of settlement and subsistence deployed by human groups during the five millennia that mediate between the emergence of agriculture and animal farming (c. 4800 BC) and the Roman conquest of the area under study (late first century BC). In light of the data considered for the mountainous area which separates Spanish contemporary regions of Asturias and León, the investigation reflects about the human experiences and the historical processes that intervened in the anthropization and the social construction of the cultural landscapes of the Later Prehistory in the area.

During the Neolithic there is a spread of agriculture and farming. This process can be perceived earlier in the coastal areas than up in the mountains. This resulted in the emergence of humanization processes of the environment characterized by an increase of open areas for pastures and crops related to itinerant forms of production and settlement. Later in the Bronze Age, the anthropization of the territory significantly increased, revealing a certain tendency towards the territorialization of human groups. The Iron Age implied the almost complete adoption of sedentary forms of life by human groups. Iron Age communities developed new livestock and farming practices, now intensified with the emergence of stable crop fields. This new productive pattern led to the emergence of a compartmentalized and highly anthropized landscape around the hillforts. However, this general scheme shows some gaps and exceptions which should be considered in detail. In the first place, they could reveal the limits of the data available for the region. But, more interestingly, they might point out the divergence in the social or cultural livelihoods performed by the communities who inhabited the Cantabrian Mountains during the Later Prehistory.

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**THS-14 Abstract 13**

Human-environment interactions in the Alps: Archaeological and palaeoenvironmental approaches

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**Keywords:** archaeology, Ireland, palaeoenvironments

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**Presentation Preference:** Oral

In this paper we outline the initial results of an integrated palaeoenvironmental and archaeological study from southeast Ireland, funded by RESTA (The Heritage Council, Ireland) which has been investigating changes in settlement patterns and subsistence from the late Bronze Age into the Iron Age as derived from extensive, well dated, palaeoenvironmental data from ‘Catie Tiger’ era development-led excavations. The project has compiled and critically assessed the evidence for lifeways and subsistence strategies derived from multiple archaeological sites, including data from faunal and macrofossil analyses and chronological modeling of radiocarbon dates. These data have been integrated with evidence for patterns of landscape change and human...
activity derived from palaeoenvironmental records. The study opens up new perspectives on this critical period in Irish prehistory and also illustrates the methodological and theoretical challenges of interpreting archaeological and palaeoenvironmental data.

TH5-14 Abstract 16
Land use and vegetal biodiversity in the Iron Age landscape of Brittany (France)

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Keywords: Iron Age Brittany (NW-France), land use patterns, vegetal biodiversity

Biodiversity has been a popular research topic in the last decades. With the rapid current loss of mondial biodiversity, estimated at about 5% per decennium, it is easy to understand why. Palaeo-ecological research can provide insights into the relations between past vegetal biodiversity and environmental change. Climate changes and human activities are generally accepted to be the prime drivers behind these processes. Nevertheless, detailed analyses of the correlation between past human agency and vegetal biodiversity in Northwest Europe are still quite rare. In this paper we aim to reconstruct and explain spatio-temporal trends in past vegetal biodiversity by integrating data on vegetation dynamics, human subsistence and land use patterns. The landscape of Brittany (North-Western France) during the Second Iron Age (450-50 BC) is selected as a case study. Compared to many other parts of Northwest Europe, Brittany is rich in high-resolution palaeobotanical data. These allow for the construction of the main long-term trends in vegetal biodiversity, and more generally of the changing fabric of the Breton landscape. At the same time, increasingly detailed images of the Iron Age rural landscape of Gaul start to emerge due to a steep increase in archaeological data (aerial photography, surveys, programmed and development-led excavations). On the eve of the Roman conquest, the landscape of Brittany was dotted with numerous farmsteads and had a 'mosaic' vegetation structure. In this paper we will integrate these different types of data and assess how the results contribute to wider discussions on the link between human behaviour and biodiversity.

TH5-14 Abstract 17
Invisible Prehistoric sites: development of land use by Eurasian nomadic population

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Keywords: Bronze and Iron Age, land use pastoralists, seasonality

A new methodological approach used to detect seasonal campsites occupied by Bronze and Early Iron Age pastoralists living in the desert and steppe areas in the South-East of the Russian Plain helped identify different subsistence and economic activities. Comprehensive studies of two types of the sites by employing the methods of archaeology, soil studies, geography, geomorphology, geoinformatics, geochemistry, palaeobotany provided an opportunity to obtain conceptually new data on the location and operation pattern of winter and summer pastures and camps themselves. To identify temporary camps, it is important to identify those land areas located in proximity to the camps where grazing was the most suitable at certain times of the year, taking into account natural features. For the winter season it has been demonstrated that deeply cut gullies with rather steep slopes facing south, south-west and south-east are most suitable for winter grazing, determining the existence of temporary winter camps in such areas.

The arrangement of summer temporary camps demonstrates a reverse pattern. It is assumed that summer camps and pastures were located near streams on open windswept watershed sections rather than near submontane features of the relief. Such camps can be discovered only if the soil was overlaid by natural deposits, which may occur on sections with sand.

TH5-14 Abstract 18
Hunter-gatherer exploitation of biodiverse Kwongan heathland in Holocene southwestern Australia

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Keywords: Human land use, Palaeoecology, Zooarchaeology

The Kwongan sandplains of southwestern Australia are a global biodiversity hotspot, characterised by diverse, fire-sensitive heathland vegetation and niche-restricted mammalian fauna. Archaeological evidence indicates that Aboriginal people exploited littoral resources along the region's coastal fringe during the mid- to late Holocene, but use of the biodiverse kwongan heathland landscapes is poorly understood.

In this paper, we explore the archaeological and palaeoecological evidence for human land use and terrestrial resource exploitation in the northern section of the Kwongan sandplains. We compare the palaeoecological evidence provided by the small mammal faunal record from two cave sites with the regional archaeological evidence for human occupation and subsistence during the mid- to late Holocene, and explore the connections between human activity, environmental change, and ecological composition through time. This study indicates that while littoral resource exploitation may have been a minor feature of human occupation of the region, particularly after sea levels stabilised in the mid-Holocene, terrestrial and lacustrine resources played an important role in regional subsistence and land use.

TH5-14 Abstract 19
Palynological fingerprint of demographic changes during the Migration Period in northern Poland

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Keywords: Migration Period, N. Poland, pollen analysis

Pollen analysis is a method frequently used in studies on environmental changes provided by past human activity. Pollen data help to assess dynamics of settlement and provide evidences on some aspects of the economy based on natural resources. In our study we gathered the palynological arguments to reconstruct the timing and dynamics of settlement activity during the first millennium AD in northern Poland. The reported period was a time of considerable demographic, cultural and economic changes which left distinct signatures on the natural environment. In northern Poland, these processes were regionally differentiated because of variation in timing and scale of anthropogenic pressure and due to variation in some natural factors. The main subjects of our lecture are: pollen-based reconstruction of settlement dynamics changes in both time and space in northern Poland; an assessment of the scale of changes in forest cover in the period of interest; providing new data for the discussion on the potential persistence of small-scale agricultural activity in the regions of general economic decline during the Migration Period. The results summarizing the pollen data from a number of sites from northern Poland indicate that in the Roman Iron Age the scale of human impact on the forest cover in the northern section of the part of the region was much lower than in the central and eastern parts of the area. The demographic crisis in the Migration Period resulted in a large-scale regional reforestation of the whole area but the scale and duration of reduced settlement activity was different. In this respect the pollen data conform well with the archaeological information. The woodland expansion concerned different dominant tree taxa in the western, central and eastern parts of the area. The new deforestation phase connected with the early medieval took place in different centuries and varied as concerns intensity of land use.

The study was supported by a grant DEC-2011/02/A/H35/0089 financed by the National Science Centre (NCN) in Poland.

TH5-14 Abstract 20
Multiplex analysis of colluvial fan deposits: approach to reconstructing the land use history

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Changes in growth regularities in archaeological timbers as a proxy for the deforestation history

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Keywords: Dendrochronology, Landscape changes, Vilnius Lower Castle

Presentation Preference: Oral

Forests are an important component of land cover in temperate climatic zones and deforestation is regarded as a major process in human induced landscape alteration here. Chief models estimating anthropogenic forest area changes are based on calculations of population history and the need of supporting cultivated land. Nevertheless, in some areas the need of forest products can overcome the need of agriculture resources of contemporary population. Large scale in trade forest products and extensive building activities intensify deforestation and cause bias in models based only on the population dynamics. Some corrections can be made by analysing landscape dynamics from the point of forest state dynamics. Tree growing conditions are recorded in the regularities of annual tree-rings and the history can be detected using dendrochronological methods if sufficient material is available.

The presented study aims to evaluate forest state changes in the geographic region around the Lithuanian capital Vilnius over second millennium CE. Large amount of archaeological constructions are preserved in cultural layers of Vilnius Lower Castle site and excavated during archaeological investigation. Pine timbers representing different centuries of the second millennium CE were analysed using dendrochronological methods. Several parameters were evaluated and compared and with those in modern pine forests: age curve of tree-rings, i.e. regularity of tree-ring width changes due to increasing age of trees, tree annual increment rate, and age structure of trees used for timbers in particular time period.

Regardless of heterogeneity of the replication of trees it became evident that the parameters differ in different periods throughout the millennium. Major shift to higher increment rates happened in the second half of the 13th c. and the 16th c. Tree age curve also became more expressed, and much younger trees started to be used, even for high social status buildings like Grand Duke’s palace. These changes clearly indicated changing state of forests and coincided with intensified timber export from Eastern Baltic to deforested Western Europe regions. Results suggest that timber trade between regions with different population density (and therefore forest cover) could be additional important factor affecting deforestation in timber supply regions.

Investigation of soils from archaeological monuments using biological methods

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Keywords: ancient soil, Bolgar city

Presentation Preference: Oral

During thousand years of history of agriculture the total area of settlements and arable land reached a very significant scale. Due to the different systems of the people’s settlement in ancient and medieval times, it can be assumed that large areas of land in a particular moment of history had different forms of anthropogenic influence, traces of which are not currently recorded at the morphological level. It is assumed that the ancient evidence of human impact on the landscape would remain at the level of the soil biota, the most sensitive and mobile soil component. The aim of this work was to identify the soils which had anthropogenic impact in different historical periods, as well as reference sites, where soil developed without human intervention. The reconstruction of some aspects of agriculture in the territory of the ancient city Bolgar (X-XV centuries, Tatarstan, Russian Federation) has been carried out on the basis of archaeological, microbiological and biochemical data and has been obtained new data about anthropogenic impact.

Following spits: Stone Age coastal adaptation and coastal morphology in the Narva-Luga region

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Keywords: Eastern Gulf of Finland, Holocene Stone Age, sea coast development

Presentation Preference: Poster

A model of coastal morphological development in Narva-Luga region at the Russian-Estonian border (south-east of the Gulf of Finland; in Middle and Late Holocene (9000-2000 cal. BC) was suggested basing on the last decade multidisciplinary studies. This model was improved and got chronological references basing on archaeological data – remains of Stone Age coastal settlements. Strict relations between sea shoreline and human settlements/hunting camps ended at the time of the first farming societies (Corded Ware tradition) appeared in the region.
TH5-15 Abstract 01
Extending the human provenancing repertoire: Neodymium isotopes
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Keywords: Human provenancing, Isotope
Presentation Preference - Oral
Recent developments in mass spectrometry have made it possible to explore the potential of new isotopic systems for the provenancing of humans, complementing the existing systems: strontium (Sr), oxygen (O), hydrogen (H) and lead (Pb). The addition of another isotopic system to the isotopic provenance repertoire can potentially provide us with more specific information on the region of origin and thus address some of the limitations that are still associated with the now commonly used isotopic techniques. This study reports on the viability of using neodymium isotopes (143Nd/144Nd) as a candidate to track the origins of humans. Due to the isotopic variations in the crust the samarium-neodymium isotope decay system has previously been successfully applied to identify the production centres of glass archaeological artefacts, usually in combination with oxygen or strontium isotope ratios. The tendency of the human body to bio-purify non-essential elements means that REE concentrations are low in human teeth (Nd < 0.1 ppm), such that previously Nd isotopic analysis was not possible. We report the optimisation of chromatographic methods to separate Nd from bio-apatite. Sub-nanogram amounts of neodymium were analysed using a latest generation thermal ionization mass spectrometer (TRITON-Plus) equipped with 1013 c) resistors at the Vrije Universiteit Amsterdam. This study presents the neodymium concentration and composition results of third molars from modern Dutch residents. These results will be compared to other isotopic systems (Sr and Pb) and the possibilities for Nd as an archaeological human provenancing tool will be discussed.

TH5-15 Abstract 02
Zinc isotope compositions of bone and dental enamel and their relationship to diet
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Keywords: Hydrogen, Bone, palaeodiet
Presentation Preference - Oral
Palaeodiets studies commonly analyse 313C and 315N ratios in archaeological bone to infer past dietary habits, although 318H ratios can be influenced by a range of factors other than diet ( acidity, maneuring, soil conditions, etc.). 318H ratios have been shown to function as trophic level indicator (Birchall et al. 2005). Reymond and Hedges (2008) which can be very useful to aid our interpretation of the 318C and 315N ratios and improve our understanding of palaeodiectary habits and subsistence practices. Hydrogen in organic consists of a non-exchangeable and exchangeable fraction; the latter will equilibrate with atmospheric hydrogen with atmospheric hydrogen from water vapor in the lab environment, resulting in meaningless values. This fraction needs to be calculated in order to obtain the non-exchangeable fraction which represents the true values. By applying a 2- stage equilibration method, sample specific and process specific factors influencing exchange rates are compensated for (Meier-Augenstein et al., 2011). Recent developments standards packed in silver tubes containing water of known isotopic composition (Qi et al. 2010) can be analysed alongside solid samples in the same run, which is essential to avoid scale compression. While this method is not novel (Bowen et al., 2005; Meier-Augenstein et al., 2011, 2013), its application with the use of Qi et al.’s standards to archaeological material is new. In this study we subjected bone collagen samples from prehistoric periods from the Limfjord region in northern Denmark spanning the Mesolithic to the Viking Age to a two-stage equilibration method using the silver tube standards to obtain absolute 318H ratios from the non-exchangeable hydrogen fraction. Birchall et al., 2005, Rapid Comm. in Mass Spectrometry 25. Meier-Augenstein et al. 2011. Rapid Comm. in Mass Spectrometry 25. Meier-Augenstein et al. 2013. Bioanalysis 5. Qi et al. 2010. Rapid Comm. in Mass Spectrometry 24. Meier-Augenstein et al. 2011. Rapid Comm. in Mass Spectrometry 25.
TH5-15 Abstract 04

Stable isotope ratios and trace elements in modern mammal tooth enamel

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Keywords: biopatite, isotopes, trace elements

Presentation Preference: Oral

Bioapatite from mammal tooth enamel is a popular biomaterial used in the reconstruction of palaeoenvironment and palaeodiet. It records information about the animal’s environment and diet on a sub-annual scale and is proven to be highly resistant to diagenesis, allowing the preservation of its original chemical composition through archaeological and geological timescales. In this study, stable carbon and oxygen isotope analysis are used as a stepping stone to investigate the use of other chemical proxies for the reconstruction of environment and diet from mammal teeth. Concentration profiles of trace element distributions (measured with μXRF and cross-validated with Laser Ablation ICP-MS) and stable isotope ratios (δ13C, δ18O & δ18Oδ) are combined to test the reliability of trace element profiles from mammal teeth in recording seasonal changes in environment and diet of the animal.

A method is presented that links the various geochemical records within a tooth sequence using mineralization sequences and oxygen isotope seasonality. This way, a 3 year trace element and stable isotope record from horse tooth enamel is created showing seasonal variation in trace elements and isotope ratios linked to changes in climatic conditions and diet through the animal’s lifetime.

This study shows how an entire new set of trace element proxies, that can be measured quickly and non-destructively, may yield information on palaeoenvironment and palaeodiet. These trace element measurements yield information from precious archaeological samples that could otherwise be obtained solely through destructive sampling. The versatility of the μXRF and LA-ICP-MS methods opens up a wide range of applications for trace element analysis in archaeology.

TH5-15 Abstract 05

The geochemical relationship between soil, plant and streamwater: implications for migration studies

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Keywords: Geographical discrimination, Multi-element composition, Strontium isotopes

Presentation Preference: Oral

Stromont isotopes (87Sr/86Sr) and rare earth element (REE) analyses of rock, the leachable fraction of soil, plant and surface waters are applied as chemical proxies to assess chemical reservoir interactions, element bioavailability and geographic variability. These processes are the basis for geographic discrimination and associated archeological provenancing. 53 bioapatite samples were collected from a small geographic area in Co. Meath, a region of Ireland that has highly variable bedrock and surficial geology and hosts significant archaeological sites including, Newgrange, the Hill of Tara and Knowth. These multi-element and isotope geochemistry geochemically constrain this region and the high degree of spatial variability in 87Sr/86Sr highlights the inherent requirement for high-density sampling in order to isotopically characterise distinct reservoirs. The results of this study provide a baseline of biophere geochemical data that can be applied to archaeological studies examining the past migration of populations in this archaeologically important region.

TH5-15 Abstract 06

The potential of large-scale seasonality studies, results from the Farasan Island shellmound complex

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Keywords: LIBS, Seasonality, Shellmound

Presentation Preference: Oral

The Farasan shell mounds are one of the largest traces of the Arabian Neolithic Period, with over 3,000 sites having accumulated between 7,000 and 4,000 cal BP. Seasonality data based on stable oxygen and carbon isotopes have determined year-round exploitation of shellfish.

Additionally, they revealed patterns of seasonal stratification within individual layers. This was used to determine sub-annual accumulation rates, exploitation intensity, and degrees of bioturbation within the stratigraphy. This dataset is now being analysed more thoroughly by using Laser Induced Breakdown Spectroscopy (LIBS). LIBS is a rapid and cost-effective laser ablation method, that is able to measure the elemental composition of shell carbonates to determine season of death. By providing a high sampling resolution (<1μm) and short processing time, large sample sizes can be analysed in great detail. In turn, it allows us to analyse exploitation and accumulation patterns of the Farasan Islands in more detail. More specifically, this study aims to answer questions regarding (1) how analysing a larger number of shells per layer changes the interpretation of site seasonality, (2) whether seasonal layering of shell deposits are singular or repeated events, and (3) how accumulation rates based on seasonality can vary throughout the deposit and tells us more about the processes behind shell deposition.

TH5-15 Abstract 07

Archaeometrical studies of pottery

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Keywords: archaeometric research, chemical analysis, pottery

Presentation Preference: Oral

The basic carrier of information on the project in question is pottery from Wielkopola’ska’s site dating back to the early pre-Roman iron age. The multi-level analysis of the existing source base assumes its full elaboration with regards to classical archeological description, connected comparatively with an innovative use of the methods of chemical analysis. The analysis will cover archeological materials obtained mostly as a result of a source search query conducted in museums, but also among entities that currently conduct excavation research. The chemical tests will be performed on the pottery using three independent procedures of samples preparation. In the first procedure, a ground part of pottery will be subject to extraction with hydrochloric acid. In the second procedure, the possibility of leaching components of a sample from the external layers of the tested pottery will be determined, so as to compare the results with the results of non-destructive analyses (e.g. XRF) where only the surface of a sample is examined representing the acid-leached fraction of the surface of the tested samples. In the third procedure, a ground part of pottery, will be subject to decomposition using hydrofluoric acid at room temperature in closed Teflon vessels. After sample preparation the content of the selected elements in the solutions obtained will be determined: by spectrometric techniques: flame atomic absorption (FAAS) or flame optical emission (FOES) spectrometry, microwave induced plasma optical emission spectroscopy (MIPS) and inductively coupled plasma optical emission spectroscopy (ICP-OES). The elaborated procedures and instrumental analytical techniques enable performing tests that have so far been practically unavailable in archaeometric research.

TH5-15 Abstract 08

Elemental and Sr/Nd isotopic investigation of late Hellenistic to early Roman glass bowls and sand raw materials from Lebanon

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Keywords: Natron glass, Sand raw materials, Isotopes

Presentation Preference: Oral

Excavations in the Souks area of Beirut, Lebanon, not only revealed large amounts of glass artefacts from the Hellenistic to early Roman glass bowls and sand raw materials from Lebanon. Over 66 late Hellenistic to early Roman glass bowls were subjected to elemental and Sr/Nd isotopic analysis. Elements and Sr/Nd isotopes were determined over the entire deposit and tell us more about the processes behind shell deposition.
All glasses were soda-lime-silica in composition, with natron as a flux. Strongly coloured glass was coloured with Co, Cu and Mn. Pale coloured glass has varying MnO to 1.9%, suggesting that they were intended to be coloured. Colourless bowls can be divided into three groups: Mn-, Sn- and mixed Mn-Sn-decoloured glass. All Mn-decolourised, pale and strongly coloured vessels have closely similar base glass compositions to glasses from the tank furnace2, suggesting local production and working. The Sn-decoloured glass was made from a different sand source with higher SiO2 and lower Al2O3 and CaO. Mixed Mn-Sn-decoloured glass has intermediate compositions, suggesting they are the result of recycling Sn and Mn decolourisation analyses confirm the different primary origin of the Sn-decoloured glass. The isotopic signatures of the other glasses correspond well to those measured in some of the Lebanese sands, suggesting they were indeed produced locally.

1 S. Jennings, Vessel glass from Beirut (Bey 008, 007 and 045), Berytus Archaeological Studies 48-49, 2006.

TH5-15 Abstract 09
 Trafficking copper: Source of metal artefacts from an Iron Age cemetery in Finland by Pb isotopes

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Keywords: Copper provenance, geochemistry (ICP-MS, pXRF), Pb isotopes (ICP-MS)
Presentation Preference - Oral

The Levänluula archaeological site, located in western Finland, is an Iron Age (ca. 300-800 CE) cemetery, where skeletal remains of ca. 100 human individuals, buried or sacrificed in an ancient lake or pond, have been recovered. Based on studies, most of the dead were women and children. The artefacts recovered at the site include an assemblage of copper-based artefacts, mainly jewellery and items for personal adornment, made of bronze, brass and copper. The artefacts include a variety of finger, arm and neck rings, and different brooch types, representing, for example, Scandinavian designs. In addition, a Vastatalo type bronze cauldron, typologically identified as a foreign import, was found at the site. In this study, portable X-ray fluorescence spectrometry (pXRF) and inductively coupled plasma mass spectrometry (ICP-MS) were employed to examine the type of alloy, lead isotopes and geochemical compositions of the artefacts. pXRF analysis was applied on the entire assemblage and objects that allowed only non-invasive, non-destructive measurements due to their extremely high antiquarian value. Nine of the metal artefacts were sampled for lead isotope (204Pb, 206Pb, 207Pb and 208Pb) and trace elemental analyses by ICP-MS to examine their provenance and possible raw material origins, i.e., the locations of the extracted copper ores.

The results show that different types of alloys were used to manufacture typologically related objects. The source of the copper, however, appears to be shared by most of the samples analysed by ICP-MS based on the lead isotope data. The results of this study underline that copper extracted from northern European ores was trafficked to Finland, instead of relying on more regional, e.g., Scandinavian raw material sources, as has traditionally been suggested. The results are in line with a previous Scandinavian study (Ling et al. 2014) and indicate similar patterns of long-distance trade networks of copper. Our results are new, as the networks seem to have extended even further than previously proven, across yet another sea, the Baltic. It is intriguing that stylistically, most of the analysed artefacts indicate a Scandinavian origin – and most probably they were cast locally in Finland and elsewhere in Scandinavia. By combining typological details with source determination of the raw materials used in their manufacture, however, a far more multi-faceted interpretation of the provenance of the artefacts can be established.

TH5-15 Abstract 11
 Iron slag and the Quest for Provenance

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Keywords: Iron, Provenance
Presentation Preference - Oral

Over the past few decades our growing ability and competence in determining the provenance of archaeological artefacts using scientific methods has been one of the most exciting developments in the field of archaeological science. However, when it comes to iron and attempts to determine its geological origin, more questions than answers have been posed. The 3-year research project launched by UnNet project centre based at the University of Aarhus is facilitating the collaboration of geologists and archaeometallurgists and aims to employ a multi-analytical approach in order to determine the extent to which the chemical composition of iron ores is preserved in the iron slag. We investigate the slag from East Africa (Sahali coastal sites, presenting the potential for both, local and imported material. The artefacts are subjected to petrographical, metallographic, elemental and isotopic analyses in order to determine the validity of methods and the feasibility of further analyses. Thermally derived data are devised and performed so as to replicate thermodynamic processes and define their significance in altering elemental and isotopic ratios. We hope to share the preliminary results and stimulate conversation on potential further approaches that may be taken in order to improve the data and overcome some of the challenges we are facing.

TH5-15 Abstract 10
 Iron isotopes as a new tool for ancient metal tracing: comparison with classical tracing methods

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Keywords: Ancient metals, Iron isotopes, Provenance studies
Presentation Preference - Oral

The development of precise and accurate analytical techniques over the last decades has allowed the range of methods for ancient metal tracing. Elemental and isotopic analyses are now widely used for this purpose. For a relevant archaeological interpretation, metallurgical processes must be taken into account, and analyses must be performed on archaeological ore, slag and metal. So far, isotopic methods were rather employed for non-ferrous metal tracing (e.g. silver), whereas elemental analyses were used for ferrous metal tracing (e.g. copper). However, current wet elemental and isotopic methods show limitations, which underline the need to develop new tracers to complement existing ones.

We used Fe isotopes as a new tool for ancient metal provenance studies. Isotopic ratios 56Fe/54Fe and 58Fe/54Fe were measured using a Multiple Collector Mass Spectrometer after sample dissolution and Fe purification. We first developed this approach by analysing materials from archaeological experiments on iron ore reduction. In order to compare our results with classical tracing methods, we also analysed the Fe isotope compositions of archaeological materials whose provenance hypotheses have been established with trace elements analyses of slags. Furthermore, some materials coming from different regions of ferrous and non-ferrous metal production were analysed to assess the tracing potential of Fe isotopes compared to trace elements and Pb isotope analyses.

Our first results show that the bloomery process does not induce Fe isotope fractionation, i.e., the signature of metals and slags reflect that of their corresponding ores. Moreover, Fe isotope analyses tend to confirm the provenance hypothesis of ancient artefact established with trace elements analysis of slags. The results obtained so far suggest that Fe isotopes are a relevant tracer for archaeological materials, which can be applied to ferrous metals. The combination of Fe isotopes with more classical ones involving trace elements or Pb isotope analysis could allow to refine previous provenance hypotheses of ancient metals.

4 F. Poltraison and F. Freydet, 2005, Heavy iron isotope composition of granites determined by high-resolution ICP-MS, Chemical Geology 222, 132-147.

TH5-15 Abstract 12
 Interpretation of Heavy Elements Traces in pXRF Analyses on Prehistoric Copper Alloys

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Keywords: copper alloys, trace element, XRF
Presentation Preference - Oral

X ray fluorescence analysis for metals has become a valuable addition to the available methods of doing archaeometallurgy. If, on one hand, the method’s limits are confirmed to only a few microns depth from the surface, the non-destructive nature of the method allows for as many samples as wished to be taken, and to have at our disposal a huge amount of data, previously inaccessible, that can be used to calibrate and compensate the limits of the analysis method. The most recent generation of instruments
are able to detect elements in traces; these data, in prehistoric archaeometallurgy have been used not only to understand the composition of a prehistoric alloy, but even to understand which ores have been exploited to obtain the metal. There could be many ways of using these data. Recently, during the study of copper objects, it has been noticed that there is a pattern of particular concentration of heavy elements traces in specific parts of objects from Early Bronze Age Anatolian contexts. After some speculations, it may be possible to hypothesise that these concentrations are due the precipitation of heavy elements in a liquid state copper melt. These indicators may allow identification of the orientation of objects during the casting phase, giving important data about the technologies used in the production of items and item categories, allowing production categories to be compared within object or type categories.

TH5-15 Abstract 13
Chemical and physical composition of disturbed and less disturbed soil of the Dūkšteliai 1 site
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Keywords: Early Mesolithic and Neolithic-Bronze Age, Geochemical and LOI analyses, Human inhabitation

In 2013 an archaeological investigation of the first inhabitation of River Neris basin in Lithuania has been initiated. As a part of the research, a newly discovered prehistoric site Dūkšteliai 1 on the lake Dūkštelis shore (Eastern Lithuania) was excavated in order to gather some new archaeological data for comparison with the material from other prehistoric sites in River Neris basin, and also to gain additional knowledge about the first inhabitants in this region. After excavating 100 m2 of the site structures were uncovered which, according to the first artefacts typology, correspond to Early Mesolithic or Neolithic-Bronze Age. Also the new palaeobotanical and geochemical data on Dūkštelis Lake bottom deposits indicated at least two episodes of human inhabitation at the lake shore.

In order to reveal the functional use of the prehistoric settlement elements, two structures were chosen for closer study – a probable hut and a hearth. The research was interdisciplinary: together with archaeological methods of investigation – examination of the finds (flint tools and their processing refuse, burnt bone, charcoal pieces, ceramic fragments), and their correlation with the two structures - several natural science methods were used to make a research on the content of the structures.

Ground formation and microscopic bioarchaeological research was done in order to find macro-botany remains that could reveal some details about prehistoric people diet. Geochemical analysis and loss on ignition method (LOI) were also used to find out if there are any elements significant for interpretation but undistinguished during the archaeological excavation.

The samples for geochemical and LOI analyses were collected from the structures as follows: in the middle of the structure, 20cm from the centre and in periphery. It was presumed that the latter represented less disturbed soil. Determination of major and trace elements Al, Ba, Br, Ca, Cl, Cu, Fe, K, Mg, Mn, Na, Ni, Pb, Rb, Sr, Ti, Zn, S was done using energy-dispersive x-ray fluorescence Spectro Xepos equipment and the Turbotquant calibration method for pressed pellets. Also samples were dried at the temperature of 110°C; then heated at 550°C and 950°C to burn out the organic matter and carbonates, respectively.

As a result, insignificant geochemical difference between samples has been observed and only minor inequality of element contents could be seen. Using Ward’s method and Euclidean distances a free diagram for 24 variables was drawn and trace elements were classified into groups representing: 1) clay minerals – Al, Rb, K, Ti; 2) carbonates – Sr, Ca, Ba; and 3) organic matter group with higher amount of Fe, Mn, Co, Zn, P, S. The new data show that higher concentrations of all three group elements contents could be seen. Using Ward’s method and Euclidean distances a tree diagram for 24 variables was drawn and trace elements Al, Ba, Br, Ca, Cl, Cu, Fe, K, Mg, Mn, Na, Ni, Pb, Rb, Sr, Ti, Zn, S was done using energy-dispersive x-ray fluorescence Spectro Xepos equipment and the Turbotquant calibration method for pressed pellets. Also samples were dried at the temperature of 110°C; then heated at 550°C and 950°C to burn out the organic matter and carbonates, respectively.

The samples were compared within object or type categories.

TH5-16 Abstract 01
Forging a Fenland framework: contextualising paleoecology & environmental change in UK Fens & beyond
Author - Huismans, Floor, Durham University, Durham, United Kingdom (Presenting author)
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Keywords: Contextualising wetlands, East Anglian Fens, Environmental change

Environmental data is one of wetland archaeology's most important data types. The palaeoecological significance of these often well-preserved remains cannot be denied. Often lacking on dryland sites, they provide information on past economies and subsistence, and allow detailed reconstructions of human-environment interaction. Despite this, the results of palaeoecological research on wetland sites do not always impact beyond the sub-discipline of wetland archaeology, which remains somewhat isolated from mainstream archaeology. If palaeoecological studies of wetland sites are to contribute to our general understanding of animal husbandry, agricultural developments or environmental change at various spatial and temporal scales, wetland archaeologists must contextualise wetland sites in a broader chronological and geographical framework.

This paper will argue that in order for the invaluable insights from palaeoecological studies on wetlands to be informative on wetland sites and regions. In this way, high quality wetland palaeoecological research can impact significantly beyond the sub-discipline of wetland archaeology. These issues will be discussed by considering Bronze Age environmental change in the Flag Fen Basin in the East Anglian Fens (UK) and beyond. Individual wetland sites like the newly discovered Bronze Age settlement at Must Farm will be placed within a wider (regional) (East Anglian), national (UK) and international (north-western European) context. This will demonstrate how we may integrate short-term events and lived experiences of environmental change at the local level with longer-term ‘global’ developments.

TH5-16 Abstract 02
Late Holocene multiproxy palaeohydrological and archaeological records from Littleton Bog, Ireland
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Co-author(s) - Young, D. S., University of Reading, Reading, United Kingdom
Keywords: Late Holocene, multiproxy palaeoarchive, Ireland

Late Holocene multiproxy palaeohydrological and archaeological records from Littleton Bog, Ireland
Author - Dr. Staunton, Phil, University of Reading, Reading, United Kingdom (Presenting author)
Co-author(s) - Young, D. S., University of Reading, Reading, United Kingdom
This presentation reports on the results of multiproxy palaeoenvironmental investigations carried out in association with archaeological survey and excavation of late prehistoric woodentrackways at Littleton Bog, Co Tipperary, Ireland. The site has a long association with palaeoecological research in Ireland, beginning with pioneering work carried out by Frank Mitchell at Littleton in the 1950s and 1960s that has provided a basic framework for the vegetation history of Ireland still in use to this day. Mitchell’s palaeoecological work emphasised the significant impact that past human societies have had on shaping environments in Ireland, and hinted at complex interrelationships between environmental change and human activity. The archaeology of Littleton Bog, now a drained and milled peat production site, was surveyed in 2008 and this was followed by targeted excavations carried out in 2008 in advance of peat extraction; excavation revealed over 30 archaeological features, mostly wooden trackways, of which 3 features have been dated ranging from the Early Bronze Age (ca.3500 cal BP) to the Iron Age (ca.2000 cal BP). A high-resolution multiproxy palaeoenvironmental record from the site was developed to provide palaeoenvironmental context for the rich archaeological record, and to assess the interactions between human activity and past environmental change at the local scale. This record, spanning from ca.4000 cal BP onwards, comprises testate amoebae, plant macrofossil, pollen, humification-derived bog surface wetness (BSW) records show broad agreement, but comparisons with recently published regional palaeo reconstructions indicate that the BSW record of Littleton Bog is influenced by the complex interactions between regional climatic forcing, autogenic internal bog processes, and other contingent factors. Regional-scale comparisons between peatland BSW and archaeological records indicate that there is no simple linear relationship between trackway construction and environmental conditions, a finding that is broadly supported by the data from Littleton; however, the timing of trackway construction at Littleton does indicate that localised, perhaps partly internally-driven, BSW changes may have had an important influence. The recent work at Littleton Bog, therefore, builds on the work of Mitchell by providing further detail into the relationships between human activity and Holocene environmental change in central Ireland; whilst broad patterns in these relationships are becoming clearer, the need for greater detail at the local scale is highlighted. Investigations of muliply produced bog profiles provide a key opportunity to examine the complex interactions between both autogenic and biogenic environmental change and human activity.

TH5-16 Abstract 03

A 8000 years history of climate and environmental change in South Greenland

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Keywords: multi-isotopic analysis, cattle management

Presentation Preference - Oral

The lakeshore settlements in South Greenland provide the unique opportunity to study various aspects of the Neolithic society and its economy. Understanding cattle management is one of the key questions in our research project that focuses on several sites in the lower Lake Zurich basin and the site of Arbon Bleiche 3 at Lake Constance. The lower Lake Zurich basin is an archaeological micro-region that permits the study of a long chronological sequence of more than 2000 years, while Arbon Bleiche 3 is a single- phased settlement with a fifteen-year long occupational phase (3384–3370 BC) providing the opportunity to capture a snapshot in time. All sites investigated have provided vast and well documented cattle bone collections. We applied strontium, oxygen, carbon and nitrogen isotope analyses to these remains to gain insight into strategies of animal management. Key questions were: Were cattle kept in or near the settlements or were they pastured further away? Where are potential pastures grounds? Is there evidence of regular mobility, maybe linked to seasonally varying patterns of alpine summer pasturing? On which level was cattle herding organised (household, village, networks between villages)?
THS-15 Abstract 06
The Early Iron Age 'lake village' at Black Loch of Myrton

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The recovery of the remains of a spectacularly well-preserved settlement at Black Loch of Myrton, South West Scotland has opened up the possibility for an investigation of early Iron Age society in northern Britain that goes far beyond what has been previously possible. With recent breakthrough in dendrochronological dating of later prehistoric structures in Scotland it is now possible to approach issues of structural duration on a human scale, meaning that models for the Iron Age societies that constructed these settlements in this area can be constructed to a level of detail never previously possible. This paper will present the archaeology of the Black Loch village recorded so far, and consider the hypotheses that will be tested through the multi-disciplinary palaeoenvironmental techniques used by the Celtic Crannogs project.

THS-15 Abstract 07
Investigating Iron Age lakeside settlements within their palaeoenvironmental context

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Palaeoenvironmental methods offer the opportunity of retrieving information from a range of proxies around lakeside settlement usage that would otherwise be difficult to obtain without excavation and can augment studies where excavation is possible. These methods also allow us to place these sites within a wider environmental context which can aid our understanding of local and regional conditions across the time period in question. Sediments are retrieved both on and adjacent to, these structures and can be analysed for ecological, biological and environmental data.

Here, we present palaeoentomological data, in particular Coleoptera (beetles) and Chironomidae (non-biting midges), from archaeological excavation deposits and parallel lake core sediments from Black Loch of Myrton, Scotland. This Iron Age lakechside settlement consists of a small number of structures constructed on peat/fen material at the margins of a small, productive loch. The main aim of the work is to inform our understanding of living conditions on the site, any associated impacts upon the nearby lake system and explore the wider implications for our understanding of lakeside settlements of this period. Beetle remains provide an understanding of both the environmental conditions across the site and on-site activities. Analyses indicate beetle and fly remains, ectoparasites (e.g. fleas), characteristic of decomposing floor litter layers and less than salubrious living conditions. Chironomid assemblages from the parallel lake core indicate a shallow, productive lake system showing nutrient changes over long timescales, and highlight the effects of lake settlement construction on the adjacent small lake system. Results are compared with other lakeside sites and crannogs of comparable situation to provide an over-view of living conditions associated with these types of site.

The results of the work form part of a larger project that uses survey, palaeoecological, biogeochemical and aDNA analyses to study crannog and lakeside sites across Ireland and Scotland to study patterns in construction, function and longevity of these monuments, across wider geographical scales. The Celtic Connections and Crannogs project, funded by AHRC, sets out to re-examine crannogs as both a cultural and environmental phenomenon that link Iron Age and Medieval communities of SW Scotland and N Ireland.

THS-15 Abstract 08
How could Crannogs impact on lake environments?

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Crannogs, or artificial islands, were constructed during the Iron Age to Medieval period throughout Scotland and Ireland. At least 1500 crannogs are recognised, but little is known about their longevity and continuity of use, and they are difficult and expensive to excavate. An alternative, or compliment to excavation is to assess these questions through the impacts of crannog construction and use on adjacent lake sediments. However, it is unclear what the impact of crannog construction and use has been on lake environments.

Using sediment cores we investigate crannogs in ten lakes and one archaeological site. The cores will be analysed for loss-on-ignition, stable carbon and nitrogen isotopes, and high-resolution X-ray fluorescence (XRF) to highlight input of clay, gravel, and stones from crannog construction.

Increased loading of heavy metals (Cu, Zn) might be related to metalworking on crannogs. In addition, the analysis of pollen, invertebrates, and ancient DNA, will provide insights into land use around the lakes and the conditions on the crannogs themselves. Changes in C/N ratios, diatoms, biogeochemical and stable isotope records demonstrate how crannog construction and use are driving changes in lake environments. Preliminary results indicate that XRF data (Cu, Ti, Zr) corroborate sediment stratigraphy and can be used to distinguish periods of crannog construction and use. In one of the sites, Lough Yoan, diatom assemblages indicate a substantial increase of nutrients during this period. The increased variety of submerged substrates due to crannog building also led to a more diverse cladoceran assemblage.

THS-15 Abstract 09
From the lakeshore: settlement and technology in the later Mesolithic

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Excavations undertaken under the aegis of the Discovery Programme, Dublin (www.discoveryprogramme.ie) between 2013 and 2015 on the shores of Lough Kinale, Co. Longford, Republic of Ireland, uncovered a well preserved Late Mesolithic (c.5500-4000 cal. BC) platform crannog.

This lake-side site is one of very few wetland archaeological occupation sites in Ireland that extends over the Mesolithic-Neolithic transition. The site consists of a series of constructed brushwood layers with intermediate peat lenses built beside, or into, the adjacent lake, and up to five different occupation phases. Within these layers are a variety of architectural features, including upright stakes, wooden 'planks', hearths, and abundant lithics (Frederengren, 2010).

Bioarchaeological investigations of the site have been undertaken as part of a DEL NI funded PhD research project. Results from fossil beetle and dung fungal spore analyses suggest the presence of structures maintained over the Late Mesolithic phases of the site’s usage. Synanthropic beetles typically associated with thatching and/or bedding materials indicate the persistence of dry, sheltered areas across the site. This evidence is significant and challenges assumptions about the nature of lake-side Mesolithic settlement in Ireland (Woodman, 2009). Analyses of coprophagous spores reveal the presence of the dung of grazing animals within several specific contexts over the same period. This is intriguing given the apparent absence of large grazing herbivores in Ireland prior to their introduction during the Neolithic. The ‘platform crannog’ appears to have been a well-maintained site occupied on a seasonal or re-inhabitation basis. Here, we explore the significance of these findings within the context of current debates around the nature of the Mesolithic, its implications for the Mesolithic-Neolithic transition in Ireland as well as broader debates around the origins of the synanthropic fauna.
Insights into the occupation of a Scottish Iron Age wetland village using organic geochemistry

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Keywords: Human-environment interactions, Organic geochemistry, Wetland settlement

Presentation Preference: Oral

The first wetland village discovered in Scotland – Black Loch of Myrton, exhibits excellent preservation of early Iron Age life. It is therefore an excellent opportunity to explore how Celtic people lived and interacted with their environment. This study uses organic geochemistry to answer key questions about the settlement: how many construction and occupation phases occurred? What activities took place and how did they vary over time?

We reconstruct environmental conditions during village development using lipid biomarkers, organic molecular fossils that can be traced back to known biological precursors, and carbon isotopes from a sediment core recovered from the centre of the wetland. These results are compared with other regional climatic reconstructions to explore the role prevailing environmental conditions had on the start of the roundhouse construction and the demise of the village. Human-environment interactions within the wetland are assessed using biogenic silica concentrations, a measure of the abundance of the siliceous primary producers and agricultural activities: the importance of taphonomy

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Keywords: Agriculture, lake sediment DNA, taphonomy

Presentation Preference: Oral

During the last decade, an increasing number of studies were interested in the use of lake sediment DNA to trace past landscape changes (plant DNA); agricultural activities (plant, mammal and bacteria DNA) as well as the human presence (human-specific bacteria DNA). However, as all sedimentologists know, the sedimentation in a lake can vary temporally and spatially depending of the variations of processes at the origin of the sediment formation. Moreover, depending on the geographical, topographical, climatic and ecological contexts, the sedimentation can be very different from a lake to another. These lake sediments characteristics might affect the aDNA archiving in a various ways including potential biases related to both, the taphonomic processes (DNA source, transfer and deposit) and the analytical process. Consequently, it is now crucial to study these processes to ensure reliable interpretations of the lake sediment DNA results and to improve its potential for palaeoenvironmentalists, archaeologists and historians. In this aim, we combined sedimentological/geochemical analyses with DNA metagenomic analyses (focused on plants and mammals) on three different mountain lake catchment systems in the Alps (different relative to their physico-chemical and biological characteristics). We showed the extracellular aDNA retrieved from the sediment mainly comes from upper soil horizons and is transported to the lake being fixed into/onto soil particles. Lakes with high detrital inputs are thus more suitable to archive terrestrial DNA than lakes dominated by autochthonous sedimentation. Furthermore, the hydrographical web has to be well developed to provide a good spatial representativeness of possible plant patches in the catchment. Specific chemical/biological conditions affecting aDNA preservation and/or analysis success were also proposed as explanation for the non-detection of aDNA in one of the lakes. Other less predictable factors, e.g. pastoral practices and animal behaviour, also affect the archiving of aDNA from domestic animals. In particular, determining the type of source of DNA (“point” vs “diffuse”), these factors will affect the detection probability of the animals. All the factors affecting the aDNA record in lake sediments can change over time and can thus significantly affect the reconstructions of plant cover and livestock farming/pasturing histories.
TH5-17 Abstract 01

Population Genomics of Bronze Age Eurasia

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Keywords: Ancient DNA, Genetics, Migrations

Presentation Preference - Oral

The Bronze Age of Eurasia (around 3500–1000 BC) was a period of major cultural changes. However, it has been debated for decades if the many cultural changes that occurred during this period resulted from the circulation of ideas or to which extent they were accompanied by human migrations. To investigate these questions, we sequenced low-coverage genomes from 101 ancient humans from across Eurasia. We show that the Bronze Age was a highly dynamic period involving large-scale population migrations and replacements, responsible for shaping major parts of present-day demographic structures in both Europe and Asia. We find genetic evidence for the expansion of the Yamnaya culture from the Pontic-Caspiian both into North Eastern Europe as well as into Central Asia. Our findings are consistent with the hypothesized spread of Indo-European languages during the Early Bronze Age.

TH5-17 Abstract 02

What ancient DNA can tell us about the origin and spread of Indo-European languages

Author - Dr. Haak, Wolfgang, Max Planck Institute for the Science of Human History, Jena, Germany (Presenting author)

Keywords: ancient DNA, Indo-European, prehistory

Presentation Preference - Oral

Ancient DNA studies on Mesolithic, Neolithic and Bronze Age individuals from Western Eurasia have recently thrown fresh light on migrations in Europe's prehistory. The Early Neolithic period in Europe (~8,000-7,000 years ago) was characterized by closely related groups of early farmers, which were different from indigenous hunter-gatherers, while Russia was inhabited by a distinctive population of eastern hunter-gatherers with affinity to Palaeo-Siberians. The Middle Neolithic saw a resurgence of hunter-gatherer ancestry throughout much of Europe, while the contemporaneous Yamnaya pastoralists of the Russian steppes shared about half of their ancestry with the preceding eastern European foragers and the other half with Caucasian hunter-gatherers. This ‘Yamnaya-like’ Y chromosome ancestry arrived in Central Europe ~4,500 years ago, as Late Neolithic Corded Ware individuals traced ~70% of their ancestry to the Yamnaya, and is thus a good temporal fit for the steppe hypothesis, which proposed a spread of Indo-European languages via the steppes starting from a proposed homeland north of the Black Sea. This third ancestry component persisted until the present-day in all Europeans and documents a (second) major expansion into Europe from its eastern periphery. The accompanying genetic turnover was high enough to support a language replacement, a criterion that was previously suggested to only apply to the language-farming dispersal hypothesis in the light of the Meso-Neolithic transition. As a consequence, these ancient DNA results have direct implications for the spread of Indo-European language groups and at the same time reveal the boundary between the two rivaling hypotheses. It is possible that additional ancient DNA from other prehistoric cultural groups from the Caucasus and surrounding regions will provide plausible temporal and contextual fits for the proposed homeland of Proto-Indian-European.

TH5-17 Abstract 03

The story told by Mireasa (Constana) Bronze Age barrow – interdisciplinary approach

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Keywords: Bronze Age, Yarmaya, mitochondrial aDNA

Presentation Preference - Oral

There is a current tendency towards an interdisciplinary approach when testing various hypotheses regarding historical events that contributed to the shaping of modern European populations, especially when considering their genetics. The Bronze Age is a historical time frame characterized by major population movements accompanied by social and cultural changes that influenced present-day populations, but it remains unclear to what extent. Few inferences can be made using traditional sources such as archaeological record or written sources. While this kind of evidence is often ambiguous, in recent years it has been supplemented by genetic data from ancient populations or contemporary genetic patterns, in order to estimate the demographic impact of these historic changes.

This study aims to integrate data concerning the genetic diversity of Bronze Age skeletal remains associated to the Mireasa (Constanţa) barrow as illustrated by mitochondrial hypervariable regions analysis, physical anthropology of the skeletal remains and stable isotopes analysis.

In this manner, a more comprehensive image regarding the cultural and social status of Bronze Age individuals from the southeastern part of Romania, a geographic region that is scarcely represented by genetic data in scientific literature, can be gleaned. Integrating present genetic results for representatives of this population with their contemporaries from other geographic locations may reveal genetic links associated to migratory events. First insights on burial ritual and funerary inventory of these individuals indicate that they are most likely associated with Yamnaya culture, while the radiocarbon analyses of one individual ‘centrally located’ in the tumulus show that it dates to 2620-2470 BC. The molecular results at date reveal the presence of at least two distinct maternal lineages in this population, in most cases rare haplotypes for the modern day European population.

These results are part of an ongoing project and a future point of concern is to assess the genetic relationship between this Bronze Age population and one dated to the pre-modern period discovered in the same geographic area.

This study was supported by funding from the project Genetic Evolution: New Evidences for the Study of Interconnected Structures (GENESIS). A Biomolecular Journey around the Carpathians from Ancient to Medieval Times. (CNCSIS-UEFISCDI_ PNI_PCCA_1153/2011).

TH5-17 Abstract 04

Scandinavian Bronze Age rituals, and their Indo-European background

Author - Prof. Anders, Kalfitt, Uppsala University, Uppsala, Sweden (Presenting author)

Keywords: Burial ritual, Cremation, Cosmology, Indo-European, Religion, Ritual, Sacrifice

Presentation Preference - Oral

In my research I try to interpret remains of ancient Scandinavian ritual, against a larger Indo-European background. Like the Indo-European languages, is also Indo-European religion an old concept, first constructed in the 1800s, when the comparative study of religion emerged as a method. It seemed to be basic features that recur in the religions practiced by different peoples who spoke Indo-European languages, and that parallel to language, important elements of religious beliefs, myths and rituals could also be preserved over time.

In the last few years, there has been a very rapid development in the field of ancient DNA that has revolutionized the question of Indo-European migration in prehistory. The question is no longer whether there is a connection between early Indo-European peoples, but how complex the relationships are and how they occurred. In 2014 and 2015 came finally the first really convincing DNA studies regarding the ancient Indo-Europeans, results that fully support the ideas of Indo-European spread by migration. Far hundred percent proof that this migration really brought languages, is missing still, of course, but it could be assumed with almost certainly. According to the hypothesis I try to test immy research, essential features of mythology and ritual was also spread in this context, although changes of these obviously have taken place over time, in the same way as with the language.

The homology of the creation myths is one such basic cosmological idea. The concept of homology here refers to the belief that one entity is created using the matter in another entity. They are allortomes, that is, alternative guises of each other. As
regards both fire-sacrifice, and also cremation, the link to homology is evident. One significant example is the Vedic fire-rituals (including cremation of the dead), that are performed as repetition of the creation and has a deep cosmological significance. This cosmology – with parallels in several old Indo-European religions, including for instance the Old Persian (Zoroastrian) religion, Old Baltic, Germanic and Old Norse beliefs had a fundamental impact on the eschatological beliefs, and accordingly on the burial rituals. Flesh and earth, for example, are considered to be of the same material substance and can thereby be transformed into each other. In the same way, bones, the hard part inside the soft flesh, are equated with the stones in the earth and with rocks and mountains, while hair is associated with plants. Life consists of a limited number of elements from which everything is composed.

My paper will discuss this with focus on finds from some recently excavated ritual places in eastern Sweden, and interpret the finds in the light of a broader Indo-European background. I will use the Old Vedic ritual system as one important comparative, and also focus on a discussion of the interpretations in the light of the new results from ancient DNA studies.

THS-17 Abstract 05
Can scholars envisage a Baltic Origin of Homer’s Epic Tales?

Author - Prof. Bendelli, Giuliana, Università Cattolica del sacro Cuore Milano, Milano, Italy (Presenting author)
Keywords: Bronze age, Homer, Metal working around the Baltic Sea
Presentation Preference - Oral

According to a recent challenging hypothesis by the scholar Felice Vinci, the real setting of the Iliad and the Odyssey can be identified not as the Mediterranean Sea, where it proves to be undermined by many incongruities, but rather in the North of Europe. The sagas that gave rise to the two poems came from the Baltic regions, where the Bronze Age flourished in the second millennium B.C. and where many Homeric places (Troy, Ithaca, Faro) along with Ulysses’ wanderings can still be identified today. Moreover, this archaic Achaean civilization extended on all the Baltic coasts, such as, for instance, along the Swedish coasts, where today’s Bay of Bothnia is the ancient Aula, where the Achaean fleet, according to the Iliad, gathered before sailing for Troy. As regards the Baltic Republics (Estonia, Latvia, Lithuania) there are many convergences with Greek mythology. The blond Achaean who founded the Mycenaean civilization in the Aegean in the 16th century B.C. brought these tales from Scandinvavia to Greece after the end of the "post-glacial climatic optimum". They then rebuilt their original world – where the Trojan War and many other mythical events had taken place – farther south in Mediterranean waters, transferring significant names from north to south. Through many generations, they preserved the memory of the heroic age and the feats performed by their ancestors in their lost homeland. The oral tradition was put in writing around the 8th century BC, when the alphabetical writing was introduced in Greece. According to Felice Vinci’s theory, both the Homeric poems and the rest of Greek mythology are the last memory of the events and happenings in the lost Nordic homeland of their Achaean ancestors, before they moved towards the South of Europe. This new perspective conforms to the most recent views of archaeology: the "radiocarbon revolution", based upon radiocarbon dating, adjusted with dendrochronology, has backdated of many centuries the rise and development of the European Bronze Age and, on the other hand, a very ancient city, dating back to the third millennium BC, was recently found by Swedish archaeologists in the site of Bjästamon, near Hernosand.

THS-17 Abstract 06
The Settlement System of Pit-Grave Culture of Central Ukraine

Author - Syvopal, Mykhaylo, Chernyay Archaeological Museum, Chernyay, Ukraine (Presenting author)
Keywords: Chernyay, Pit-Grave Culture, Settlement System
Presentation Preference - Oral

Having excavated dozens of Pit-Grave burial mounds in Central Ukraine the author began the search for Pit-Grave settlement relics and as a result of a 20-year-long research has discovered more than 30 such objects, divided into two types: 1) basic long-term settlements; 2) temporary cattle herders’ sites.

The author has partially excavated one of these basic settlements (Dasyatyn). It belongs to the most widespread type: 1) the settlements on small (0.5-1ha) sites (or peninsulas) in wide floodplains of the Dnieper River and its tributaries. The Dasyatyn type settlements have a relatively thin (0-4-0.7m) and a rich archaeological layer (up to 100 finds per 1m2).

Small (0.1-0.3ha) and poor in relics (1-10 finds per 1m2), temporary sites have been found in 2) floodplain sites/peninsulas (often near basic settlements) and under the conditions of high topography: 2b) at the top of watersheds but next to a water source; 2c) on the high bank terrace of small rivers of the 2nd and 3rd order; 2d) on the low promontories of small rivers. The last subtype is more known in a number of other territorial variants of Pit-Grave culture, though the watershed subtype is a new one.

The data deriving from the study of these settlement relics suggests that the Pit-Grave population of the Middle Dnieper Area practised transhumance, insignificantly complementing their diet with the help of fishing, hunting and food gathering. The vast majority of the population lived in basic settlements, located on the floodplain sites in collections of 50 to 100 persons (many large patriarchal families), which could unite into a clan together with the inhabitants of nearby settlements. During a warm period, the fully mature men departed with the herds to the temporary sites (some 5-10 persons per site) within the radius of several kilometer, while women, children and old people remained in the basic settlements.

THS-17 Abstract 07
Back to square one? The legacy of Marija Gimbutiene (Gimbutas) in the light of recent DNA findings

Author - Dr. Markycke, Inga, Viron, Denmark (Presenting author)
Keywords: Gimbutes/Gimbutas, Migrations, Steppe cultures
Presentation Preference - Oral

Recent DNA findings seem to pinpoint a massive migration from the steppe area towards Central Europe occurring around 4500 years ago (Haak et al. 2015, Kallfass et al. 2015). Genetic studies are usually taken as evolutionary histories from the past, anchored in temporal dating references. Paradoxically they rather produce a series of snapshots, which fail to explain the statistical uncertainties of applied dating methods and a still very limited dataset, analyzed with the help of mathematical models. Thus archaeology more than ever is challenged by the questions of why and how. The paper aims to reflect upon Marija Gimbutas’s legacy in the Indo-European debate, how she saw the instrumentation of human movements and mixing, also with reference to other contesting thoughts.

THS-17 Abstract 08
Archaeological Modeling of the Spread of Indo-European Traditions in Late Prehistoric Eurasia

Author - Dr. Johnson, James, University of Chicago, Chicago, United States of America (Presenting author)
Keywords: Archaeological Modeling, Demography, Indo-Europeans
Presentation Preference - Oral

Echoes of Marija Gimbutas’s highly influential research still permeate the more recent work on the spread of the Indo-European language, but the work focusing on the homeland of the Proto-Indo-European is more recent and much of the research involves the use of new archaeological methods. Many of the recent collaborative efforts are focused on how culture history and change might be best applied to the multi-dimensional, and subsequently multi-disciplinary, nature of the problems inherent in research on the Indo-Europeans. While much of the discipline of archaeology has levied trenchant critiques against the broad brush strokes of culture history, recent Indo-European scholarship shows little to no overt interest in the updated, and now commonplace, theoretical approaches in archaeology.

This paper seeks to provide more nuanced understandings of event and process into archaeological inferences about the prehistory of the Indo-Europeans, with a primary focus on how populations aggregations break down and disperse. Current efforts in the study of Indo-Europeans have focused on individuals or small groups including: sharper focus on the genetic make-up of individuals, specific burial sites, and specific words associated with ancient concepts with corresponding instances or appearances of material culture. Despite the numerous reviews of the Eurasion steppe and Central and Eastern European archaeological material, a sustained inquiry into middle-range demographic and socio-political processes has yet to be implemented. To accomplish this, I present a preliminary demographic model that seeks to account for the socio-political, spatial, and temporal nuances that have already been and remain crucial to anthropological and sociological studies of culture. Through an integrated methodology comprised of demographical, spatial, and statistical analyses, as well as a new theoretical approach - the afferent of population aggregations - I explore some of the contributing socio-political and demographic factors in the dispersal and adoption of the material, linguistic, and symbolic traditions often attributed to the spread of Indo-European cultural groups.

THS-17 Abstract 09
Indo-Europeans in the East Baltic Region. A new data and old problems

Author - Assoc. prof. MerkenCius, Algimantas, Vilius University, Vilius, Lithuania (Presenting author)
Keywords: East Baltic area, Indo-European Linguistics
Presentation Preference - Oral

The origin of Corded Ware culture, which is associated with Indo-Europeans in Central and Northern Europe have disputed for almost a century. Two major explanations have been proposed, a massive migration of Yamnaya or Pit Grave culture people from the Pontic-Caspian steppes, or locally initiated changes. According to M. Gimbutas (1991), a massive infiltration of Kurgan people from the steppe areas initiated cultural changes in Central and Northern Europe. However, other archaeologists suggest that several
smaller innovations or gradual local changes played the main role in the cultural transformation of a very wide region (Bankoff & Winter 1999, 175). However after 3000 BC a new type of sites and artefacts appeared in the Baltic Region. On the basis of these radical changes in material culture one can claim that almost all aspects of human life, social, ideological and economic has changed radically. After a recent studies of ancient DNA (Allentoft et al. 2015; Haak et al. 2015) a new important data were added to old debates of linguists and archaeologists. The aim of the paper is to compare archaeological data of Corded Ware and post Corded Ware people from the East Baltic Region to the data of Pontic-Caspian steppe, and to try to find traces of cultural influences. A new DNA discoveries will be used as well.

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**TH5-17 Abstract 11**

The introduction of Indo-European in the later South Scandinavian Neolithic

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**Co-author(s):** Krommen, Guss, University of Copenhagen, Copenhagen, Denmark.

**Keywords:** Corded Ware, Indo-European, Proto-Neolithic

**Presentation Preference:** Oral

With the exception of Basque, Finnish, Estonian, and Hungarian, the modern linguistic landscape of Europe is almost entirely shaped by a single language family: Indo-European. This perhaps surprising linguistic unity is likely the result of a prehistoric cultural expansion that erased almost all previous languages. By the dawn of history, Europe had at any rate become covered by a patchwork of Indo-European dialects that is Germanic, Celtic, Italic, Baltic, Slavic, Albanian, Armenian, and Greek. These formed the seeds from which grew the modern European languages, such as Italian, German, Lithuanian, and Swedish, not to mention the highly globalized languages English, French, Spanish, and Russian, each of which today have hundreds of millions of speakers.

Language is an important part of human self perception and a creator of identity among human groups. Therefore, language is an important factor when trying to understand cultural change in prehistory. Northern Europe is a region that saw profound cultural changes throughout the third millennium B.C.E. In southern Scandinavia the first agrarian culture, the Funnel Beaker culture, came to an end overlapping with the emergence of “sub-Neolithic” Pitted Ware influences that reached the northern and eastern coastal areas of present-day Denmark from the Scandinavian Peninsula. From around 2850 B.C.E early Corded Ware (Single Groove) societies appeared on the Jutland Peninsula introducing among other things new burial customs, new pottery shapes, new amber ornaments, and new types of stone battle-axes.

The third millennium B.C.E was, no doubt, a period of great material and cultural changes and language must not be ignored when considering these. Instead, language must be viewed and treated as a deeply integrated part and facilitator of the transmission of new ideas, cultural processes and substance economic and material changes. This paper draws on evidence of change in both material culture and in language that took place in the third millennium B.C.E and combines these evidence into a unified hypothesis on when and how Indo-European language was introduced into northern Europe and southern Scandinavia. After being introduced together with Corded Ware features in central and western Jutland it seems that the implementation of Indo-European happened gradually via long term cultural transformation processes.

However, in order to understand the cultural and linguistic processes that allowed the introduction of an entirely new language family it is important also to consider the long gone predecessor of Indo-European. This extant language we refer to as “Proto-Neolithic”. Did this unknown language for human life contribute to the new Indo-European language? Did it work to form the basis for the vast majority of modern European languages? One further aspect is where we should place the language spoken by the Pitted Ware people and furthermore if it had any impact on the larger language development. Do we still carry relics with us in modern Germanic that can be traced down to the Proto-Neolithic language spoken by the Funnel Beaker farmers – and perhaps even also elements of a Pitted Ware language?

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**TH5-17 Abstract 12**

Linguistics and archaeology: A reassessment of the Indo-European homeland problem

**Author:** Dr. Olander, Thomas, University of Copenhagen, Copenhagen S, Denmark (Presenting author)

**Keywords:** Indo-European homeland, Indo-European languages, Linguistics

**Presentation Preference:** Oral

When searching for the co-called Indo-European homeland – the place from which the Indo-European languages spread at some point in prehistory – there is a discrepancy between the opinions of archaeologists and historical linguists. Different models in the two fields lead to preferences for different scenarios.

Popular among archaeologists is the “Anatolian hypothesis”, which locates the Indo-European homeland in Anatolia around 6,500 BC and sees agriculture as the main factor in the spread of the Indo-European languages; this hypothesis, however, finds very limited support among historical linguists. A competing view, the “steppe hypothesis”, puts the homeland in the Pontic-Caspian steppe around 4,000 BC; this is the scenario preferred by many historical linguists, and also by a few prominent archaeologists. While accounting more convincingly for the linguistic evidence, the steppe hypothesis has been criticised for not providing a plausible motivation for the success of the Indo-European languages. Here the Anatolian hypothesis has an advantage as it correlates with the spread of agriculture.

Research in ancient genetics has now shown that there was indeed an indisputable migration from the steppe within a time frame that matches that of the steppe hypothesis. The new results have a great potential impact on the discussion of the Indo-European homeland problem and may eventually bridge the gap between archaeology and historical linguistics.

This paper aims to reassess the linguistic evidence on the time and location of the Indo-European migrations, focusing on the methodological questions that have frequently given rise to misunderstandings between historical linguists and archaeologists.

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**TH5-17 Abstract 13**

The canonical Indo-European model and its underlying assumptions

**Author:** Prof. Demoule, Jean-Paul, University of Paris I, Paris, France (Presenting author)

**Keywords:** genetics, historiography, Indo-European

**Presentation Preference:** Oral

Throughout the 19th century, resemblances and correspondence between Indo-European languages formed the foundation of modern linguistics. At the same time, these resemblances and correspondence were explained, from the start, by the postulated existence of an original people (Urwolf) who spoke an original language (Urheimat) in an original homeland (Urswelt), three entities which were waiting to be rediscovered or reconstructed. As we are well aware, this research was subject to ideological hijacking on a number of occasions. In any case, however, it cannot be said that any of this research would have ended in scientific consensus. Beyond the systems of phonological and morphological correspondences, there is no consensus among linguists regarding the possibility of ever achieving the reconstruction of a single language based on a tree model, or whether more complex models might be more suited. While comparative mythology, exemplified in the work of Georges Dumézil, also reveals undeniable connections across Eurasia, the family tree is, again, not the only possible model. After the mistakes and dead ends of craniometry, genetics are producing increasingly interesting and reliable results, but with a risk of circular reasoning which is amplified by the influence of the English-speaking academic world. Finally, archaeology is still waver between three main contradictory geographical explanations with no possibility of reconstructing with certainty the suggested routes which might have led Indo-European speakers from an original homeland to their various historically attested settlement locations. This is why we are entitled to question the underlying canonical model as an alternative origin myth to the Bible, while at the same time seeking more complex explanatory models.
The aim of this study is to analyze the ancient DNA and to identify the haplogroup, presenting also the first results obtained on samples extracted from a Late Bronze Age funerary context discovered in Eastern Romania and to identify an efficient and reliable protocol for aDNA extraction. To test whether the protocol is efficient and capable of yielding good quality DNA, extraction was first performed by using the phenol:chloroform protocol and DNA IQ protocols. The funerary context from Tarnia, Bacau county, was discovered in 1972 and consists in a pit in which was discovered a human skeleton in a left supine position. The left hand was flexed and sustain the skull while the right hand was flexed and slightly lodged on the pelvis and the legs were strongly bent on the left side. The osteological remains were in a poor state of preservation. The burial contains two vessels as grave goods which were attributed based on their typological characteristics to the Noua culture (Late Bronze Age).

The sequences were subjected to Nucleotide BLAST (Basic Local Alignment Search Tool, Altschul et al, 1990) to identify the similarities with the previous sequences from data base and haplogroup assignation. The T72 sample shown an identity of 97% with HV1 sequences from a previous study conducted by Lippold et al., 2014. According to Eupedia database, Haplogroup T is composed of two main branches T1 and T2 and the both of them have very different distributions, which are diametrically opposed in most regions. Furthermore, the T72 sequence was aligned with haplogroup T sequences from NCBI and used to construct a ML tree, in order to identify the haplogroup assignation.

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Many archaeological studies of Neanderthal mobility and behavioural complexity have begun to draw on biological explanations for behavioural differences from Homo sapiens. If Neanderthals demanded higher energetic requirements than H. sapiens, then it follows that behaviours enabling Neanderthals to maximize energy intake would be selected for. Circadian rhythms and moods are closely linked to energy intake. This study investigates the phylogeographic distribution of alleles linked to regulation of circadian rhythms and moods in twenty-one modern European, Asian, and African populations in order to test the hypothesis that these alleles originated in Neanderthal populations in Upper Pleistocene Europe. It is hypothesized that presence of two alleles, rs10994336 and rs1006737, may have conferred an adaptive advantage on populations living in northern temperate zones during the Pleistocene. The presence of these alleles is linked to both manic and depressive mood states, enabling increased productivity in the summer and conservation of energy during the winter. If these alleles arose in Neanderthal populations, they would be present in higher frequencies in African populations. It was discovered that latter susceptibility allele is present in higher frequencies in African populations and the former is present in higher frequencies in Eurasian populations. This suggests that these alleles were not selected for solely in Neanderthal populations. The results of this study are significant because they caution against solely biological explanations for differences in the archaeological record.
Archaeology is a discipline without chronological, methodological, political or territorial borders. Yet current territorial divisions and traditional and local ideologies often bind and constrain the discipline in its study of the wider social processes of the past, thereby limiting the development of important, if broad, narratives. There are practical issues also. Lack of sufficiently detailed archaeological datasets, or the inadequate synthesis and integration of the data sets generated by multiple sources hampers interpretation. It presents additional challenges for researchers that seek to build broad regional or, indeed, global narratives. This theme invites contributions that deal with a wide range of phenomena on a regional or global scale, such as technological diffusion, cultural interaction, distribution and spread of plant and animal species, cultural identity, human and cultural mobility and social complexity. In particular, contributions that identify and examine wider social processes through the prism of local datasets are welcomed.
TH6-01 Abstract 02

What’s new? The first bronze smiths in southern Scandinavia

Author: Prof. Olasusson, Deborah, Department of Archaeology and Ancient History, Lund, Sweden (Presenting author)
Co-author(s): - Oral

Keywords: artisanal tradition, bronze casting, Late Neolithic

Presentation Preference - Oral

The study of technological innovation is often abstract, tending to concentrate on large-scale changes in material culture. However, non-industrial material culture consists of objects which were crafted by individual artisans who worked within an artisanal tradition. According to Helé Vandkilde, bronze casting technology was introduced to Denmark during the early Late Neolithic. Whereas flintknapping had been an integral part of the technological knowledge here since humans first migrated to the Scandinavian peninsula, bronze casting knowledge has no apparent domestic precursors; it is a novel technology for which local artisanal traditions were lacking. In this paper I propose to use the artisans’ perspective to explore how the metal-casting tradition took hold and spread in southern Scandinavia.

TH6-01 Abstract 05

Transmission and transition, relationships between craft-knowledge and textiles across Europe

Author: - Dr. Andersson Strand, Eva, BAXO institute, Köpenhamn, Danmark (Presenting author)
Co-author(s) - Oral

Keywords: Europe, Textiles, Transmission

Presentation Preference - Oral

Recent research has clearly demonstrated that the movement of textiles and specific textile raw materials in northern Europe is more complex than hitherto known. Analyses have indicated that some wool in Scandinavian Bronze Age textiles is not local, coming from outside present day Denmark (e.g. Fri et al. 2015). It is likely that already in this period wool was being exchanged in Northern Europe, and trade in textiles and wool is well known in the Eastern Mediterranean in much earlier periods (e.g. Michel and Noch 2017). However, the demand for a new raw material only arises to meet a need and desire in society. Use of a new textile raw material would, furthermore, require new artisanal knowledge. In this paper we will, from a conceptual perspective, discuss the implications of this with regard to textile fibres and cloth cultures in European societies.

TH6-01 Abstract 06

Understanding Bronze Age Life- from an Artisanal Perspective

Author: PhD student Botvide, Katarina, Lund University, Lund, Sweden (Presenting author)
Co-author(s): - Oral

Keywords: artisanal perspective, tacit knowledge, expertise, ceramics, art material, artisanship, skill, moving craft knowledge

Presentation Preference - Oral

There are traces of communication in ancient artefacts and craft materials. Often archaeologists are interpreting this as results from trading or import. The question for this paper is to explore and understand how the ancient artisan reacted and used new ways of working and new ways of thinking in connection to “moving artisains and crafts knowledge”. Prysgårdlen area in the South East of Sweden bear traces of distant artisanal communications and could be described as a node for new expressions and techniques in the Late Bronze Age. The question of craftsperson and their role in prehistory has been discussed in many different ways and from different theoretical perspectives. In my thesis The Artisanal perspective-an archaeology in practice (2016) I have described how artisanship can be the reason for moving material and or techniques around large geographical distances. Learning and sharing knowledge develops new links between people. These circumstances might be the departure for ancient artisans to leave the known area and try new paths.

I use and widen artisanal knowledge to interpret artefacts based on my own tacit knowledge as an educated professional ceramicist and archaeologist. In other crafts I collaborate with skilled artisans as expertise to extract valuable knowledge that gives a good base for archaeological synthesis concerning crafting issues.
The archaeological record shows that artefacts have been exchanged over huge distances at times in the distant past when such exchange must have been very difficult. In this paper we attempt to describe how these isolated and intermittent interactions can evolve into established trade networks.

Trade implies organised exchange in sufficient volume to provide a definable pattern. Most simply, the ability to conduct trade encodes two very different 'distance' scales: the 'distances' that traders need to traverse in order for the network to be robust (e.g. well-connected) and the 'distances' for which the available technologies permit the ready transportation of goods. As a shorthand, we term the former 'geographic' distance and the latter 'technological' distance. There is a symbiosis between the two: the technological improvements that make travel more reliable and viable encourage network growth, conditioned by geography, which exploits this ability to travel longer distances. We stress that by 'geography' we mean not so much Cartesian separation as a reflection of the 'ease' of exchange between sites and that the application of 'technology' (e.g. the wheel, pack-animals, sail) is conditioned by its ownership.

We shall argue that a simple characterisation of network dynamics can be made on the basis of the ratio of these distances. As time passes, improving technologies lead to a growth in technological distance. The establishment of 'trading' networks is necessarily constrained when technological distance is relatively small. At the other extreme, trading networks have become well established by the time that technological distance is relatively large. The tipping point between struggling and established networks arises when the distances are comparable. Technology then permits exchange over just those distances necessary for robust networks to exist and a vigorous growth in exchange occurs.

To exemplify these ideas we examine the evolution of maritime networks in the Aegean and E. Mediterranean from the Early to Late Bronze Age. The tipping point for the rapid growth of trade and exchange occurs at the transition from Middle to Late Bronze Age with the large-scale adoption of sail. This becomes clear when Minoan maritime networks are modelled in a way in which this sensitivity to 'geographical' distance is explicit. However, on either side of this transition point sensitivity to distance is less important and different computational approaches are required. The implication is that network dynamics in Early, Middle and Late periods has to be understood in terms of different social agency for network formation.

An earlier formulation of these ideas can be found in our paper, From Oar to Sail, published in 'Maritime Networks; Spatial structures and time dynamics', C. Ducruet (Editor), Routledge Studies in Transport Analysis, Routledge (London and New York), 2016. The interplay between technology and geography in the development of trade networks

Copper ore: the path from the Tien Shan to the South Urals in the Late Bronze Age

Widespread of bronze production in the Bashkir Urals is connected with the Late Bronze Age. The study of settlements and funerary monuments of the Late Bronze Age in this area gave massive material on bronze production in the region (waste products, casting molds, copper ingots, particles of copper ore, containers with traces of waste products) and also numerous products made of bronze (knives, chisels, awls, hilt slabs for vessels, sickles, ornaments and so on). E. Chernykh distinguished in this area a West-Asian metallurgical province connected with the Eurasian Steppe. It is connected with a contact between the two groups of population in the southern Urals: Srubnaya and Andronovskaya (Alakulskaya) cultures. In Bashkir Urals, in the area between the rivers Dama and Urshak, Kazburunovsky archaeological micro-district belonging to the late Bronze Age is distinguished. There is a group of 5 settlements and 4 barrow burials here. In the process of investigation the complex of sites in the area of 16378 square km were examined. Paleo-genetic studies have identified several groups in Kazburun archaeological micro-district. Probably in the late Bronze Age the ore came with population of Andronovskaya (Alakulskaya) culture of South-Eastern Kazakhstan. This confirms the theory of E. Chernykh about the unity of West-Asian Metallurgical Province.

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The pure copper artefacts as implements (knives, etc.) need a closer look typologically etc. (RAN analyses). The tin bronzes are already present as finished artefacts and there is no evidence for their production thus far in this site. Due to the research, a new interesting problem in Bashkir Urals archeology came up. Having a large number of copper sandstones and mines, developed in the Late Bronze Age (Kargainskiye mines), we got an interesting result: the export of ore from northern Tien Shan. As a result, deposits of copper sandstone of Upper Permian red color formations in Southern Urals from Kargaly mines to Eek River in the area of 16378 square km were examined. Paleo-genetic studies have identified several groups in Kazburun archaeological micro-district. Probably in the late Bronze Age the ore came with population of Andronovskaya (Alakulskaya) culture of South-Eastern Kazakhstan. This confirms the theory of E. Chernykh about the unity of West-Asian Metallurgical Province.
TH6-03 BLURRED BORDERS? MAKING POTTERY AND CULTURAL INTERACTION IN NEOLITHIC AND ENEOLITHIC EUROPE

Friday, 2 September 2016, 09:00-16:00
Faculty of Philosophy, Room 307
Author - Spataro, Michela, The British Museum, London, United Kingdom (Presenting author)
Co-author(s) - Hofmann, Robert, Christian-Albrechts-Universität zu Kiel, Institute of Prehistoric & Protohistory, Kiel, Germany
Co-author(s) - Vukovic, Jasna, Faculty of Philosophy, Department of Archaeology University of Belgrade, Belgrade, Serbia
Keywords: ceramics, cultural interaction, Neolithic and Eneolithic Europe
Presentation Preference - Workshop

Pottery’s unlimited potential to express variation in style has revealed a complex mosaic of regional traditions across prehistoric Europe, which archaeologists have used to differentiate material cultures geographically and to build chronological sequences. The Neolithic and Copper Ages are understood primarily through analysis of ceramic ornamentation. One outcome is that we may also identify assemblages that are recognisably mixed, when characteristic artefacts of more than one material culture co-occur simultaneously.

This session brings together examples of culturally mixed Neolithic and Eneolithic assemblages from throughout Europe, to map their occurrence and discuss how they are interpreted, and what opportunities and difficulties arise when studying mixed assemblages. Issues such as trade, imitation, migration and conflict arise, but also national research traditions. For example, are mixed assemblages studied primarily to support chronological correlations, to investigate long-distance movements of people or materials, or, using historic or ethnographic analogies of cultural interaction, to study dynamics of cultural integration and differentiation? What are the common features of mixed assemblages? Do they represent ephemeral or ongoing contacts between cultures? Does one culture eventually replace the other, or does hybridisation emerge? Can we study interaction between locals and incoming people? Is more than one chaine opératoire represented in mixed assemblages? Do sites with culturally mixed pottery also have mixed lithic assemblages? Do we need to apply more techniques, or modify sampling strategies, to understand the development of artefacts in mixed assemblages?

Do mixed assemblages vary in all phases of the Neolithic and Copper Ages, or are they more frequent within a particular timeframe? We are aware of numerous examples, such as sites with both Starčevo pottery and Impressed Ware, or Vinča and Tiza, or Impressed Ware and Linearbandkeramik pottery, but we suspect that the phenomenon is more widespread and welcome contributions from archaeologists working in other regions.

TH6-03 Abstract 01
Early farming and the transmission of ceramic traditions in the western Balkans
Author - Dr. Manen, Sebastien, University College London, London, United Kingdom (Presenting author)
Co-author(s) - Vander Linden, Marc, University College London, London, United Kingdom
Keywords: Balkans, ceramic, transmission
Presentation Preference - Oral

The ERC EUROFARM project focuses on the processes of cultural transmission associated with the spread of farming across Europe, which archaeologists have used to differentiate material cultures geographically and to build chronological sequences. The Neolithic and Copper Ages are understood primarily through analysis of ceramic ornamentation. One outcome is that we may also identify assemblages that are recognisably mixed, when characteristic artefacts of more than one material culture co-occur simultaneously.

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TH6-03 Abstract 02
The Neolithic Volga-Kama pottery as a source of reconstruction of cultural interactions
Author - Prof. Vybornov, Aleksandr; Samara State Teachers Training University, Samara, Russian Federation (Presenting author)
Co-author(s) - Vasilevya, Irina, Samara State Teachers Training University, Samara, Russia
Keywords: pottery, technological analysis, Volga
Presentation Preference - Oral

The research presented here focuses on the following issues: 1) identification of areas in the Middle Povolzhye and Prikamye with early pottery traditions, 2) establishing chronological frameworks using radiocarbon dating of pottery, 3) definition of the relations between the Neolithic cultural groups of Volga-Kama. The methods used to achieve these objectives are: 1) morphological grouping of pottery based on the ornamentation technique, 2) radionuclide dating, and 3) technological analysis of pottery (Bobrinsky, 1998).

The study of the ancient Volga-Kama pottery revealed areas with two types of pottery raw materials: silty clay rich in sand in the Middle Povolzhye and plastic clay tempered with chamotte in the Prikamye region (Vybornov, Vasilevya, 2013). Flat-bottomed pricked pottery is present in the Middle Povolzhye in the early Neolithic period (5500 cal BC). It is all made of silty clay when still present in Prikamye.

Round-bottomed comb-ornamented pottery of the local Kama culture is present in the Middle Prikamye in the early Neolithic period (3300 cal BC). It is made only of clay tempered with chamotte. The raw material was milled in a dry form.

Comb-ornamented pottery was introduced from the Prikamye culture to the Middle Povolzhye at a later period (5000 cal BC). The proportion of local pricked pottery made of clay and chamotte increases to 15%. Kama comb-ornamented pottery made of clay tempered with chamotte does not exceed 10% further to the west (Marinskiy Povolzhye, Primokshanye, and Posurye). The rest of the ceramics were made of silty clays. This recipe (clay and silt) is typical for the pricked pottery from the forest-steppe of the Middle Povolzhye.

Pricked-ornamented pottery is found from the Middle Povolzhye to Prikamye at around 5000 cal BC. The percentage of comb pottery made of clay with chamotte decreases to 70%, whereas 30% of comb-ornamented pottery is made of silty clay, following the recipe typical for pricked pottery of the Middle Povolzhye. Among pricked pottery of the Middle Povolzhye type, the proportion tempered with chamotte, which is used to make comb pottery found in the forest of Prikamye, increases to 50%.

At a later stage (4500 cal BC) comb pottery made of plastic clay and chamotte represents 70% of the ceramics in the Prikamye region, and in the Middle Povolzhye comb pottery began to be produced with silty clay. This suggests a complete change of the idea of raw materials used by the communities of the Kama culture. The results indicate the long duration of the mixing process between the Middle Povolzhye population with comb pottery and different cultural groups. This demonstrates the coexistence, interaction and blend of different pottery traditions. Full transformation of ideas about raw material could occur during 5-6 generations of potters. In addition, each new generation had contacts with communities with other technological traditions of pottery making (Bobrinsky, 1998). Thus, the study of the Neolithic pottery technology and its radionuclide dating allows us to reconstruct the important processes of cultural character.

The work is performed for the project 33.1195.2014/к

TH6-03 Abstract 03
At the border line? The Neolithic and Copper Age pottery of Alto Ribatejo, Portugal
Author - Stepanovski, Darko, University of Trakia-mounts e Alto Douro, Stip, Macedonia (Presenting author)
Co-author(s) - Oostendeek, Luis, Instituto Politecnico de Tomar, Tomar, Portugal
Co-author(s) - Cruz, Ana, Instituto Politecnico de Tomar, Tomar, Portugal
Co-author(s) - Thissen, Laurena, Thissen Archaeological Ceramics Bureau, Amsterdam, Netherlands
TH6-03 Abstract 04

Mixed assemblages and social relations in the Neolithic transitional period of the Central Balkans

Author - Dr. Vuković, Jasna, Faculty of Philosophy, Belgrade, Serbia (Presenting author)

Keywords: pottery, Starčevo, Vinča, technological tradition, hybrids

Presentation Preference - Oral

The transitional period from the Early to the Late Neolithic of the Central Balkans is characterized by the presence of mixed ceramic assemblages on several archaeological sites. Mixed assemblages (not only pottery, but also so-called cult objects - altars and figurines), consist of the specimens typical both to the Starčevo and Vinča technological traditions. However, another very important features occur in these assemblages: hybrids and the presence of carefully, roughly finished products. The paper focuses on social aspects of these phenomena: do they suggest mixing of people with different group identities? Do they reveal stressing relations between the teachers and apprentices in the craft? Does the variability of ornaments and design motifs imply lack of social pressure in learning framework? And finally, do the roughly finished products suggest the presence of inexperienced artisans or newcomers unfamiliar of local traditions?

TH6-03 Abstract 05

Transforming traditions behind the gloom: 6th millennium BC pottery styles of Transdanubia

Author - Jakucs, József, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary (Presenting author)

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Co-author(s) - Vörös, Vanda, Independent researcher, Pils, Hungary

Co-author(s) - Gross, Krisztián, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary

Keywords: 6th millennium BC, pottery styles, Transdanubia

Presentation Preference - Oral

Southern Transdanubia in western Hungary is a region that served as a transitory area between the Balkans and Europe during the 6th millennium BC. Current scientific analyses of the research team focus on four broadly contemporaneous sites in three different microregions. Balatonaszipál-Kis-erdő lies on the southern shore of Lake Balaton, while Tolna-Mőz is located a distance of 80 km to the southeast closed to the right bank of the Danube. Szezérkény-Kukorica-dűlő and Versend-Gőncsa has been discovered 50 km further to the south, located only a few km from each other. The evidence of original buildings are similar, they represent the timber-framed architecture of the Linearbandkeramik culture. The ceramic materials, however, show considerable differences.

The pottery from Balatonaszipál can be described as an assemblage that reflects the formerly recorded Transdanubian LBK characteristics. There are many more detectable Starčevo and Vinča traits along LBK elements present at Tolna-Mőz and Versend-Gőncsa. In contrast, the vast majority of the pottery material from Szezérkény can be hardly distinguished from the early Vinča ceramic style, but Našidle-style pottery – probably the earliest manifestation of the Boštv culture – is also present in a separate part of the settlement.

According to the analysed settlements, an abundance of spatial variations of coevally existing pottery styles has been observed both on household and intrasite levels. Facing the problem of entangled assemblages, when different pottery styles coexisted in the material of various contemporary households of the same settlement, the approach in the proportion of different ceramic styles is particularly noteworthy. The perhaps most intriguing variation is when contemporary but spatially clearly separated pottery styles are present on the same settlement, that means amalgamation cannot be detected at household level. Significant differences are obvious even if adjacent, contemporary sites are contrasted. The observations on pottery were also reinforced by robust formal modelling of absolute chronological dates in most of the cases. As a consequence, we are facing extremely colourful microregional patterns. Attention must be payed to this mosaic nature of the contact zone and to the stylistic variability only within the entire settlement system.

The various pottery styles that existed partially or wholly coeval in the same microregion or even within a settlement, raise several questions in terms of the categories of typochronology and in terms of pottery styles as identity markers. Although, according to the above, concepts of both stable identities and sharp boundaries should be challenged. However, we also pay attention to distinguish not only the shared aspects of the pottery range, but such particular elements that could not be noted in entangled assemblages, and so allow us to detect real entities within a Neolithic pottery tradition. Finally we attempt to answer the question if any regional rules can be set to define elements as hallmarks of the phenomenon.

TH6-03 Abstract 06

Cultural and technical identities through Middle Neolithic paste recipes in the Paris Basin

Author - Baray, Mélodie, University Paris 1 Panthéon-Sorbonne, Nanterre cedex, France (Presenting author)

Co-author(s) - Fronteau, Gilles, Gegenaa, Reims, France

Keywords: ceramics, Neolithic, petrography

Presentation Preference - Oral

For a few years, archaeological investigations on temper and ceramic raw materials procurement and processing have been developed for the Middle Neolithic (4600-3800 B.C.), showing a certain diversity in the north of France. My PhD work aims at developing this research dynamic by studying 15 Middle Neolithic sites, most of them are located in the Paris Basin. The mid-fifth millennium BC in the Paris Basin is a period of major sociological changes. The demographic trends are pushing population to occupy all kinds of landscapes. Territories are organised through large enclosures. Monumental tombs can also be observed in the funerary practices. This demographic dynamism gave an enhancement to agricultural practices as well as cultural diversity. Indeed, several cultural groups developed for a millennium. Roessen and Carny cultures are identified for the beginning of this period followed by Chassène, Michelberg, Groupe de Noyen and Groupe de Spire cultures.

The use of organic tempers (bones and plants) during early Middle Neolithic in Roessen and Carny cultures has long contradicted a main use of grog and first tempers as can be seen later in time. However, current researches consolidated by petrographic analyses show a more complex picture. Major diversities in paste recipes can also be observed according to sites and their locations. Those preliminary results might question some criteria used to define the various Middle Neolithic cultural groups in the Paris Basin. Further investigations will mainly focus on tools and techniques involved in ceramic raw materials processing.

TH6-03 Abstract 07

Fuzzy Boundaries, Permeable Borders: challenges in the interpretation of ceramic assemblages

Author - Silva, Teresa, Democritus University of Thrace, Thessaloniki, Greece (Presenting author)

Co-author(s) - Urem-Kotsou, D., Democritus University of Thrace, Greece

Co-author(s) - Kotsakis, K., Aristotle University of Thessaloniki, Greece

Keywords: Late Neolithic Greece

Presentation Preference - Oral

It is tempting to treat borders as fixed, lines drawn on a map, but to do so fails to take into account that borders are permeable. They may be crossed by people, ideas, and objects in a variety of ways as part of an ever changing social landscape. In order to interpret and respect this dynamic force in the lives of people, our ways of perceiving these borders must alter. However, we study ceramic assemblages, a proxy for the expression of these changes, as a generalised picture of changing patterns, in most cases, several generations of people and vesicles into single phases. Thus arises the issue of mixed assemblages. There are many reasons why an assemblage might end up being perceived as mixed. Our approaches are developed by a detailed ceramic study in the northern Greek Late Neolithic (a time of social change at ca. 5400-4380 BC), concepts of interaction, and ethnoscience.
TH6-03 Abstract 08
Do ut des: pottery “imports” and imitations in Romanin Neo-Eneolithic

Author - Stefan, Cristian Eduard, “Vasile Parvan” Institute of Archaeology, Bucharest, Romania (Presenting author)
Keywords - Neo-Eneolithic, pottery, Romania
Presentation Preference - Oral

Amongst all finds recovered from the archaeological record, pottery is one of the most common types. Since the beginning of professional archaeology, pottery was used to establish exchange relationships between social groups from different areas and/or to construct relative chronologies. In this presentation we try to review so-called “imports” and imitations found in archaeological record in the Romanian Neo-Eneolithic and discuss their meaning. With the help of ethnographic record we can assume the significance of “foreign” pottery in areas with different traditions as a product of exchange, exogamy or imitation. The separation between “imports” and imitations is usually very hard to identify with the naked eye, in this case archaeometry could be a useful tool to answer the questions.

TH6-03 Abstract 09
Hybrid Societies: the vagueness of Neolithic “cultures” in the Balkans

Author - Dr. Naumov, Goce, Museum of Macedonia, Skopje, Macedonia (Presenting author)
Keywords - Balkans, house models, pottery
Presentation Preference - Oral

The determination of culture was a reference for the culture-historical archaeology in the Balkans and abroad, and leads many to identify particular regions with finds unearthened from Neolithic sites. This was a helpful tool for the early stage of prehistoric archaeology and contributed to the understanding of particular attributes common to the societies that inhabited various areas in the Balkans. However, recent research indicates that these cultural borders and material features are not so rigid and often in much-needed beyond the proposed geographical limits. The concept of culture itself is questioned and often reconsidered with the issue of identity, as more evidence is available concerning the Neolithic societies, their villages, pottery, tools, images, burials and human remains.

Since the first definition of Neolithic, cultures some regions were regarded as separated and isolated areas and mainly considered within modern political borders. This was a significant step towards the first definition of cultural features of these regions and as such contributed in the identification of sites into cultural groups. Hence, the reconsideration of published material, artifacts from museum stores, documentation and new excavations indicated that some geographically divided and different regions were barely ‘culturally’ diverse. Thus, pottery regarded as the main feature of one culture appears in another which was classified as belonging to a different cultural group.

The case-study of the Neolithic pottery in Pelagonia and its production within the agricultural communities of the Skopje valley, Lake Ohrid basin, Ovče Pole and Polog, will be presented. Late Neolithic Vinča pottery will also be considered, as some of the temper types and design features appear at earlier tell sites in Pelagonia. In addition, the anthropomorphic house models from this area will be discussed. Originally, these were attributed by archaeologists to different cultures due to their typological variations in these regions. Therefore this paper will mainly consider pottery design and human representations in order to emphasise the common Neolithic features of the isolated regions and the modes of networks which integrated shared identities of distant societies. The issue of culture will also be discussed as it often invokes a contemporary notion of communities that inhabited particular geographical areas. Their intensive communication and common material culture goes beyond the archaeological cultural frameworks of the Balkans and as such will be emphasised for further revision.

TH6-03 Abstract 10
Modelling interaction at the peripheries: LN/EC Levant and the Halaf/Ubaid interaction spheres

Author - Gabrielli, Eva, Milano, Italy (Presenting author)
Keywords - communities of practice, interaction spheres, technological transfer
Presentation Preference - Oral

Several Late Neolithic and Early Chalcolithic Levantine assemblages (8th-6th millennium cal BC) contain pottery identified as Halaf and Ubaid. In most cases, these ceramics are not very similar stylistically or formally to the ‘classic’ Mesopotamian specimens, and the Levant is in fact considered to lie outside the area where Halaf and Ubaid ceramic traditions emerged. More interestingly, however, the Levant is located on the periphery of both Halaf and Ubaid horizons or interaction spheres. Here, like in other ‘peripheral’ regions, pottery is one of the few elements, if not the only, to be shared, and its higher variability, both in terms of decoration and forms, indicates the differential spread of traits over space and time. The traditional narratives mainly emphasise possible cultural or ethnic affiliations to northern Mesopotamia, but, in this paper, Levantine ‘mixed’ assemblages are rather conceived primarily as a peculiar expression of the vast Halaf and Ubaid supra-regional socio-material networks.

The uneven distribution and networking of traits attest the significance of the role played by local socio-economic conditions and cultural practices in their dissemination, even if available evidence rarely allows us to reconstruct the contexts of production and use of the Levantine Halaf- and Ubaid-related ceramics in detail. Local production, however, was deposited locally in most cases, and, since the manufacture of such pottery presupposes the use of specialist technologies characterised by the Levantine autochthonous traditions, its spread surely involved technological transfers. Interregional contacts, thus, appear to have structured potting activities within the Levantine communities, contributing to the establishment of extended communities of practice.

Focusing on pottery manufacturing, based on old and recent data, this paper seeks to better understand the interaction dynamics implicated in the diffusion of Halaf and Ubaid traits at the boundaries of their respective interaction spheres, in order to further explore the global character and meaning of Halaf and Ubaid phenomena.
Very interestingly, the results of the previous archaeological research conducted on Ibd6 revealed that materials characterised by both “Tisza” and “Vinča” styles could be found in the same contexts, for example in the house excavated in 1954 in Gradište Ibd6. Therefore, Ibd6 represents an ideal case study to investigate the dynamics which result in the formation of mixed assemblages in this region at that time. In this presentation we provide the preliminary results of the pottery technological project which gathered experts from different fields of expertise: archaeology, pottery technology and archaeometry. Through different types of analyses (macroscopic-technological examination, thin section petrography, portable X-ray fluorescence and FTIR analysis), we aim to shed light on different aspects of pottery production at the site during the Late Neolithic, in order to understand if these different pottery styles could be connected to different pottery operators and could reflect different chronological stages of productions. The aim is to interpret the existing mixed inventory and understand if these different styles are reflecting the co-habitation of different social groups on Ibd6, or if they are the expression of exchange of ideas and communication among communities characterised by different material culture.

**TH6-03 Abstract 13**

**Mixed Vinča and Tisza assemblages of the Borovští-Plain, Voivodina:**

**Contextualisation and technology**

**Author:** Dr. Hofmann, Robert, Kiel University, Kiel, Germany (Presenting author)

**Co-author(s):** Spatari, Michaila, Institute of Archaeology, UCL, London, United Kingdom

**Co-author(s):** Medović, Aleksandar, Museum of Voivodina, Novi Sad, Serbia

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**Keywords:** mixed assemblages, Neolithic Voivodina, pottery analysis

**Presentation Preference:** Oral

During the Neolithic, due to their geographical position, Voivodina and Banat formed a contact zone between several cultural zones of the Late Neolithic: Dniester, Marisci, and Tisza. This is manifested, among other things, in the material culture. To understand the socio-economic implications of this and similar phenomena, we contextualised artefactual material, archaeo-botanical and archaeo-zoological remains through comparisons of inventories from different households and settlements. The co-occurrence of Vinča and Tisza pottery styles in the same households is being investigated by typological-chronological and technological analyses. Geochemical and mineralogical analyses contribute to answering the questions of how pottery production in these sites was organised and how this pottery was linked technologically to the core regions of the cultural groups involved.

**TH6-03 Abstract 14**

**Technology of Neolithic-Eneolithic ceramics in the territory of Neva-Ladoga basin (NW Russia)**

**Author:** Dr. Kulikova, Marianna, Herzen State University, St. Petersburg, Russian Federation (Presenting author)

**Co-author(s):** Gusan'tsova, Tatiana, North-Western Research Institute of Cultural and Natural Heritage, St. Petersburg, Russian Federation

**Co-author(s):** Kulikov, Alexander, St. Petersburg State University, St. Petersburg, Russian Federation

**Keywords:** Okhta 1, Podolye 1 sites, Neva-Ladoga basin, petrography, XRF, microtomography of ceramics, technology, Neolithic-Eneolithic pottery

**Presentation Preference:** Oral

There are unique Neolithic-Eneolithic sites in the territory of the Neva-Ladoga basin (NW Russia). The site of Okhta 1 is located at the mouth of the Okhta River in St. Petersburg city region. The first people occupied this territory around 4200 BC. These were the first communities of the Neolithic-Piš-Combed culture. Changes in the landscape and the climatic conditions around 3200-3000 BC made this area attractive for habitation. In the coastal zone the houses, fishing constructions, animal bones of the Great Angarian Plain, the Central Balkans and Tranystelia. One site is Podolye 1 which is located in the southern part of Ladoga Lake, and was occupied intermittently depending on the water levels of the lake and the Baltic Sea. Pottery belongs to different cultural traditions: Neolithic-Piš-Combed culture (5000-4000 BC), Typical Combed and culture of the Late Neolithic-Eneolithic tempered with feather, shafts or asbestos (4000-3000 BC). Investigations of the sherds in thin sections, by XRF, SEM-EDS and microtomography have allowed several ceramic groups made using different technologies to be identified, and the types of raw materials sources that have been used at these sites to be established.

**TH6-03 Abstract 15**

**Corded Ware Culture in the North-West of Russia: mix of traditions**

**Author:** Tkach, Evgeniia, Institute for the History of Material Culture RAS, Saint Petersburg, Russian Federation (Presenting author)

**Keywords:** Corded Ware Cultures, migrations, traditions

**Presentation Preference:** Oral

There are a lot of settlements in the North-West Russia with Corded Ware Cultures (CWC) materials. They appear in the pile-dwelling settlements also. On the ceramic materials we could trace mix of different archaeological cultures: local and indigenous. First appearance of the CWC was observed in the middle of the IV mil. BC on the pile-dwelling settlement Uyvarovo-IV (Palov region). I want to describe the settlement – layer a settlement Sernetzy II. This is settlement on the mineral bank near the river. Ceramics introduce a different traditions: local, Usvatskaya, and indigenous, CWC. We could trace them in technology of making pottery (the way of using vessels, admixture in the molding dough), in pottery forms and in ornamentation. For example, admixture of gruss was never used in Usvatskaya culture, but on the vessels with cord ornamentation this is a main additive. On the other hand, technique of "blade and anvil" was widely spread in Usvatskaya culture, but in the CWC materials on the settlement this technique was found only a few times. Cord ornamentation was never used in the North-West Russia until the end of Neolithic. This tradition came with CWC inhabitants in the end of III mil. BC. More interesting, that in couple vessels we see the mix of different traditions: ceramic was formed by using slabs, ornamentation represents a horizontal line of Z-twisted cord and as admixture in the molding dough was used gruss. Possible, that necromancer(CWC inhabitant) were mixed with local inhabitants and we trace now some new archaeological traditional, new archaeological culture.
**TH6-03 Abstract 17**

**Sub-Neolithic pottery from the territory of Belarusian Pabužža**

**Author:** Tazhko, Aleh, Institute of History NAS of Belarus, Minsk, Belarus (Presenting author)

**Keywords:** technology, Neolithic pottery, the Prypiat-Neman culture

**Presentation Preference:** Poster

Investigations of the last decade significantly increased the resource base for the study of the Neolithic of Belarusian Pabužža (Belarusian part of the Bug River basin). During recent excavations Sub-Neolithic pottery was found at 19 sites in the region.

For the first time pottery of the Dubičiai type was discovered in the region. This fact gives the possibility of defining more exactly the area of the Prypiat-Neman culture. Some finds attributed to the Sokołowsko pottery type were also found. The latter type is most probably a result of a local development of the Dubičiai pottery in the western part of Prypiat-Neman culture area.

Neman culture is represented by pottery of Łysaja Hara and Dobry Bor types. The finds which belong to the former are not numerous. It may be remotely connected to the main area of its distribution (upper reaches of the Neman River). The Dobry Bor type pottery is much more frequent: it was found at most of the studied sites. It can be divided into two groups: the first one is represented by hybrid pottery with features of both Łysaja Hara and Dobry Bor types. Analogies to such pottery can be found in the Upper Prypiat River basin. The second group consists of “classic” Dobry Bor pottery.

**TH6-03 Abstract 18**

**Crkvišće-Bukovlje: Identifying Copper Age pottery from disturbed stratigraphy**

**Author:** MA Čataj, Lea, Croatian Conservation Institute, Zagreb, Croatia (Presenting author)

**Co-author(s):** Posipović, Hrvoje, Croatian Geological Survey, Zagreb, Croatia

**Keywords:** Copper Age, Croatia, Lasinja culture

**Presentation Preference:** Poster

The site Crkvišće-Bukovlje in central Croatia has been systematically excavated since 2012. Primarily it was recognised as a Late Antique site dating to the 5th and 6th centuries AD. During the archaeological excavations prehistoric layers from the Iron and Copper Age were also found. Due to the erosion and later occupation of the site, the oldest Copper Age layers were severely disturbed. Hence, the affililation of pottery finds is based on their ornamentation, shape and technology. Although most of the finds could be ascribed to the Lasinja culture, there are some pieces that show traits of the Retz-Gajary culture. The appearance of pottery belonging to these two cultures is known from several sites in Croatia, Slovenia and Austria. Sometimes they are found together in the same layers and sometimes Lasinja culture pottery is found in layers beneath the ones with pottery ascribed to the Retz-Gajary culture. New radiocarbon dated assemblages have brought some new insights regarding some of the ornamentation that was previously connected to the late phase of Lasinja culture, supposedly influenced by Retz-Gajary culture.

The question raised is whether we can suppose the presence of Retz-Gajary culture or its influence at the site Crkvišće-Bukovlje based on several ornaments that are usually ascribed to Retz-Gajary culture or are we dealing with Lasinja culture pottery and these ornaments appear regardless of Retz-Gajary culture? Clay pastes of Lasinja culture pottery and pottery with Retz-Gajary traits will also be analysed in order to see if there are some differences between them.

**TH6-03 Abstract 19**

**Neolithic pottery from Ljubic cave (Istria, Croatia)**

**Author:** Percan, Tihomir, Croatian Conservation Institute, Svetvincenat, Croatia (Presenting author)

**Keywords:** analysis, decoration, Neolithic pottery

**Presentation Preference:** Poster

Due to its exceptional geographical position on the crossroads of ancient paths, the Istrian peninsula was an important link between east, west, north and south ever since prehistoric times. The Ljubičeva cave is situated in southern Istria (Croatia) near the village of Marčana and only 15 kilometers east of Pula, the peninsula's largest city. Since 2008 to 2011 archaeological excavations were carried out in cooperation between the Musee d’Anthropologie prehistorique de Monaco (Principality of Monaco) and The Croatian Conservation Institute (Croatia). Recorded findings, particularly ones from the Neolithic period, implied that the cave was intensively in use during this period. A large number of pottery fragments were nicely decorated with different motives and ornaments characteristic of the cultural phenomena from Early (Impressed culture), Middle (Danilo culture) and Late (Hvar culture) Neolithic therefore making it the period of the most intense usage of the cave. With this poster we will put the focus on the Middle Neolithic (Danilo culture) pottery and its ornaments (S shaped decoration, different spiral motifs, incrustation). Furthermore, laboratory analyses of pottery and ornaments show the significance of this multidisciplinary approach to archaeology and pottery. With these kinds of experiments, interesting results were collected. This work would not be possible without good cooperation between archaeologists and the laboratory where the analyses were held (Metris, Pula, Croatia). We also emphasise the significance of the modern scientific technology and methods to improve and advance knowledge connected to technology and production of pottery during the archaeological periods.
TH6-04

ENTANGLED MIGRATION. THE MATERIALITY OF DIASPORA COMMUNITIES IN THE MEDIEVAL AND EARLY MODERN WORLD

Thursday, 1 September 2016, 14:00-18:30
Faculty of History, Room 331

Author: Linea, Jette, Mosegaard Museum, Højbjerg, Denmark (Presenting author)
Co-author(s): Rosén, Christina, Storstrøms Historiske Museer, Gilleleje, Sweden

Keywords: Early Modern, Materiality, Migration

Presentation Preference: Regular session

TH6-04 Abstract 01

Ireland and its medieval diasporic communities

Author: Ó RíFlaith, Russell, University of Cambridge, Heidelberg, Germany (Presenting author)

Keywords: Acculturation studies, Migration, Postcolonial theory

Presentation Preference: Oral

For a region traditionally associated in recent centuries with its emigrant diasporic communities, Ireland has had a long and complex history with internal migrant communities. In fact, the main strands of the nationalist mythos formulated during and after the 19th century were constructed in the context of – and often in contradiction to – the outcomes of these periods of migratory activity. While recourse will occasionally be made to sixteenth/seventeenth-century migratory activity by recourse to a combination of material settlement evidence, documentary sources, the toponymic record, and the consumption reflected primarily in ceramics, eco/zoofacts and written records, but we invite speakers to give their perspectives on immigrant identities through papers dealing with all kinds of materiality, whether rooted in diasporic communities or in those of refugee Dutchmen, German craftsmen, Scottish traders, Portuguese merchants, Italian artists or something else in Europe and beyond.

TH6-04 Abstract 02

Jugs and pots - beer and stew? “Hanseatic” impact on medieval and early modern Bergen (Norway)

Author: Demuth, Volker, University of Stavanger, Stavanger, Norway (Presenting author)

Keywords: Germans in Bergen (Norway), Hanseatic league, Pottery, drinks and food

Presentation Preference: Oral

As widely known, the city of Bergen was on the west coast of Norway was an important element in the trading network of the Hanseatic league. From the 14th to the 17th century a considerable number of Germans from various Hanseatic towns were living here, making up partly to a quarter of the towns overall permanent population. There is a large collection of archaeological material that can be connected with these Hanseatic populations, as the site of the Hanseatic lomtor was in the scope of extensive archaeological research from the 1950’s to the 1970’s. Based mainly on the analysis of a selection of pottery from Bergen, I want to discuss how far the archaeological material reflects the everyday habits of the persons that lived in the Hanseatic quarter of Bergen, presumable their eating and drinking habits. Are there significant traces that can be linked to the Northern German origins of these groups? Is it possible to pinpoint differences in the archaeological material that can indicate whether ethnic Norwegians or immigrants Germans lived on a particular site? What may have been possible areas of cultural contact and transfer between the different ethnic and social groups? By combining the archaeological material with historical evidence the outlines of social realities in an international trading town my emerge.

TH6-04 Abstract 03

Urban Diaspora - Entangled diaspora communities in Early Modern Scandinavia

Author: Dr. Linnea, Jette, Mosegaard Museum, Odder, Denmark (Presenting author)

Keywords: Diaspora, Migration, Urbanity

Presentation Preference: Oral

The Early Modern period (c. 1450-1650) was a time of transformation in the Early Modern cities. Increasingly Early modern migration into Scandinavia from the Netherlands, present Germany and the UK meant an influx of people, objects and ideas that profoundly transformed the cities, where the immigrants settled and formed diaspora communities with strong commercial and family ties to their homelands. The formation of such communities in established cities gave rise too series of reactions from the hostlands: Some meetings were peaceful; others were conflict-ridden. The migrants came with different agendas: conquerors and colonizers, traders, economic, politic and religious refugees had their own agendas and aims, each of them influencing the interaction within the communities and between the communities and the local inhabitants. And they were met with different responses ranging from official welcomes to conflict and resistance. The urban Diaspora project is an ongoing cross-disciplinary and cross-national research project on immigration into medieval and early modern Scandinavia. In the course of the project our participants has uncovered traces of migration based in archaeology, history and science. All the project in its final phase. The aim of this paper is to present the research framework and some results of the project, concentrating on the agendas of the many immigrant groups, that settled here, and the official and unofficial responses of hostland to the pressure of the immigrants. The Urban Diaspora is funded by the Danish Council for Independent research/Humanities.

TH6-04 Abstract 04

Migration in Early Modern Scandinavian towns. The Nya Lōdvēse case

Author: Dr. Rosén, Christina, Arkeologerna SHMM, Tölösjö, Sweden (Presenting author)

Keywords: Early Modern, Migration, Scandinavia

Presentation Preference: Oral

The town Nya Lōdvēse existed between 1473 and 1624 on the west coast of Sweden. The written sources from the town are sparse and cover only the last decades of its existence. In this paper I will discuss strategies for identifying immigrant households from the archaeological record with emphasis on how to distinguish between diaspora identities and other overlapping identities such as occupation, social and economic status.
The city of New Lødøse was established in 1473 as a gateway for trade between Sweden and Western Europe. About 150 years later, in the early 1620s, the city lost its privileges, and the citizens were forced to move closer to the sea, so what is now modern-day Gothenburg. In the research project Urban Diaspora – Diaspora communities and materiality in early modern urban centers, New Lødøse is defined as an “immigrant city”, while the other two cities in the project, Elsinore and Aalborg, are classified as a “cosmopolis” and a “provincial city” respectively. The amount of preserved historical records differs for these three cities. For New Lødøse, no written document has been found that makes it possible to identify owners of excavated plots or to study individual families thoroughly (e.g., marriage strategies, networks, and materiality). On the other hand, the discovery of a number of tax poll lists from 1599-1610 has made it possible to analyze the town in other ways. The compilation of individual data from these lists not only shows a city with a number of inhabitants of Dutch and German origin and significant socioeconomic differences, but also provides a more precise idea about the city districts: their size, population, and economic capacity, and the occupational status of their inhabitants.

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**Th6-04 Abstract 05**

**Early Modern Immigrants: The City of New Lødøse in the Historical records**

**Author**: PhD Larson, Daniel, University of Gothenburg, Göteborg, Sweden (Presenting author)  
**Key Words**: Early Modern, Immigrants, New Lødøse  
**Presentation Preference**: Oral

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**Th6-04 Abstract 06**

**Archaeological excavations of Dutch settlements from the 16th-17th century in Elsinore, Denmark**

**Author**: MA Appel, Liv, Museum Nordsjælland, Hørsholm, Denmark (Presenting author)  
**Keywords**: Diaspora communities, Historical archaeology, Migration  
**Presentation Preference**: Oral

The magnificent borough of Elsinore, situated on the narrow Sound between Denmark and Sweden, is of special interest concerning the archaeology of the wealthy Dutch immigrants in the 16th-17th century. Since 1409 every ship passing through the Sound had to moor at Elsinore roads in order to pay the Sound toll taxes, and the Danish and foreign merchants made good money trading with the foreign ships. The increased Dutch immigrations following the wars in the Netherlands in 1587, coincided with the economic growth and progress for the town as the king Frederik II rebuilt the castle of Kronborg. Many well-established Dutch merchants settled at the sandy area situated between the town of Elsinore and Kronborg Castle. This new town quarter, earlier known as Sanden, i.e., the Sands, got an abrupt end due to the Swedish attack in 1658. Recent archaeological investigations in connection with extensive construction work in this area, which were until recently hidden under the former shipyard area, have revealed remnants of buildings, culture layers, latrines and wells connected to the rich 16th-17th century settlements. The faunal and the botanical remains reveal, as do the archaeological finds, that the Dutch merchants in Elsinore dined on the finest quality food and on imported tableware in faience and ceramics.

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**Th6-04 Abstract 07**

**Can an animal bone assemblage indicate a diaspora?**

**Author**: Dr. Enghoff, Inge, University of Copenhagen, Copenhagen OE, Denmark (Presenting author)  
**Keywords**: Animals, Diaspora, Entangled Migration, Zooarchaeology  
**Presentation Preference**: Oral

Analyses of archaeological animal bone assemblages sometimes provide evidence of successions and/or coexistence of different cultures. Thus, the species present and their relative frequencies at the site Gården under Sandet, Greenland (ca. AD 1000-1400) show that the Norse settlers imported European domestic mammals and partly subsisted on these, but that over time the importance of native seals increased, whereas the importance of cattle decreased. Cutmarks etc. on the bones may also provide clues; for example bi-perforated metapodia, mostly of sheep, from the Danish site Ribe (AD 725-860) indicate that bone marrow was obtained this way which seems to be an ancient tradition in Scandinavia which has been exported to England several times, 9th-11th centuries AD, where bi-perforated metapodia have been found only in Anglo-Scandinavian layers. The representation of individual skeletal elements in the material may also reveal particular cultural traits, such as the herringbone material from the Danish site Silke Væstby (AD 1290-1380) which shows that the procedure of gilling the herring is not a Dutch invention which has been exported, as indicated by written sources, but was practiced in Denmark much earlier. The interpretation of the animal bone assemblages is complicated by the fact that different classes within a single society used different species of animals.

Aspects of the animal bone material from Elsinore, Denmark (16th-17th centuries AD), analysed as part of the Urban Diaspora project, are presented with a view to establishing whether the material provides evidence of traditions of the Dutch diaspora.

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**Th6-04 Abstract 08**

**Tracing ethnicity in food consumption - the case of Nya Lødøse**

**Author**: Maltin, Emma, Bohusläns Museum, Gothenburg, Sweden (Presenting author)  
**Keywords**: consumption, ethnicity, fish bones  
**Presentation Preference**: Oral

The present paper deals with the question to what extent ethnic identity can be traced in the archaeozoological remains of food consumption. Within the research project Urban Diaspora – Diaspora communities and materiality in early modern urban centers it was asked whether it was possible to distinguish differences in consumption between plots in the town of Nya Lødøse (1473-1624), Sweden. The town was situated at the Swedish west coast, and was characterized by a multilingual population largely consisting of merchants, soldiers and sailors. From 2013 and onwards comprehensive excavations covering large parts of the town have been conducted. A range of different features have been excavated, from houses and backyards to streets and refuse pits. The clearly defined plots form a unique possibility to map differences in food consumption between households, and possibly connect the variation with the identity of the plot owner, e.g. ethnicity, status or class.

Archaeological features clearly connected to the consumption in five town plots were selected, and special attention was given to the fish bone assemblage. The names of the plot owners are not known through written sources. It was apparent early on that there did exist interesting differences, especially regarding the distribution of species. Anatomical distribution and size were also investigated. The challenge lies, as always, in explaining the differences found. Are they due to the resident’s birthplace, social class or personal taste, only to mention a few possibilities?

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**Th6-04 Abstract 09**

**Foreign beer and gruel traditions in late medieval town Nya Lødøse, Sweden**

**Author**: PhD Heimdahl, Jens, National Historical Museums, Hägersten, Sweden (Presenting author)  
**Keywords**: archaeobotany, beer, immigrant  
**Presentation Preference**: Oral

Food and beer traditions foreign to the local Swedish west coast have been traced by specific plant material in the late medieval town Nya Lødøse, and may linked the local burgess of Germans or Dutch origin. Traces of hop beer brewing from the late 13th century is an anomaly in an area strongly dominated by sweet gate beers as late as mid15th century. Likewise, the use of rice seems to stand out as an foreign in relation to local tradition. It represent a imported foodstuff not always imported by German or Dutch households for the making of certain traditional dishes – like gruels consumed on specific occasions. The traces of foreign food and beer traditions bear witness of a multi-ethnic town, with populations of traders preserving traditions of their homelands.

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**Th6-04 Abstract 10**

**Plant finds and migration in early modern (15th to 17th century) Aalborg**

**Author**: MA Jensen, Peter, Mosegaard Museum, Hoelvæg, Denmark (Presenting author)  
**Keywords**: Plant finds, migration, Early Modern, Aalborg  
**Presentation Preference**: Oral

The Danish town of Aalborg from northern Jutland is known historically to have contained a number of immigrants in early modern times, mainly coming from the Netherlands. The perspective of the presentation will be to discuss the possibilities of observing signs of migration in analyzed plant material from the town.

The basis for the discussion is a number of recent archaeobotanical analyses dating from around 1400 A.D. until the late 17th century from Aalborg. The analyzed samples represent diverse archaeological contexts, ranging from 16th century garden soils or dung layers coming from a monastery and a later hospital area to different latrine samples. One latrine sample of particular note comes from a late 17th century latrine connected to the bishop’s house in the central part of the city.

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**Th6-04 Abstract 11**

**Freezing Danes and Strangers - The Tile Stove Heating in “Danish” and “Strangers” Households**

**Author**: Assoc. Prof. Dr Atzbach, Rainier, School for Culture and Society, Høxborg, Denmark (Presenting author)  
**Keywords**: Court Culture, Ethnicity, Post-medieval Archaeology, Renaissance, Stone Tiles, Immigration  
**Presentation Preference**: Oral

Archaeological features clearly connected to the consumption in five town plots were selected, and special attention was given to the fish bone assemblage. The names of the plot owners are not known through written sources. It was apparent early on that there did exist interesting differences, especially regarding the distribution of species. Anatomical distribution and size were also investigated. The challenge lies, as always, in explaining the differences found. Are they due to the resident’s birthplace, social class or personal taste, only to mention a few possibilities?
This paper seeks to explore, in how far it is possible to identify common traces or differences between “Danish” and immigrant households in Aalborg and Ebeltoft during the renaissance. The focus will be put on stove tiles as type of material culture with a solid background of research and many possibilities to identify the origin of fabric, decoration and use. Moreover, the position of a stove in the house and its relationship to the development of dwelling habits will be discussed.

**TH6-04 Abstract 12**

**In the houses of urban strangers?**

**Author** - Historian Dr. Jakob, Danish Centre for Urban History, Aarhus, Denmark (Presenting author)

**Keywords:** Early modern, Materiality, Migration

**Presentation Preference:** Oral

House and home form the most important cultural element of human daily life. How we live and how we furnish our homes define who we are and how we would like the outer world to see us. Things were no different in the Danish market town Aalborg in the seventeenth century. By use of the probate records this paper aims to investigate the differences and similarities of the material culture in the homes and houses of both immigrant and Danish merchant families in Aalborg. It will be discussed if the immigrant families came with their own material culture and in doing so contributed to the making of a cultural identity.

**TH6-04 Abstract 13**

**A newcomer’s burial: anthropomorphic graves in medieval Transylvania (12-13th c.)**

**Author** - Dr. Istrate, Angel, Brașov, Romania (Presenting author)

**Keywords:** anthropomorphic graves, medieval colonization, Transylvania

**Presentation Preference:** Poster

From the mid-12th century, guests from Central Europe, generally known as Teutonici, Flandrensi, and ultimately Saxons, were invited to settle in southern Transylvania (central Romania) in return for important economic and social privileges. The process of colonization was at its peak in the first decades of the second half of the 13th century, when several villages and towns were established in the hinterland of Sibiu, the largest city in southern Transylvania. Settlers continued to come well into the 14th century, establishing enclaves of a German-speaking population. They developed a successful economic system, which enabled the establishment of strong settlements, the rise of an intellectual elite, and the growth of cities that invited many urban centres in East Central Europe. They also developed a distinctive religious architecture. Very little is known about the first generations of colonists; written sources (very modest for the entire region during the seventeenth century) are scarce, and existing archaeological evidence is limited. However, one of the most obvious manifestation of these communities’ individuality was of funerary nature. When excavating the lower stratigraphic layers of the cemeteries used by German settlers, archaeologists often find anthropomorphic graves, i.e. dug into yellow clay by following the shape of the human body, with a niche for the head. After this burial custom had been used for nearly a century (1150-1250), it suddenly disappeared.

In recent decades archaeology has brought to light hundreds of such tombs scattered among other burials in Saxon cemeteries. Although it is clear that anthropomorphic tombs represented a specific ritual, not the rule, and that they were only used for certain members of the community and only within certain communities, some questions remain unanswered. Which was the rule? What was the meaning of this ritual within the same community? Why and when did some people prefer an anthropomorphic grave while others opted for a simple, rectangular grave pit? No satisfactory explanations have been provided to date.

Our paper/poster will introduce this problematic and will also show examples of anthropomorphic brick-laid tombs from the same area. Although their shape is related to the early settlers’ funeral customs, these graves appeared in a topographic and chronologically different context. Only a few dozens of such graves dating back to the 13th century are known, always found in archaeological contexts bound to newcomers settled in local, catholic communities.

**TH6-05 Abstract 01**

**Adieu Hallstatt! Adieu La Tène! Revisiting old ideas**

**Author** - Prof. emeritus Callia, John, University of Sheffield, Sheffield, United Kingdom (Presenting author)

**Keywords:** Celts, Iron Age chronology, Networks

**Presentation Preference:** Oral

At the 1984 conference of the AFEAF (published in 1986) I gave a short paper suggesting that if we could only get rid of the terms ‘Hallstatt’ and ‘La Tène’ we might write a different narrative of the European Iron Age. At that time I was looking specifically at cases in southern Germany, central France and Britain where ideas of chronological divisions and ‘culture groups’ were getting confused, and mixed with now unacceptable theories on the origin of the Celts and their supposed migrations. Only now is the concept of the ‘culture group’ being replaced with ‘networks’ and I personally have been trying to replace chronological ‘phases’ based on ‘type fossils’ (as originally developed by Reinecke and Dechelette) with ideas of building chronologies on ‘attributes’ and sequences of ‘horizons’ signalled by single innovations or mutations in material culture. The concepts can also be applied to genetics and languages, and so help to re-integrate different disciplines which in recent years have grown apart (e.g. in ‘Celtic Studies’). I will reflect on our nomenclature and whether terms like Hallstatt and La Tène should be abandoned, or can still be used, e.g. to denote styles of pottery, burial rites, etc. It means that we stop trying to construct chronological and cultural boundaries, and it can also affect basic things like the way in which we publish archaeological excavation reports.
Boundaries provide an existing and dynamic place to do being archaeology, but they can also be fraught with troubles. Working across national borders often requires realignment of classificatory schemes for both ‘cultural’ groups and their associated material culture. To say a site belongs to “the Iron Age” carries very different meaning to a person in Greece or in France. Even in a space as small as Britain, “the Iron Age” can mean different things when looking at either side of the Anglo-Scottish border. Moving through geographic boundaries, problems are only exacerbaited when also faced with a boundary dividing one chronological period from another.

Drawing primarily upon examples from Iron Age Britain, from both sides of the Anglo-Scottish border, from the North to the South, and across the period of Roman contact and conquest, this paper will explore how the development of precise-independent chronologies enables archaeologists to negotiate the potential perils in these liminal locations, allowing us to better model and understand social change across space and through time.

TH6-05 Abstract 03

Strangers at the Feast? Elites, artefacts and exchange in the 1st millennium BC in SE Slovenia

Author - Mason, Philip, Zavod za varstvo kulturne dediščine Slovenije, Center za preventivno arheologijo, Ljubljana, Slovenia (Presenting author)

Keywords: Iron Age, Late Bronze Age, Slovenia

Presentation Preference - Oral

The paper explores the role of elite contact and competition in the LBA and EIA societies in SE Slovenia in the transmission of artefacts and technologies around the Head of the Adriatic in the 1st millennium BC in the light of recent research. Exotic material in both mortuary and settlement contexts reflects changing patterns of elite exchange in the area, balancing the importance of a N-S route between the Eastern Adriatic and the Eastern Alps on the one hand and a E-W route between North Central Italy through the Head of the Adriatic to Pannonia and the northern Balkan peninsula on the other.

It explores the way in which specific types of exotic artefacts were incorporated into the existing elite or prestige repertoire, considered as exchange networks and their transformation through time in the context of local forms and traditions in the mortuary and settlement spheres. This is reflected in the adoption of iron technology, new forms of elite expression and the appearance of local élites of power that accompanied the transformation of the LBA Ljubljana group and gave rise to the EIA Doljanska group.

TH6-05 Abstract 04

Iron Age interaction in the Po river lowlands and in the pre-Alps of the western Veneto (Italy)

Author - MA Saccoccio, Fabio, La Sapienza University of Rome, Roma, Italy (Presenting author)

Keywords: borders, Iron Age, Veneto region

Presentation Preference - Oral

The western Veneto region is geographically characterized by a landscape that progressively decreases in elevation from the peaks of the Pre-Alps to the plain shaped by the Brenta, Adige and Po rivers and tributaries. The western border of Veneto seems to show a long-lasting pattern of interaction between human groups at least since the Final Bronze Age. This long duration pattern is still notably remarked by the current regional borders.

As recognized by several authors, the whole plain and pre-alpine areas seem to share the same material culture, during the Final Bronze and the Early Iron Ages (X-VIII century BC), i.e. the Proto- and Palaovenetian culture, but they strongly differ in the settlement pattern, showing a marked continuity in the South-Western Plain area, while the northern Pre-Alps seem to be affected by the wider Final Bronze Age settlement crisis. Finds related to the Trentino-Lucanian culture are found widely, showing intense supra-regional communication. At the same time, Leonardi proposed (2011) that the Pre-Alps hillfort settlements were characterized by power concentration deriving from the control of boundaries. Since this phase, albeit with differing settlement patterns, the two areas represent the Western and North-Western borders of the Palaovenetian world.

The VI century BC marks another step in the border interaction in both areas, as significant finds with different origins are recorded in both areas. The central place of Gazzo Veronese, close to the Mincio river, records the presence of Etruscan finds - a bronze double axe and 4 funerary statues, one with an inscription - it seem to record a probable presence of high status figures (magistrates?) among the Palaovenetian community, but probably only for a brief period. Quite different is the case of the northern area where the presence of epigraphic and material culture finds suggests a marked divergent identity pattern from the previous phase, influenced by Rhaetic elements (Fritzen-Sanzeno culture). Leonardi (2011) proposed to recognize in this case a phenomenon of hybridization due to trade contacts between the local (Palaovenetian) community and the Rhaetic human groups that finally succeed in acquire the cultural and political supremacy.

Both areas, in the IV century BC, appear to be strongly affected by the Celtic-Cenomani intrusion that led to a profound change and reorganization of the considered archaeological landscape. Connections between the analyzed areas and the Celtic region of Alps, are recorded by finds since the end of V-I century BC and interpreted by Bondini (2005) as mercenaries controlling the compulsory trade axis in the Pre-Alps belt. During the IV century BC the central place of Gazzo Veronese shows a contraction and a shift in the location of the inhabited area although problematic is still the definition of its ethnicity in the new phase. Complex is generally the definition of the Palaovenetian polity for the IV century BC due to the scarcity of archaeological evidences: only in a subsequent phase the presence of Celtic human groups is recorded in the area near Verona, Oppede and Mantua leading to a contraction of the Palaovenetian polity.
TH6-05 Abstract 07
Crossing the borders of the La Tène “world”
Author: Dr. Daniele Godini, Institute of Archaeology CAS, Prague, Czech Republic (Presenting author)
Co-author(s): Prof. Petr Rezek, University of South Bohemia, Czechia (Presenting author)
Keywords: Cultures, Prehistory, Europe, Mobility
Presentation Preference: Oral

How can we design borders of and within the La Tène “world”? By spread of typical material culture? By distribution of characteristic sites (flat burials, oppida)? By textual evidence of the presence of the “Caesar’s”? Or according to the political-economic structures reflected in, e.g., spatial distribution of characteristic coinage or pattern of long-distance imports? Can the same material culture reflect different cultural identities, different political, economic or even ethnic entities?

We want especially to assess the importance of long-distance routes (connecting the Adriatic, transalpine and Baltic regions) and to point out how contemporary study of these communications with the use of modern methods can change our traditional perspective of the concept of borders of the La Tène world.

TH6-05 Abstract 08
Exchanging rough materials between North and South of Europe at a time of transition
Author: Prof. Petr Rezek, University of South Bohemia, Czechia (Presenting author)
Co-author(s): Dr. Oikonomou, Artemios, Department of Archaeology, University of Nottingham, UK (Presenting author)
Keywords: Inorganic materials, Archaeology, European Iron Age
Presentation Preference: Oral

In an oral presentation, we will discuss the cultivation of the Late Iron Age (1000-500 BC), a period of transition between the Late Bronze Age and the Iron Age. During this time, the ceramic and metal production of the Baltic Sea region was influenced by the Mediterranean world, particularly the Iberian Peninsula. The exchange of raw materials between the North and South of Europe was facilitated by the development of complex trade networks. The presentation will explore the role of the Baltic Sea region as a bridge between these two regions, highlighting the influence of Mediterranean culture on the local Iron Age societies.

TH6-05 Abstract 09
Was there any border to cross? Mobility and rejection of the alien in the Iron Age
Author: Dr. Da Ericazu, Keles, University of Bordeaux Montaigne, Pessac Cedex, France (Presenting author)
Keywords: Identity, Mobility, History
Presentation Preference: Oral

Before going any further, the author wishes to warn that this paper has a speculative nature. It is based on the assumption that there was no border to cross, and that the mobility of Iron Age people was significant. The presentation will explore the concept of identity and the rejection of aliens in the Iron Age, and how these factors influenced the mobility of people during this time period.
TH6-05 Abstract 11
Textile Cultures of Iron Age Central and Mediterranean Europe: breaking down the boundaries

Author - Dr. Gleba, Margarita, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: textile, Iron Age, central Europe, Mediterranean

Presentation Preference - Oral

Textiles represent a product the design and use of which are subject to cultural patterning and as such they can be used to establish the identity of an individual or a group with respect to other individuals or groups. Worn or displayed in an emblematic way, textiles can denote variations in age, sex, rank, status or group affiliation, thereby creating and reinforcing cultural and social borders. Yet, textiles have rarely been used as archaeological indicators of cultural boundaries in later prehistoric Europe. Textiles from Central and Mediterranean Europe preserved in a mineralised form have recently been analysed within the scope of the ERC funded project Production and Consumption: Textile Economy and Urbanisation in Mediterranean Europe 1000-500 BCE (PROCON). The data collected from several hundred of such finds suggest that, during the Iron Age, and possibly already much earlier, most of Italy shared the weaving techniques and aesthetics of the Eastern Halstatt, while Greece was much more closely connected with the Near Eastern textile culture. These results suggest that the traditionally perceived cultural boundaries between the East Alpine region and the Mediterranean societies, as well as connections amongst the latter, have to be reconsidered. The paper will review the evidence and suggest some ideas for transcending borders in later prehistoric Europe by using the generally conservative and ubiquitous textile technology to delineate wider cultural and technological spheres of influence.

TH6-05 Abstract 12
Digital approaches to the presentation and analysis of Iron Age art

Author - Professor Armit, Ian, University of Bradford, Bradford, United Kingdom (Presenting author)

Co-author(s) - Evans, Adrian, University of Bradford, Bradford, United Kingdom

Keywords: art, visualisation, Iron Age

Presentation Preference - Oral

3D digital methods of data capture and analysis have the potential to transform the ways in which we record, display and interpret Iron Age art. One element of the ENTRANS Project has been the investigation of Iron Age objects in the south-east Alpine region using a range of new technologies. This is part of a broader programme aimed at breaking down boundaries between typological/art historical methods of analysis, and newer approaches based on concepts of object biography and materiality.

Many of the objects studied within the ENTRANS Project belong to the tradition known as ‘sitle art’, classically defined as figurative repoussé decoration applied to sheet bronze objects, such as the eponymous situlae, as well as belt buckles, helmets and occasional other objects. However, both figurative and geometric decoration is also applied to a range of other objects and materials, which are equally important in explorations of the social meaning of Iron Age art in the region. This paper presents a series of case studies based on the digitisation and visualisation of decorated Iron Age objects held in museum collections in Slovenia and Croatia. The aim is to illustrate the potential of specific methods in both the analytical and presentation applications of 3D imaging. The work is a collaboration between ENTRANS, the Fragmented Heritage Project and Bradford Visualisation at the University of Bradford and University College Cork.

TH6-05 Abstract 13
The cremated dead: investigating cremated remains from the Late Bronze Age/Early Iron Age transition

Author - Nichola, Rebecca, University of Bradford, Bradford, United Kingdom (Presenting author)

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Co-author(s) - Buckberry, Jo, University of Bradford, Bradford, United Kingdom

Keywords: cremation, ENTRANS, Results

Presentation Preference - Oral

The paper presents the results of osteological analysis of cremated bone from the Late Bronze Age and Early Iron Age funerary assemblages of Croatia and central and eastern Slovenia. This doctoral research forms part of the larger HERA-funded ENTRANS Project ‘Archaeology without borders: investigating Late Bronze Age and Early Iron Age cultural encounters in the East Alpine region’.

Cremated remains, while rarely examined, can provide a valuable insight into the past. Although the potential for age and sex data can be diminished by the cremation process, the burnt remains can still offer information regarding pyre technology (e.g. heat and degree of burning), selection processes for deposition, and clues as to the condition of the body prior to cremation through the observation of fracture patterns.

In the past the process of cremation and subsequent deposition of human remains has, on occasion, been described as reflecting egalitarian social structures, or even the idea of a ‘poor man’s grave’, especially in comparison with more elaborate Iron Age funerary monuments. The examination of cremated remains from unfield cemetery sites in modern day Slovenia, and of the large Early Iron Age funerary complex of Kaptol in northern Croatia, has offered an additional level of understanding regarding pre-Historic attitudes to the disposal of the dead.

The investigation seeks to cross boundaries, not only of geographical and chronological terms, but also in regards to strategy. Interpretations draw upon both scientific and more traditional approaches as a means of enriching interpretations of funerary processes in the past.

TH6-05 Abstract 14
Beyond the vessel: residue analysis and the understanding of identity in Early Iron Age Europe

Author - Bastos, Beatriz, University of Bradford, Bradford, United Kingdom (Presenting author)

Keywords: residue analysis, Iron Age, organic residues

Presentation Preference - Oral

During the cooking or storage of foodstuffs, organic residues are deposited, absorbed and preserved within the porous walls of ceramic vessels. With advances in scientific methods, it is possible to extract those organic residues and, through analysis, identify them. Organic residue analysis has the potential to make a significant impact on our understanding of past societies, from their diet to cultural and social practices. The identification of the resources cooked and/or stored in ceramic vessels can provide important information regarding the source and nature of cultural and social changes that took place in later prehistoric Europe.

With this in mind, the study of organic residues in pottery was incorporated within the ENTRANS Project, which aims to expand our knowledge regarding the nature and impact of cultural encounters during the European Iron Age. This paper presents the results obtained from the analysis of residues of Atlantic and Mediterranean organic material, mainly from Slovenia and Croatia. The principal aims are to explore aspects of diet and the provenance of resources by comparing the results of residue analysis with contextual data, such as faunal and floral remains. Differences between settlement and funerary sites are also considered, by identifying how the vessels were used and the specific residues were found, and how this is connected with the social background of the individuals involved.

This paper also demonstrates how organic residue analysis can show patterns of change and encounters during later prehistory.

TH6-05 Abstract 15
‘Beyond the grave’ with the help of multidetector computed tomography and micro-excavations

Author - Dr. Čedlar, Matija, University of Ljubljana, Ljubljana, Slovenia (Presenting author)

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Keywords: cremation burials, micro-excavations, multidetector computed tomography

Presentation Preference - Oral

The urn is the ultimate ‘burial place’ of the cremated remains of an individual. But it is much more than that. The type of vessel, preparation of the contents, possible additional grave goods etc. has by far not only functional but foremost symbolic meanings and values and holds information about the time of the deposition, ‘cultural’ milieu, status of the deceased and much more.

The study of a cremation burial is not a straightforward and self-evident process. We have to bear in mind that we are dealing with traces of events and processes, the understanding of which is only partial. On the other hand we have to admit, that it is only the information that we can trace, observe and make documentation of, which we later analyse, study and eventually interpret. Therefore the analysis of an urn starts already with the preparation for the excavation of its grave. In our case studies that means the analysis of the sites and their surroundings. That includes lidar scanning and the analysis of its broader landscape, followed by ground truthing campaigns and geophysical prospections. That means that we have a fairly good idea of the topographical settings and the broader cultural landscape of the sites. It is also the time of excavations of the graveyard where all the possible details have to be observed and documented, with modern excavation techniques and methodology as well as standardized reporting protocols the results became much more comparable, which is crucial when trying to study wider cultural phenomena, as in this case the burial rite.

However we can go further in our quest for more detailed and reliable data. An important step forward, when dealing with urn graves is the use of multidetector computed tomography individually connected with the micro-excavations of urns. Such research results in an until now unknown variety of new data, not only of the grave itself and its preparation, but also of the post-
depositional processes, which play an important role in the final interpretation of the graves, burial rites etc. It has furthermore shown that we have to shed new light on older published data and sometimes 'traditional' interpretations.

The multidisciplinary computed tomography connected with the micro excavation until now did not make it into the standardized grave research 'tool-box', but it is certainly on the way there.

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**TH6-05 Abstract 16**

**Open-minded access to Late Bronze Age societies in southern Carpathian Basin**

**Author** - Lozajč Dizdar, Daria, Institute of Archaeology, Zagreb, Croatia (Presenting author)
**Co-author(s)** - Radonč, Sinisa, Croatian Academy of Science and Arts, Zagreb, Croatia

**Keywords:** communities, Late Bronze Age, mortuary practice

**Presentation Preference**: Oral

Late Bronze Age communities in southern Carpathian basin are known through different cultural patterns/cultures/groups. The research project Late Bronze Age mortuary practices and societies in southern Carpathian Basin (IRP-11-2013-32), funded by Croatian Science Foundation, combines archaeology, anthropology and archaeozoology in an attempt to reconstruct burial customs and shed more light on societies that have practiced them, while questioning existing hypothetical models and their territorial and temporal boundaries. Research methodology is based on independent analyses in each field to bypass possible bias, followed by comparison and integration of all data in further discussion and interpretation. Preliminary results indicate benefits of this open-minded approach to Late Bronze Age societies in southern Carpathian Basin.

Working independently anthropologists and archaeozoologists are less biased by the existing models in archaeological literature in their interpretation. This “bottom-up” approach is based on more credible evidence which occasionally do not correspond with existing hypothetical models of past societies.

Observed treatment and disposal of bodies, selection of grave goods and overall deposition, suggest different criteria of which some obviously reflected tradition while others indicate innovations presented by individuals living in these communities. Moving beyond the existing borders, it is possible to see images of the “small worlds” that overlap in the contact networks of practiced customs. Some customs (e.g. cremation of deceased, animal meat as offering of food, and various sets of vessels as ceramics in food and drink) could be examples of tradition in transitional period from Late Bronze to Early Iron Age in southern Carpathian Basin. Even with the application of open-minded approach, invisible borders still exist, but defined by the people that we investigate, rather than researchers.

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**TH6-05 Abstract 17**

**When traditions of pottery making reveal boundaries: a case study from the Upper Rhine Valley**

**Author** - Philippe, Marie, Université de Bourgogne, UMR 6298 ArTeHiS, Strasbourg, France (Presenting author)

**Keywords:** ceramic technology, Late Bronze Age, social network

**Presentation Preference**: Poster

Between Vosges and Black Forest mountains, Bronze and Iron Ages (10th-8th century B.C.), modern France and Germany, the context of this study defies borders. In the Upper Rhine Valley, at the end of the Bronze Age, one can a priori hardly expect to reconstruct boundaries because of a standardisation of the material culture, and the point is more about interactions’ significance. During Late Bronze age, the cultural entity “Rhine-Suisse-France Orientale” or “RSFO” (“Rhine-Switzerland-Eastern France”) has a core on the Rhine section between Basel and Karlsruhe. Since the 9th century B.C., this cultural entity dissolves, turning gradually to the Hallstatt one. This paper aims to focus on the people who experienced this transition period, in a supposed “flow corridor”. Which communities lived there, standing out and interacting with each other? Does it match with geographical features? Does it change through time?

According to the anthropology of techniques, ceramic shapes and patterns, and especially shaping sequences, can vary depending on cultural factors and material constraints. It leads to technical traditions specific to social groups. Social boundaries can thus be defined by the limits of the transmission network of technical traditions. About 50 technical features (for example bottom forming technique, finishing technique applied on the outer surface of the rim…) were analysed on 830 well-preserved potteries, sampled on 19 sites distributed from the south to the north of the valley section. A statistical classification procedure has been developed, based on biological methodology, to model the diversity of technical traditions.

It first appears that a technical background is similar on the entire area, with the omnipresence of the coiling technique. However forming methods and sequences are very different and reveal a great variety, which is related to the morphology of the potteries and to their spatial provenance. This distribution indicates that geographical potteries (like mountains or the Rhine river) do not impact on social boundaries. Moreover, technical traditions go through chronological limits and bring thus a complementarity approach to artefacts’ morphology to understand transition mechanisms.
**TH6-06 Abstract 01**

**KAFU - A network for archive studies**

Author: Dr. Neumayer, Heino, Museum für Vor- und Frühgeschichte, Berlin, Germany (Presenting author)

**Keywords:** Archive Archaeology, International, KAFU

The situation after the fall of the iron curtain also allowed a research to the remain of the collections from former East Germany and the eastern Baltic region which had been partly destroyed or scattered as a result of the 2nd World War.

To achieve this in 2001 the "Kommission zur Erforschung von Sammlungen Archäologischer Funde und Unterlagen aus dem nordöstlichen Mitteleuropa (KAFU)" had been founded in Berlin. The members, scientists from Polish, Lithuanian, Russian and German universities, museums and archaeological services, wanted to reconstruct the former collections by the study of the archive material and objects which survived the war.

Chief of the commission is the director of the Museum für Vor- und Frühgeschichte Berlin. The secretariat of the commission is also domiciled at that Museum. The Stiftung Preussischer Kulturbesitz and the Römisch-Germanische Kommission in Frankfurt are supporting the commission. Every two years a congress is organized by the KAFU where young scientists are given an opportunity to present their research concerning the themes of the KAFU.

**TH6-06 Abstract 02**

**The Sources of the „Archival Archeology“ in the Carpathian Basin**

**Author:** Dr. Proházka, Peter, Archæological Institute of the Slovakian Academy, Nitra, Slovakia (Presenting author)

**Keywords:** Archæological Archeology, Archivals, Carpathian Basin

Archives in public institutions and private collections contain an ever-increasing amount of untapped information on archaeological finds and finds spots. Geopolitical developments in Central and East Europe as a result of the two World Wars had an enormous effect on archival holdings, often resulting in their complete destruction. However, following the fall of the “Iron Curtain”, material in archives in various European states are now once again becoming accessible. Often they contain foreign language, that is German, records. Thus the declared goal of the „Kommission zu Erforschung von Sammlungen Archäologischer Funde und Unterlagen aus dem nordöstlichen Mitteleuropa (KAFU)“, which was founded in 2001, is to reconstruct in international cooperation – Germany, Poland, Russia, Lithuania – the archaeological collections and documentation that was destroyed or dispersed in the Second World War, and so to render this “lost archaeological” accessible for research once more.

In the session the following topics are to be discussed within a pan-European framework: What knowledge can be gained for current research questions within archaeology, beyond the reconstruction of material from lost collections, from providing access to archival material (excavation documentation, photographs, drawings, maps), in particular from the 19th and the first half of the 20th century?

What are effective and promising strategies for the preservation of archival holdings, even when only fragmentarily preserved, in order to extract the maximum possible information?

How can studies of archival material progress beyond mere typo-chronological description of objects and lay the foundation for up-to-date research projects?

How does the way in which archaeologically relevant archival holdings are dealt with vary across Europe? Are there methodological differences?

The session shall provide a forum for contemporary, interdisciplinary and theoretical research approaches towards archival studies. Specific topics are welcome to span all archaeological ideas, regions and periods.

**TH6-06 Abstract 03**

**Reichs-Limeskommission and WHS Upper German-Raetian Limes – Sources and research from the archives**

**Author:** Dr. Hülsen, Claus-Michael, German Archaeological Institute, Frankfurt / M., Germany (Presenting author)

**Keywords:** cultural heritage management, Reichs-Limeskommission, Upper German-Raetian Limes

The Limeworks of the Roman-Germanic Commission (RÖK) include large parts of the archive and the collections of the Reichs-Limeskommission (RLK). The RLK explored the Limes mainly from 1892 to 1903 between the Rhine and Danube. The scientific results were edited by E. Fabrisius in the series “Der Obergermanisch-Raetische Limes des Römischen Reiches” (ORL) from 1894 to 1937. Research results up in the 1930s are included therein, after the actual workings of RLK. With the final dissolution of the RLK in 1939 the archives came to the RÖK. It includes a stock of real administrative records, which was 1991 archived. By far the greater parts are collection items of reports, diaries, correspondence, maps, plans and photos between 1888 and 1939. The stock is supplemented by the card file for the Fundindex of ORL, reports in words and pictures about Limes inspections in the 1950s and 1960s and others.

2005 the Upper German-Raetian Limes became UNESCO World Heritage. Since then there is an increased interest in historical documents about this monument. The total inventory of the archives was already recorded in 2004, funded by the State of Baden-Wurttemberg. The documents for the Bavarian Limes section were registered and digitized 2009/2010 with special funds from the Free State.

The Deutsche Limeskommission (DLK) promotes workshops of old excavations and research on the Limes by doctoral scholarships for some years now. Thus, the Limes archive now serves as an information and data source for master and doctoral theses, for contemporary historical studies, for articles and databases on special topics, issues related to the preservation of the monument, for different types of visitor information and advice on World Heritage and for exhibitions in museums. Moreover, new questions arise by connecting the results of modern prospecting methods with the early field observations. Two research excavations at the Raetian wall were devoted to these issues in 2015.

**TH6-06 Abstract 04**

**Scientific Archive of IHMC RAS: pages of European archaeology**

**Author:** PhD Medvedeva, Maria, Institute for the History of Material Culture, Russian Academy of Sciences, St.-Petersburg, Russian Federation (Presenting author)

**Keywords:** documents, photographs, Institute for the History of Material Culture, Scientific Archive, archaeology

The Scientific Archive of the Institute for the History of Material Culture, Russian Academy of Sciences (IHMC RAS), keeps invaluable documentary archaeological Collections. Its history started from 1859, when the Imperial Archaeological Commission (IAC) was established by Russian Emperor Alexander II. By the early 20th century IAC became coordination and control centre in archaeological and restoration studies of Russian Empire. IAC has accumulated unique archives of records groups and
Archaeology without borders

Presentation Preference - Oral
archaeometry, archival holdings, Phoenician pottery

TH6-06 Abstract 06

The Esquiline (Rome). Urban transformation and ancient topography between lost archives and Webgis

Author - Bos, Valeria, archaeological consultant, Roma, Italy (Presenting author)
Keywords: ancient topography, Open access to archive documents
Presentation Preference - Oral

This paper is aimed at retracing the steps of the reconstruction of the ancient topography and of the archaeological potential of an area of Rome’s historic centre, which was the subject of a doctoral thesis in Methodology of the archaeological research, disputed in February 2016 in the University of Sassari.

The case-study area is the Esquiline District, located at the south-eastern borders of Rome’s inner centre, in the Middle Ages, and until the last decades of the XIX century, the Esquiline was a suburban area, where only a few religious complexes rose up in a waste area occupied by gardens and orchards and then by the aristocratic villas built in the XVII century. The landscape kept itself almost intact for centuries, as is shown in the historical cartography, from the XVI century bird’s-eye views to the renowned 1748 Nolli map; this context changed sharply in a few years, when, in 1871, the city of Rome became the Capital of the new united Italian nation, and a major building expansion completely transformed the face of the nineteenth-century city. In the aftermath of Italian Unification, in fact, the landscape was heavily transformed, and a regular urban pattern completely erased the original ancient morphology. In a few decades, between 1873, when the first town planning was approved, and 1920, when last buildings’ construction was completed, the specifically created “Archaeological Commission”, headed by Rodolfo Lanciani, tried to save from complete destruction the complex and extremely rich archaeological context of the ancient Esquiline.

Archaeological findings were archived in the renowned in Lanciani’s “Forma Urbis Romae” and sometimes published in the journals “Notizie degli Scavi di Antichità” and on the “Bollettino della Commissione archeologica comunale”. In the following years, a lot of archive documents were dispersed in the archives of various State and Municipality offices. Thanks to this doctoral research many of those documents are now accessible in a Open access web database, and this “lost archaeology” is now accessible for researchers in a digital environment.

TH6-06 Abstract 07

The biography of two Phoenician jars from the National Museum in Poznan

Author - Dr. Krueger, Michal, Adam Mickiewicz University in Poznan, Poznan, Poland (Presenting author)
Co-author(s) - Guszewski, Inga, Nicolaus Copernicus University, Torun, Poland
Keywords: archaeometry, archival holdings, Phoenician pottery
Presentation Preference - Oral

In the National Museum in Poznan, Gotłuchów branch, two ancient jars of clearly oriental origin can be found. Neither the provenance, nor the chronology of the artefacts is clear. This paper is willing to show that through archival, archaeological and typological studies it is possible not only to determine the specific origin and detailed chronology of the vessels, but also to reconstruct an important part of their cultural biographies. The studies of the private correspondence from the end of the 19th century between Izabela Działyńska, née Czartorycka, the buyer, and Alfred Louis Delattre, a French missionary and archaeologist working in Cartage, are revealing the context of acquisition of the artefacts. The archival holdings are clearly showing that the oriental art collection in Gotłuchów was much bigger than previously thought. What is more, the information given by A. L. Delattre can be useful in determining the place where the jars were discovered. The vessels were also subject of recent archaeometric studies (X-ray fluorescence spectrometry and petrographic analysis) in order to get the basic information about their technology and place of production. Having in mind this data, we are able to reconstruct the biography of the jars from their “birth”, through their deposition in a tomb in Cartage, ending in the art collection in Gotłuchów where they have been exposed as unrecognised items. Let the promising results of this small-scale investigation encourage the authors of this proposal to apply for a bigger research project based on the pottery and archival holdings from the former collection of Izabela Działyńska.
Rich Roman Iron Age graves, equipped with Roman imports, are interpreted as being burials of persons of high status in the social hierarchy. Unfortunately a lot of these graves were discovered by accident and the documentation of the finds is poor. So one can say, an inexpert discovery is quite a main attribute of the Roman Iron Age princes graves. Needless to say that this fact means a big loss of information. A second, not less important point is the state of analysis and publication of the finds. Not infrequently we actually do possess more informations than published. It is difficult to explain, but especially in case of princely graves very often not all data were released in publications. Studies of old finds, stored in the museums, deliver new data and give new basis of interpretations. This will be shown by the example of some so-called princely graves of the Libiszów type.

The finds of the Przeworsk and Wielbark cultures

The famous German archaeologist Herbert Jankuhn dealt at the beginning of his career with the south-eastern Baltic littoral in the Roman Period. During his PhD work he created a huge card index containing drawings and descriptions of finds from the former Eastern Prussia. Jahnkuhn’s archive could be a valuable source of research for this period. It contains a big loss of information. A second, not less important point is the state of analysis and publication of the finds. Not infrequently we actually do possess more informations than published. It is difficult to explain, but especially in case of princely graves very often not all data were released in publications. Studies of old finds, stored in the museums, deliver new data and give new basis of interpretations. This will be shown by the example of some so-called princely graves of the Libiszów type.

At the Roots of the Roman Period Archaeology

The Herbert Jahnkuhns scientific legacy – an old archive as a source for modern research

The famous German archaeologist Herbert Jankuhn, one of the greatest, albeit most controversial characters of the 20th century German archaeology, is known primarily as a researcher of Hallstatt emporium (Schleswig), or as one of the initiators of the new edition of the monumental Reallexikon der Germanischen Altertumskunde publication. However, it is worth to remember that the beginning of his scientific career (determined by his doctoral thesis submitted in 1931) was related to his home country – East Prussia. The main subject of his doctoral thesis was the Early Roman Period in Samland. Nevertheless Jankuhn collected data from the whole region of East Prussia, going well beyond the scope of the defined geography and chronology. He created over a dozen hundreds of cards with notes and drawings, documenting few thousands of finds from the Roman, as well as the Migration Periods originating from the vast area between Lower Vistula and the Nemunas. Fortunately, scientific legacy of Jahnkuhn has survived the Second World War and is kept in the Archives of Archäologischen Landesmuseums Schleswig.

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The personal registry of Jankuhn, created as a starting point for his doctoral dissertation, had some limitations. It didn’t include descriptions of pottery or peculiarities of funerary rites. But, despite these gaps and constraints, Jankuhn’s card files allow the modern researchers to reconstruct the archaeological picture of East Prussia during the Roman Period. First of all, long sequence of grave assemblages can be established, helping to clarify different problems of chronology. For example, the separation of a large group of objects with eye-brooches of the Almgren 61 type, marks the latest stage of B2 phase. In spite of appearances, it is not the antiquarian problem only – precise dating allows to determine concentrations of archaeological sites that can be identified with Galindai and Soudinoi mentioned by Ptolemy and as such it could serve as an excellent starting point for the reconstruction of the European world of Barbaricum. Although, as it was mentioned before, Jahnkuhn’s registry was dedicated to research the Early Roman Period, it included also data on large series of finds from the Late Migration Period. One of the most interesting objects is the iron scabbard from Mazuirian cemetery in Mietkie (former Mšingr), Scandianvian import, and the first find of this type in East Prussia. This shows clearly that, although other scholars, primarily F. Jakobson, documented the Migration Period of the East Prussia, Jahnkuhn’s archive could be a valuable source of research for this period.

In conclusion it has to be stated that Jankuhn’s archive forms a very rich source for knowledge about east-Prussian “lost archaeology”.


The finds of the Przeworsk and Wielbark cultures

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The cemetery of Linkuhnen (Rževskoe):

A case study on the potential of archival archaeology

The burial of Linkuhnen is the site with the highest number of Ulfberht blades in Europe. The presentation deals with the problems and solutions during the process of re-evaluating the archaeological significance based on the objects and archival material from Linkuhnen.

Archaeology without borders

Richard van Leeuwen and John Garwood


The finds of the Przeworsk and Wielbark cultures

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The cemetery of Wiskiauten is located at the south-western corner of the Curonian Lagoon, close to Zelenogradsk in the Russian Kaliningrad Oblast. Immediately north of Wiskiauten lies a small forest known as Kaup, where a large burial site with Scandinavian grave goods was found. The burial site may have originally consisted of up to 500 burials. Unfortunately, it is difficult to reconstruct the original layout and structure of the cemetery due to the lack of excavation documentation. As a part of the former Prussian state, the area around Wiskiauten has faced profound changes between German, Soviet and Russian rule and administration. These circumstances have led to the loss of a large part of the early research documentation and most of the finds, especially during the 2nd World War and the resulting destruction and plundering of the Prussian Museum in Kaliningrad. After the War large parts of the documentation and a small number of artefacts reappeared in different parts of Europe. Consequently, today material from Wiskiauten can be found in Stockholm, Olzyn, Berlin, Marburg, Schleswig, and of course Kaliningrad. These complex conditions could explain why a complete presentation of the research results has never been published, although archaeological interest in the site is unbounded. Since the 1980s, at least 12 different excavation teams from Germany, Sweden and Russia have worked on the grave mounds of Wiskiauten and the archaeological investigation is still ongoing under Russian guidance. Thus it is the aim to give a complete presentation of the research results available from all accessible excavations in Wiskiauten, and to reassess the conclusions from the early days of archaeological research. Moreover, it is essential to compare the grave architecture and the material culture of the burials in order to connect them to local Scandinavian customs, as well as to similar sites on the Baltic Sea and in Russia that have burials with Scandinavian links, in order to reevaluate the duration and nature of Viking presence in late Iron Age Wiskiauten.

Keywords: burial mounds, European Archives, Vikings in the Baltic

TH6-06 Abstract 14
The late Iron Age burial mounds of Wiskiauten. New perspectives from old material

TH6-06 Abstract 15
Rooted in the past: A new chronological classification for the early medieval Tyne-Forth cemeteries

Since the beginning of the late 20th century, research has attempted to highlight the diversity in mortuary practices within specific funerary practices of Germanic populations. In the North of Great Britain, grave goods are not a part of funerary tradition. As a consequence, typology cannot be applied here, resulting in a lack of precision for the dating of cemeteries. Radiocarbon dating is also lacking, thus cemeteries are widely attributed to the 5th-8th centuries. This paper explores the early medieval funerary data in the Tyne-Forth region (Northeast England-Southeast Scotland), obtained from late 18th and early 20th century excavation; and attempt to find a systematic approach to analyse the data.

TH6-06 Abstract 16
Excavating an Archive - The Irish Viking Graves Project

Nineteenth-century Dublin saw the recovery of a substantial assemblage of Viking artefacts from several parts of the city, and particularly from the Kilmainham-Islandbridge area. Unfortunately, very little of this material was published at the time, and the surviving manuscript records are limited and contradictory. The Irish Viking Graves Project was set up to address these problems, and to produce the first comprehensive and accurate catalogue of these artefacts and the furnished Viking graves that they clearly represent. To do this, the archives of the Royal Irish Academy were reviewed, the archive of Irish art history was considered, and material from other institutions in Ireland, the UK and Denmark. This paper discusses the methodology used by the Project, which moved beyond archival records to consider the relationship between these manuscripts and surviving artefacts in various museums, as well as the relationship between the archives and cartographic evidence for Viking graves. By doing this, the paper demonstrates the potential of research of this type, and provides an Irish perspective for this session.

TH6-06 Abstract 17
Forgotten maps – important information about the 3rd century AD graveyard Häven, Mecklenburg

The extensive working papers of Friedrich Lisch (1801-1883) on the late Roman Iron Age inhumation graves from Häven, Ludwigslust-Parchim District in western Mecklenburg, which are archived in Wilgard Castle north of Schwerin, provide a very interesting insight into the lively scientific exchange between Lisch and leading Scandinavian archaeologists such as Conrad Engelhard, Christian Friedrich Herbst, Hans Hildebrand, Jens Jacob Asmussen Worsaae and others. The previously unpublished map of the site, drawn by Lisch’s son Friedrich Wilhelm Lisch in 1869, gives new and important information about the inner structure of the graveyard and its meaning for intra-Germanic relations between southern Scandinavia and Central Germany during the 3rd century AD. The grave categories as well as the grave furniture can be clearly differentiated: some graves have stone backrests at the head and the feet, others have stone backrests at the feet, and the remaining graves are undecorated. The paper will also engage with key research issues. Now that the catalogue has been published, we have the first (accurate) list of grave-goods from Dublin, divided into acquisition groups and linked to more or less specific locations around the modern city. But how can this ‘new’ evidence be used to investigate Viking activity in the Dublin area and farther afield? Potential areas of future research include investigations of topography, which suggest links between burial sites and local and national levels; the use of artefacts to promote and sustain identities at multiple levels; and scientific analysis of some of these artefacts. Again, this will provide an Irish perspective on these key issues.
circumstances of receipt of the collection and contacts of Adalbert Bezzenberger in Russia led to Prussian Cultural Heritage Foundation Archive in Berlin, where the fragment of diary of Bezzenberger preserved (SMB–PK/PMV, PM–004–37). Unfortunately only 3 last pages persisted. Professor wrote about his stay in Novgorod and Saint-Petersburg, and return to Germany in dates of 18th - 20th. The month and the year are not specified. There were no more references about Bezzenberger’s journey to Russia in Berlin's archives. Details subsisted in Russia in information about XV Archaeological congress in Novgorod, collected by Petr G. Gajdukov (2011, P. 3–12, 47–57, 27/8). The congress took place in 1911 at instigation of Moscow archaeological society from 21st of July to 4th of August by Julian date in Russia (4th - 17th of August by Gregorian date in Germany). So Bezzenberger in his diary wrote about next 3 days after the end of the Congress. At the Congress Bezzenberger participated in session No. I «Prehistoric antiquities», where he made a report «Relations between Caucasus and East Prussia in Bronzes Age». Plate with beads could be a «gender archaeological gift» of Königsberg's Museum director to the Chairlady of the Congress and Head of Moscow archaeological society comtesse Praskovyia S. Uvarova. Maybe because of complicated consequences, connected with the I World War and the Revolution in Russia, this gift was passed over and forgotten for a long time in State Historical Museum. Only on the 24th of November of 1960 it was accepted into museum fund. The comparison of data from Moscow and Berlin made possible to connect finds and archives, which were not attributed before; and casted light upon the chapter of the last pre-Revolutionary Archaeological Congress in Russia and the memoirs of Adalbert Bezzenberger. Done with the support of Russian Foundation for Humanities, Project No 15-31-01273.

**TH6-06 Abstract 19**

**Archival Archaeology: experience of mapping and survey in SW Courland**

**Author:** Dr. hist. Virsa, Ingrīda Liga, Latvian National Museum of History, Riga, Latvia (Presenting author)

**Keywords:** Archival Archaeology, systematic mapping, identification and research, SW Courland

**Presentation Preference:** Poster

The National History Museum of Latvia, Archaeological Department stores information about archaeological monuments and artefacts found across the territory of Latvia. The data chronologically covers a period from the end of 19th century to the present day. The largest amount of data originates from the interwar period, and it forms the basis for the documentation. During the work on the project Study of population and ethnic composition changes in southwestern Courland 1st millennium AD, systematic mapping, identification and research of SW Courland archaeological monuments and find locations is carried out. The work is based in the study of archives (National History Museum of Latvia archive contains information on approximately 200 archaeological monuments and locations of finds in SW Courland). During the course of the research, unexpected problems were encountered. Although the documentation of archaeological sites during the interwar period was generally precise, today part of the potential sites can’t be localized. This is mainly due to the loss of reported landmarks, changes in the terrain during the Second World War and the construction of Soviet military bases in the post-war period. The possibility of interviews is reduced by the depopulation of the region which continues until today.

**TH6-06 Abstract 20**

**International cooperation of archives in the study of archeology of the Bashkir Urals**

**Author:** Shuteleva, Iia, Ufa, Russian Federation (Presenting author)

**Keywords:** archives, international cooperation

**Presentation Preference:** Poster

The issue of fragmentation and disunity of archaeological documents stored in the archives of the Republic of Bashkortostan was raised in the beginning of the 1990s. Data restoration about archeological monuments and finds of the Bashkir Urals was made possible owing to international cooperation. Materials about the region's archeology were stored in the archives of the former Soviet Union (the archives of the Republic of Kyrgyzstan), the archives of Finland (the National Library of Finland / Helsinki University Library), Sweden (The Swedish National Heritage Board / The Antiquarian-Topographical Archive) and Great Britain (Cambridge University Library: Manuscripts). Archival information about the territory of the Bashkir Urals began to be collected in 1834, on the basis of the Regional Static Committee, since 1867 it became the Provincial Museum (at present - the National Museum of the Republic of Bashkortostan). Ufa provincial archives (now the Central Historical Archives of the Republic of Bashkortostan) started to be formed in 1919. After formation of the Academy of Sciences in 1932, a scientific archive of Ufa Scientific Center of RAS started operating. Such diversity of the archives led to fragmentation of archaeological materials and sometimes even to their loss. Reorganization of the archives and document funds often results in loss of archaeological documents. Part of the archaeological archive materials was separated depending on the scientists' workplace location, often there were no conditions for heritage storage. In Bashkir Urals it is especially vividly observed in the scattered archival materials by K.V. Salnikov, A.P. Shokurov and R.G. Kuzeev. Also, scientists' manuscripts can be transferred to some organizations after their death, which also leads to partial loss of the material, for instance, again, the long-suffering R.G. Kuzeev’s fund. If the World War II became the most destructive for the archival funds in some regions of the USSR, other processes can be observed in the rest of the country. The processes of mass loss of archival materials are related to revolutionary events and the Civil War. Active passion for archeology of the most educated part of society spread in the Ural region, led to the exchange of archaeological information with the European scientific elite. In the fund by E.H. Mirns (Cambridge University Library: Manuscripts) a fragment of correspondence between A. Pashkova, the owner of Volvierskays plants (05.09.1913), and E.H. Minns was discovered. Another significant impact on the preservation of archival archaeological sources was the period of the late 1930s - the period of repressions, during which not only the held diaries were destroyed, but also the correspondence of repressed archaeologists. It is wrong to claim that archaeologists in the USSR completely stopped communicating with foreign colleagues and were not interested in foreign publications and foreign archival funds. But this scientific communication was of "shaded" and secret character. It is impossible to restore the disturbed dialogue of Russian and West-European archaeologists without the employees of archives and funds of European countries. Thus, the restoration of the lost archived information is possible only through international cooperation.
TH6-07

FORUM MEDIEVAL ARCHAEOLOGY IN EUROPE AND LITHUANIA
Friday, 2 September 2016, 09:00-16:00
Faculty of Philology, Room 17
Author: Ty., Dries, Vrije Universiteit Brussel, Brussels, Belgium (Presenting author)
Co-author(s): Foster, Solly, University of Stirling, Stirling, United Kingdom
Co-author(s): Hansen, Gitte, University of Bergen, Bergen, Norway
Co-author(s): Predovinik, Katarina, University of Ljubljana, Ljubljana, Slovenia
Keywords: Europe, Lithuania, Medieval Archaeology
Presentation Preference: Committee / Working Party meeting

The Forum of MERF (Medieval Europe Research Committee) is an annual meeting held at EAA to promote active archaelogical research in the medieval period (AD400-1600) in every country in Europe. It is the intellectual successor to the series entitled Medieval Europe inaugurated at York in 1992, and staged at Bruges in 1997, Basel in 2002 and Paris in 2007. A change of direction occurred in 2012 when new thinking suggested that medieval archaeology would develop more powerfully within the broader ambit of prehistoric and historic archaeology as a whole. Accordingly the representatives of the conference accepted an invitation from EAA to merge the two conferences. This duty occurred at Helsinki and has continued since then. The medieval agenda is promoted by MERF, which views itself as in academic partnership with EAA. The purpose of the forum is:
- highlight the performance of medieval archaeology in the host country
- highlight the medieval and medieval-related sessions at the conference
- table new research themes pertaining to Europe with special emphasis on links with prehistory
- debate new initiatives for teaching, publication and publicity for the subject.

The discussions aim to contain medieval archaeologists working in the academic, government and commercial sectors and to encourage students to research the period by attending the EAA conference and our Forum. In addition to invited speakers and speakers from the floor, the Round Table will be hosted by Dr. Dries Ty., Dr. Gitte Hansen, Dr. Solly Foster and Dr. Katarina Predovinik.

Keynote Speakers:
- Lithuanian medieval archaeology, Prof. Kuncencius, Albinas (Vilnius University, Lithuania)
- Early medieval horse cemeteries of Prussia and Central Lithuania on a comparative scale, Dr. Shiroukhov, Roman (University of Reading, United Kingdom)
- Cultural resilience and adaptation at the frontier: Klaipeda and Žarė pottery analysis, PhD student Ubris, Edvinas (Klaipeda University, Lithuania)
- Future archaeologies of the "Great Wilderness": Crusading, depopulation and colonisation in the frontiers of Lithuania, Dr. Pluskowski, Aleks (University of Reading, United Kingdom)

TH6-08

RESOURCE: CONDUIT: AGENT: WATER AND THE DEVELOPMENT OF THE HUMAN GEOGRAPHY OF CENTRAL ASIA
Thursday, 1 September 2016, 09:00-11:00
Faculty of Philology, Room A7
Author: Markofsky, Steven, Universitat Pompeu Fabra, Barcelona, Spain (Presenting author)
Co-author(s): Holguin, Leah, University of Southampton, Southampton, United Kingdom
Keywords: Central Asia, hydrosocial dynamics, water
Presentation Preference: Regular session

Since the end of the Cold War, Central Asia has seen a burgeoning of research agendas, many addressing hydrosocial dynamics. The environmental and geographical challenges of the region, where vast desert regions and semi-arid steppe environments have been subjected to extensive agro-economic and pastoral pressures, have focused international attention on the fragile but essential balance between societies and water resources.

Somewhat lost in the drive to understand these relationships in the context of modern-day concerns such as climate change, sustainability and resource management is the grasp of the historical trajectories of how these human/water relationships, not only with respect to the better-studied river systems and delta environments, but also with respect to smaller or less accessible water resources such as pools, ephemeral lakes or aquifers. In Central Asia, a region characterized historically by movement, exchange and communication across vast desert regions, the indispensable role of such varied hydrological features becomes increasingly clear: not simply as static resources, but as natural agents in the facilitation of movement and interaction. Even today, the identification, exploitation and management of these varied resources remains central to understanding marginal subsistence strategies, and their co-evolutionary role in water landscapes of human geography.

This session aims to broaden our understanding of water as resource, conduit and agent in the development of societies and landscapes across Central Asia. We welcome papers that present new theoretical and methodological approaches to understanding hydro-social dynamics. These may include remote sensing, bio/gearchaeology, simulation or papers that emphasize the social aspect of hydrology, including ethnarchaeology or research that considers water as heritage in Central Asia. We feel that this creative approach to water research in Central Asia will be beneficial to regional researchers and to a wider audience seeking to broaden the scope of hydrosocial research in Central Asia more generally.

TH6-08 Abstract 01

The Hydrosocial Margin: Settlement, Socio-ecology and Sustenance in the Central Asian Desert-Deltas

Author: Dr. Markofsky, Steven, Universitat Pompeu Fabra, Chestnut Hill, MA, United States of America (Presenting author)
Keywords: Central Asia, hydrology, landscape archaeology
Presentation Preference: Oral

Over the past several decades, there have been a number of developments that have changed our fundamental understanding of the changing relationships between societies and water resources, particularly at the local level. These new understandings have particular import in arid-margin ecotones, where scarce or unreliable water resources underscore a natural fragility in the socio-ecological balance. In transitional regions, such as oases and delta-desert boundary zones, small-scale or local changes in the interaction between people and water may bear significantly on broader-scale issues of human/landscape co-evolution and vice versa. This paper will explore, via a multi-proxy approach that integrates geoarchaeology, remote sensing and survey data, new ways of conceptualizing marginality, transitionality and hydrosocial relationships in late-Holocene arid margins.

To address these co-evolutionary and multi-scalar aspects of human/water relationships, this paper considers the arid-zone transitionality of the island Murghab Delta in Turkmenistan, an alluvial fan that has seen complex trajectories of socio-ecological development throughout the late Holocene. Populated since at least the late 3rd millennium BC and likely earlier, the region has been described by a number of competing models: one that treats the region as an “oasis” in which desertic processes have been more or less stagnant throughout the late Holocene, and one that envisions the region as a widely occupied and well-cultivated alluvial fan in which desertification was a relatively late process. The research described in this paper traces a more dynamic and locally variable trajectory that focuses on small-scale interactions of alluvial and lacustrine landscapes in the context of regional scale-hydrological, geomorphological, environmental, and social trajectories. The paper will demonstrate that landscape change throughout the Holocene has been characterised by pronounced variability at the local level not well described by a regional scale approach, and thus bears significantly on the ways in which societies interacted with, exploited and modified nearby hydrosocial resources. Analysis include Loss on Ignition, Particle Size Analysis, geochemistry and micromorphology, which in conjunction with satellite imagery will help to elucidate differential alluvial encroachment and locally variable alluvial processes.
Water resources have played an important role in the formation and development of all societies across millennia. Turkmenistan has been a desert territory since the end of the Bronze Age, and water availability has always been an issue. During the transition between the Bronze and Early Iron Age the Murghab alluvial fan was characterized by a complex phenomenon of urbanization, and was influenced by an important interaction between mobile pastoralists and farmers. Taking into account the high importance of water resources for the agricultural communities, and considering that pastoralist sites were close to the sedentary sites, little is known about the water management of micro-scale areas. Undoubtedly the disappearance of the largest sites at the end of the Middle Bronze Age (2400-1950 BCE) and the southward shift of the barony centers of the settlements at the end of the Late Bronze Age (1900-1500 BCE) were strongly connected to water management. Despite the analysis of the ancient Murghab alluvial fan on a macro-scale area, data coming from micro areas showing the ancient hydraulic network are relatively scarce. This paper presents the first results of the preliminary remote sensing analysis conducted on the basis of satellite imagery, aerial photos and cartographic maps for the sedentary sites area of Dargat 1, Adj K1 and the nomadic site area of Site 1211-1219 and Ojkay. The aim is to analyze the different water management strategies of both sedentary and nomadic settlements and their possible interaction.

The Serakhs oasis, located in southern Turkmenistan near border with Iran and Afghanistan, is a subject of study of the Polish-Turkmen Archaeological Mission headed by prof. Barbara Kaim since 1995. Due to field surveys conducted here since 2007 above 170 sites of different periods were discovered, which enabled the study of oldest settlement pattern and the water management system in particular periods. The best recognized oldest settlement pattern currently is the Iron Age (Yaz culture).

Above 700 sites with the characteristic pottery of Yaz I-III periods (circa 1400-330 BC) have been discovered in Central Asia, north-eastern Iran and Afghanistan by various studies carried on since the beginnings of the XX century. Many of the sites where connected with Achaemenid Empire, while large extent of settlement along with associated canals were used as proof to existence of large scale irrigation networks in Central Asia.

The water management system of the Serakhs oasis is one of the most important subjects of study of the mission. The recent archaeological research at Tepe Damghani in the context of site location, landscape and taphonomy of the Serakhs oasis (Turkmenistan)

Author: MA Buława, Nazarij, Institute of Archaeology, University of Warsaw, Warsaw, Poland (Presenting author)
Keywords: Iron Age, Serakhs oasis, Central Asia, Water management, landscape taphonomy
Presentation Preference - Oral

Archaeology traditionally views social progression as a linear trajectory, where hunting and gathering and nomadic pastoralism are stepping stones to sedentary lifestyles and agriculture. The Mongolian Neolithic (3500-2000 B.C.E.) contradicts this dominant narrative, especially in the South Gobi Desert where there is evidence of sedentary communities who utilized pottery, mortars, and pestles. Some researchers argue these were hunter-gatherers foraging in the area. At some point during the Bronze Age (3500-1900 B.C.E.), nomadic pastoralism was adopted as the dominant subsistence strategy and these sedentary communities were abandoned. This unexpected reversal may have been related to profound environmental changes occurring at this time and further examining this may help us to understand how human societies adapt to changing levels of uncertainty about resource availability. This will be examined through the changing Holocene landscape dynamics around the Ulaan Nuur paleo lake and paleo hydrological system located in the Gold Desert of Omnogovi province, Mongolia. By examining this Holocene socio-ecological landscape, it may provide clues as to how the changing hydrological system may have influenced resource availability, which in turn, may have affected local subsistence strategy choices.
TH6-09

SOCIAL AND GENDER COMPLEXITY THROUGH THE ARCHAEOLOGICAL REMAINS IN HOME HOUSING

Thursday, 1 September 2016, 11:30-13:00
Faculty of Philology, Room A7

Author - Tsurkov, Szilvia, Hungarian National Museum, Budapest, Hungary (Presenting author)
Co-author(s) - Greife, Enrico, Ludwig Maximilian Universität, Munich, Germany

Keywords: artifacts and community, domestic contexts, social complexity

Presentation Preference - Regular session

The main objective of this session is the study of Social and gender complexity through the archaeological remains in home housing, using a comparative approach on the basis of archaeological data.

The main focus will be on: household artifacts in domestic context (presented in categories of pottery, glass, metal, wood). We can assume that the typology of household artifact had a direct relationship with social framework of communities and with the formation and the existence of local powers. The archaeological research on ancient communities has recently increased in Europe in terms of quantity and quality, and some studies have attempted to connect all these types of artefacts found into domestic context, producing some excellent summarising results for individual sites or local territorial contexts.

Particularly we would compare how the relations between domestic artifact had been interpreted in the key of reconstruct the complexity of ancient societies, the formation of elites and their recognisability, in a terms of broad range of chronology and geography too. The session will explore the potentiality and the limits of our records and our approaches to face social and gender inequality in ancient communities, trying to suggest general considerations that can be useful for the study of many spaces and chronologies.

TH6-09 Abstract 01

Studies on remains of daily activities from the LBK Neolithic settlement

Author - Michalk, Katarzyna, University of Gdańsk, Gdańsk, Poland (Presenting author)
Co-author(s) - Potoczyński, Łukasz, University of Gdańsk, Gdańsk, Poland

Keywords: activity zones, processing of food, social relations

Presentation Preference - Oral

This paper focuses on aspects of identification of activity zones around LBK longhouses discovered at the multi-phase Neolithic settlements in southern Poland.

Studies on the spatial and functional diversity of features located around the longhouses as well as a quality (a state of preservation) and quantity of artefacts found there (pottery, finds, fragments of stone tools and grain remains) allow us to distinguish two main types of activity zones interpreted as possible places of household activities and intense deposition of waste, and places associated with processing and/or storing of food. Indication of these domestic/kitchen zones that have been used for daily activities and have been probably shared by inhabitants of contemporary houses enable deeper insight into social patterns and complexity of social relations. The recognition of domestic area related to processing of food seems to be also especially important to further studies on gender relations.

Another aspect of the study is to emphasise a possible limitation of recognition of activity zones because of long-term deposition process and the overlapping of various activity zones that can be problematic during analysis of the domestic artefacts recorded at the multi-phase settlements.

TH6-09 Abstract 02

Tell me who is living here... Some considerations on people living in Concise, a Swiss Neolithic site

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Keywords: lake dwelling, Neolithic, session, tasks sharing

Presentation Preference - Oral

Studies of the Middle Neolithic lake dwelling of Concise (Switzerland) are expanding year by year, with more fine assumptions about the spatial structures of the villages, the identity of the actors of the material culture, the history of the populations... The architecture of some villages is known as well as the material culture which contains in some cases a mixture of components NMB from Franche-Comté and the Swiss Plateau Cortaillod. The spatial distribution of remains between activity areas common to several houses and domestic waste in each house shows an essentially domestic economy, but there are also synergies by groups of houses for some components. The analysis of these distributions has led us to propose a gendered tasks sharing. In this general atmosphere of domestic subsistence, two buildings appear to have a particular function.

TH6-09 Abstract 03

Traces of households, activity areas and social inequality in a Late Copper Age site in Hungary

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Keywords: activity areas, household unit, social inequality

Presentation Preference - Oral

The archaeological traces of households and household units as the scenes of community interaction form an important interpretative level, determining numerous characteristics of the life and material culture of the community. My research is based on the premise that the archaeological identification of households and activity areas is possible, since the basic activities of everyday life were carried out in a delimited area and within a delimited timeframe. In my work I made an attempt to define the spatial and temporal limits of households and to determine the remains of which activities within a household have been preserved. The interpretation and comparison of these hypothetical households as units and scene of social and gender inequality was carried out from a variety of standpoints: among others from that of consumption, specialization and diversity. The starting point of the research is provided by the finds and observations on settlement structure made during the excavations at a Copper Age site. The study of the site is complemented by natural scientific – archaeological, anthropological, petrographic, geochemical, and radiocarbon dating – analyses, and environmental archaeological data from the region Transdanubia in Hungary. The proceeding of the finds was followed by the detailed qualitative and quantitative analysis of the materials of the pits and the pits themselves (correspondence analysis, one-way correlation analysis) according to the observed groupings. With the help of the spatial statistical and GIS analysis of the finds, the mapping of the distribution of the finds enabled the qualitative and quantitative study of the various classes of finds, which could help us to shed light on the distribution of activities and traces of social inequality taking place within and outside the households.

TH6-09 Abstract 04

Culture and society of a Hellenistic site: houses and artefacts of Sicilian city of Finziade

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Keywords: Hellenistic world, houses, Sicily

Presentation Preference - Oral

The contribution is about housing of the Hellenistic-Roman period of Finziade, in the province of Agrigento, on the southern coast of Sicily.

There are 12 houses systematically excavated by the University of Messina between 2003 and 2014 that constitute a privileged vantage point for understanding the socio-cultural and economic dynamics of Sicily between the III-I centuries. B.C. The houses are in fact one of the rare cases of recent stratigraphic studies of residential complexes of Sicily and also, not recording a settlement continuity in imperial times, have no relevant accretions after periods. The well-preserved houses, in fact, allowed to identify the intended use of the spaces and thus to enable to carry out an analysis of a very large sample relative to the daily life of a center of Hellenistic-Roman Sicily, perfectly integrated with Mediterranean examples of the period in southern Italy, Sicily, Greece, and in the coasts of Africa and Asia Minor.

All houses have a square plan with a central courtyard that represented the center of domestic life and was equipped with tank for collecting rainwater. Around it revolved every room of the house, including the dining rooms, bedrooms, bathrooms and kitchens. The wealth of faunal markers, in fact, allowed to identify the intended use of the spaces and thus to enable to carry out an analysis of a very large sample relative to the daily life of a center of Hellenistic-Roman Sicily, perfectly integrated with Mediterranean examples of the period in southern Italy, Sicily, Greece, and in the coasts of Africa and Asia Minor.

All houses have a square plan with a central courtyard that represented the center of domestic life and was equipped with tank for collecting rainwater. Around it revolved every room of the house, including the dining rooms, bedrooms, bathrooms and kitchens. Themes will therefore be treated associated with daily life, especially in relation to material culture. Some kitchens, for example, are well associated with hobs, tables and desks as well as the functional ceramic sets to the preparation, the service and food consumption. The most important rooms of the houses have also returned the wall decorations and floor of great value, which are an indicator of the medium-high socio-economic conditions of the owners. Particular attention will be devoted to domestic cults, in fact every house possessed an environment characterized by the presence of an altar complete with artefacts relevant to the performance of rituals, demonstrating a particularly common practice
We have found women burials that can be dated to the early Middle Ages. Surprisingly these burials don't show the typical grave goods for women like pottery or jewellery instead weapons were found. The archaeological research has difficulties to accept these burials as women tomb because the grave goods are typical for man ones. The anthropologist results were ignored and the female skeletons were declared to male ones. Supporting their decision by saying that during the Early Middle Ages the social gender is not like the biological gender. Anyway, women with weapons are not known just for the early middle ages but also in the 5-3 Century BC in the Asiatic/Russian area.

In general women had no access to political or social power so the stereotyped of the peaceful woman was founded. If a woman fought she had still to fulfill the stereotyped of womanhood. Men were shocked when they found out that they have fought against women. The reasons why a woman joined war are various: poverty, a bad childhood, desire for adventures or a problem with their natural gender. With the beginning 23th century emancipation was another reason why women turned into army service. At the first World War it was emancipation which brought woman to the army. When war was nearly over woman had to leave the army and be again a housewife and mother. Their performance at war was not remembered and the women were left alone with their troubles and trauma.

An indirect reason why a young woman might have joined the army could be found in the higher wergeld for female babies. In the early Middle Ages girls were declared to male ones. The high wergeld was an insurance for the girl not to be killed by her new family. Girls were engaged very early to the family and be again a housewife and mother. Their performance at war was not remembered and they were left alone with their troubles and trauma.

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The role of forest changes, since when charcoal production decreases, less wood is needed. At the same time, mining of fossil coal also has a heavy impact on the landscape.

Supply strategies are based on complex political and socio-economic relationships (regulation, control, agreements) between industrial areas and their hinterlands, leading to supply and transportation networks by land, river and sea. Fuel supply is a specific economic market involving a large range of actors (woodcutters, miners, fuel sellers, fuel dealers, and clients). The increase in demand for fuel impacts the availability of resources and sometimes leads to environmental crises. Societies must adapt by changing the type of fuel used or by adopting different resource management strategies.

Until now, research has been conducted according to discipline (history/archaeology/paleobotany), geographical situation (Mediterranean/Continental or Northern Europe) or theme (plant fuel/mineral fuel). This lack of a multidisciplinary approach has held back the development of global research on fuel supply strategies. This session aims to gather researchers from different disciplines in order to provide a comprehensive overview of fuel supply in medieval and postmedieval crafts and industries, from acquisition to consumption of raw materials, in economic, technical and social dimensions.

Anthropology of iron craft in the Canigou mountain (Antiquity-Early Middle Ages)

During ancient and medieval times, iron ore from the Canigou mountain (Pyrenées-Orientales, France) was intensively exploited, transformed into metallic iron and traded. This exploitation was particularly important between the end of the Iron Age and the beginning of the 23th century. The activity continued during the late Antiquity and the Early Middle Ages. In the Canigou mountain, and more generally in the whole eastern Pyrénées, archaeological and anthropological researches allowed to realize first synthesis on the relation between charcoal burning and metallurgy, but mostly for the modern period. However, anthropological research on ancient and medieval metallic iron remained scarce, probably because of the lack of studied sites for this period. Since 2014, a new interdisciplinary and diachronic research project aims to study Canigou mountain’s iron industry and trade. In 2015, archaeological surveys were realized in the valley of the Lentill (Canigou mountain) in four rejects from iron ore reduction, dated from the late Antiquity to the Early Middle Ages. At the end of Antiquity, landscapes located between 500 and 1200 m a.s.l. were mostly dominated by the deciduous oak forest, which tended to become a beech forest and a pin forest in altitude. Around 500 m, open landscapes (scrubland) and/or sclerophyllous mixed oak forest might have existed. The presence of some species (Bunos sempervirens, Erica, Lageninseae) might have been related to anthropic activities (pastoralism†). Both the anthropological spectra dominated by the deciduous oak forest and the big caliber of the charcoal identified raise the question of the relation between charcoal burning and iron metallurgy. Furthermore, one of the four sites revealed a broader diversity and the use of smaller calibers, suggesting the use of the charcoal for the roasting of the iron ore and not for its reduction. At last, some of the charcoal shows signs of tool marks, testifying of the cutting process. In order to better understand the impact of metallic activities on landscapes, future studies...
will continue to focus on sites occupied for a large amount of time. By studying the tools marks on archaeological charcoal, we will try to reveal the chain of events and the socio-professional organization of wood cutting and fuel production. Afterwards, a dendrochronological approach on charcoals will authorize to inter-date the archaeological sites studied and to discuss the type of wood practiced (existence of coppice?).

TH6-10 Abstract 02
The use of charcoal in metallurgy
(Iberian Peninsula, 14th and 15th centuries)

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Keywords: Charcoal, Late Middle Ages, Metallurgy
Presentation Preference - Oral

Among the various raw materials offered by the forest, the charcoal had a leading role. This is one of the most used fuels throughout history, thanks to its high calorific value. In the Late Middle Ages, it became a must for industrial processes as a source of thermal energy, especially in the field of metallurgy. Based on the information provided by the documentary sources of the time, the aim of this paper is to analyze the use of this natural resource in Iberian metallurgy, to know the types of charcoal existing, to examine the works they were designed to and to give some trends about commercialization in the 14th and 15th centuries.

TH6-10 Abstract 03
Synthesis of the anthropological approach

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Keywords: Anthracology, Craft, Fuel
Presentation Preference - Oral

During historical times, fire was one of the main energy used for industry, craft and domestic activities. For the past 30 years, anthropological analyses were realized in Mediterranean France on nearly 80 ancient, medieval and modern sites. If several activities are now well documented (charcoal and lime burning, pottery, cremation), no global approach has been attempted so far. An inventory was realized, based on a broad range of activities (ceramic, charcoal, lime, vegetal exudates, food, metal, glass, textiles, leathers, soap, salt, plaster) gathered in a same data basis. In order to understand phenomenon of rupture and continuity of the practices, the corpus comprises a chronology going from the Romanization to the Industrial Revolution. Craft and industry constitute the major part of the corpus. This work raises new questions. Currently, archaeologists aim to link the use of fuel with the type of products made (ceramic, lime, glass, etc.). Also, they affirm that some taxa have a calorific value more important than others, and that craftsmen used to chose the fuel regarding its specific properties. Nonetheless, our research proves that these ideas are not representative of past practices. For this reason, we propose a new approach which takes into account the constraint imposed by thermic and technical necessities (i.e. concentration of fire, or, on the contrary, circulation of fire in the kilns). Indeed, the choice of fuel does not always rely on the choice of a taxae for itself but on other criteria such as morphology, caliber, humidity level, etc. Furthermore, we propose a different interpretation of anthracological data. Generally, archaeologists consider that their data only reflect the choice of the craftsmen and the ecological constraints. But it appears that the role of land/forest owners, who managed the fuel resources, has never really been discussed or taken into account. This communication will propose a first discussion on the subject. Studies of multi-craft sites will be presented, as well as examples of “gestion sur pied” (division of wood in two different forests from the same tree in order to fuel different activities). Recent methodological developments will be introduced, such as the restitution of calibers, or the observation of tools marks, bringing information on the preparation of the fuel. By crossing anthracological data with medieval and modern tests, a socio-professional approach of the preparation of the fuel will also be possible. At last, the energetic transition towards the use of fossil charcoal will also be attempted.

TH6-10 Abstract 04
Fuel Selection and Forest Management
by Middle Age Belgian Brass Blacksmiths Along the Meuse River

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Keywords: Fuel consumption, Limousin, Woodland
Presentation Preference - Oral

The influence of the Mosan copper and alloy industry, in particular brass production during Middle Age Western Europe, is an irrefutable historiographic fact. Cauldrons, bowls, and pans produced in the town of Dinant as well as in nearby Bouvignes, were exported throughout French and English kingdoms, as far as Barcelona in Spain. In the 15th century, copper alloy artifacts produced in the Dinant region were so highly prized and considered that the town's name of Dinant was used in Paris to designate the blacksmiths, or the dinandiers (coppersmiths).

Cooper metallurgy in the Meuse region dates back at least to the Merovingian dynasty, with a workshop uncovered in the town of Namur at the “Gorgon” site, dated to the 9th century. The copper metallurgy boom allowed the development of the 12th century in both Dinant and Bouvignes are due to several causes. Although the Meuse region lacked cooper and tin ores largely used in Middle Age metallurgy, very good communication ways provided by the Meuse River and its tributaries, as well as the establishment of strong commercial ties with the German towns of Cologne and Dortmund for cooper supplies and with London for tin supplies, overcame this natural limitation. In addition, merchants were allotted specific privileges with the German towns, while a charter allowed them to establish a trading post on the Thames River. The dynamism of the Mosan merchants cannot however explain this metallurgy industry boom alone. Indeed, the Meuse region is rich in two products that are necessary for brass production: calamine that contains zinc oxide and natural refractory clay, derle, that is appropriate to build bricks, hearts, smelters and moats.

Copper and brass production however ends abruptly in 1466 in Bouvignes, property of the earldom of Namur, and in 1554 in Dinant, property of the prince-bishop of Liège, when the two cities were defeated in the Burgundy wars led by Charles the Bold. Since 1995, several archaeological excavations have taken place under the supervision of the Walloon Archaeological Service in the towns of Bouvignes and Dinant. These excavations uncovered several coopererssmith workshops, with their workshops and domestic spaces.

We will present the results of wood charcoal analyses from four different sites – Bouvignes Porte Chevalier, Dinant Oblats, Dinant Rateau and Dinant Churchill – that represent 13 different coopererssmithwork spaces dates between the 13th and the 16th centuries. Because Dinant and Bouvignes were competitors and depended on two rival political entities, our results are highly significant in terms of territory exploitation and cultural identities along the Meuse River.
Between the 18th and 20th centuries the Limousin region was notably lacking in woodland: the level of forest in the landscape was less than 10%. However, it was during this period that the development of the Limoges porcelain industry, a major fuel consumer, took place. Alongside this industrial boom, the urban population was also thriving, thus the need for fuel in the city became even greater.

The 19th century was a period that put great pressure on firewood resources and one wonders how, and to what extent, the population and industry in the city of Limoges were able to meet their considerable fuel requirements. We therefore look at sources that can better trace the evolution of fuel consumption in Limoges. By combining historical sources, we analyse the heavy fuel consumption of the city of Limoges in relation to resources available in the region and describe the different procurement strategies implemented. The importance of the porcelain industry is discussed and we make a start on the evolution of the wooded landscape in the Limousin.
Many of the older excavation reports and publications contain notes about piles that have been found, but not much effort has been placed on the interpretation of the finds. That kind of information is also found in reports about other important monuments such as the settlements of Kunda and Tamula. Is it possible for us today to rely on results of excavations conducted 50 and more years ago, and prove that these archaeological monuments contain evidence also about pile dwelling? And if this is not possible to be done with archival research, then which studies and methods could give a result?

**TH6-11 Abstract 03**
The settlements of Kryvina peat-bog region in the context of cultural changes of 3 – 2 millennium BC

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Kryvina peat-bog is an archaeological microregion located in Vicebsk region of the Republic of Belarus (south of Belarusan Lakeland geographical region). To date, there are 10 archaeological settlements of Neolithic - Bronze Age. The earliest belongs to the 4th millennium BC, and the most recent - to the middle/3rd quarter of the 2nd millennium BC. The majority of the sites of the region are presented by the materials of 3rd - first half of 2nd millennium BC which belongs to Usvyaty and North-Belarusian cultures. 9 monuments preserve organic in the cultural layers, 8 of them are peat-bog sites. The most studied settlements of the micro-region are Krivina 1, Asaviec 2 and Asaviec 7. Settlements. Since 2010 the Asaviec 2 settlement was annually researched by the joint expedition of the Institute of History of NAS of Belarus and the Faculty of History of Belarus State University under the guidance of Michal Charniauski and Maxim Charniauski. In the southern part of the site 27 square meters were excavated. The use of new approaches in the field studies and the analysis of the received materials (in comparison with former methods) has allowed to clarify and obtain new information on the household, material and spiritual culture of the population of the region. We should also mention the identification of the immediate materials of the circle of Corded Ware cultures and the Globular Amphora culture on the settlement, which allowed to reconstruct the process of transformation of Usvyaty culture into the North-Belarusian culture in the region.

**TH6-11 Abstract 04**
Landscape and natural resources use in the 3rd mill BC by pile-settlements dwellers in NW Russia

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**Co-author(s)** - Kulkova, Marianna, Herzen State Pedagogical University, Saint-Petersburg, Russian Federation
**Co-author(s)** - Dr. Piezonka, Henny, German Archaeological Institute, Berlin, Germany

The settlements of Kryvina peat-bog region, Late Neolithic - Bronza Age, Northern Belarus (Lakeland region)

Presentation Preference - Oral

The lacustrine pile dwellings, appeared at the first half of the 4th mill BC, were unique sites among the Middle Neolithic cultures of the forest zone of northeastern Europe. Spatial analysis of lacustrine pile dwellings in the study area reveals a clear subsistence pattern based on catchment area, included three distinct landscape types: 1/ depressions with lakes, mires and swamps; 2/ moraine plateaus with predominantly clayey soils covered by broad-leaved trees; 3/ valley floors with peat soils and mud soils. To date, there are 10 archaeological settlements of Neolithic - Bronze Age. The earliest belongs to the 4th millennium BC, and the most recent - to the middle/3rd quarter of the 2nd millennium BC. The majority of the sites of the region are presented by the materials of 3rd - first half of 2nd millennium BC which belongs to Usvyaty and North-Belarusian cultures. 9 monuments preserve organic in the cultural layers, 8 of them are peat-bog sites. The most studied settlements of the micro-region are Krivina 1, Asaviec 2 and Asaviec 7. Settlements. Since 2010 the Asaviec 2 settlement was annually researched by the joint expedition of the Institute of History of NAS of Belarus and the Faculty of History of Belarus State University under the guidance of Michal Charniauski and Maxim Charniauski. In the southern part of the site 27 square meters were excavated. The use of new approaches in the field studies and the analysis of the received materials (in comparison with former methods) has allowed to clarify and obtain new information on the household, material and spiritual culture of the population of the region. We should also mention the identification of the immediate materials of the circle of Corded Ware cultures and the Globular Amphora culture on the settlement, which allowed to reconstruct the process of transformation of Usvyaty culture into the North-Belarusian culture in the region.

**TH6-11 Abstract 05**
Pile dwellers in the Sukhona basin?
New Russian-German research at Veksa, Northern Russia

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Keywords: Neolithic, Northwest Russia, Pile concentration

Presentation Preference - Oral

The settlement remains of Veksa c. 400 km north of Moscow represent a pivotal site with regard to the cultural development in northwestern Russia. Extending along the left bank of River Vologda in the Sukhona basin, the site is located at an important river confluence. Its exceptional significance is due to the clearly stratified sequence of archaeological layers up to 3 m thick which encompasses all periods from the Early Neolithic through to the Medieval period. Veksa yields the rare opportunity to follow the local culture, typological and economic developments and their links to environmental change over eight millennia. A multidisciplinary Russian-German field project led by Vologda State Museum and the German Archaeological Institute started in 2015. It combines archaeological research with archaeoecology, paleoecology and dendrochronology in order to generate new high-quality data on human-environment interactions at Veksa on a diachronic level. Stone Age remains are especially well preserved at Veksa due to partial water-logging. They include a concentration of almost 2000 wooden stakes and piles standing upright in several clusters along a 350 m long stretch of the river bank. Radiocarbon dates place the main concentration in the Late Neolithic around 3000 BC. Thus, the concentration of wooden piles at Veksa is chronologically associated with a period of pile dwelling construction in the Late Stone and Early Metal Ages noticeable from the Alps in the south-west to the eastern Omega region in the north-east.

During the field work in 2015, a test trench was excavated within the pile concentration, yielding for the first time information on the stratigraphic association of the timber constructions. Silty and multiple layered sediments rich in organic remains point to rather lacustrine environments, where the area was probably not a river bank but part of a shallow lake. Among the piles, several well preserved wooden fish traps have been found, indicating multiple uses of the shore area. First results of the analysis of botanical macro-remains show that charred seeds of water lily, adding new surprising evidence to the exploitation of aquatic plant resources in the Stone Age. Important new insights come from a pollen core, the first in this region, which shows several phases of intensified human activity at Veksa over the millennia that are correlated to phases of increased sedimentation and drying-up of the environment. Ongoing analyses of the documented features and the environmental data will yield new information on character and function of the wooden constructions and their association with cultural, economic and environmental developments.

**TH6-11 Abstract 06**
The Neolithic and Early Metal Age wooden construction of site Okhta 1 in St. Petersburg (Russia)

**Author** - Dr. Gusentsova, Tatiana, Scientific and Research Institute for Cultural and Natural Heritage, Saint Petersburg, Russian Federation (Presenting author)
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Keywords: Neolithic, Early Metal Age, wooden construct

Presentation Preference - Oral

The Neolithic site Okhta 1 is first archaeological object with gut preserved wooden construction in St. Petersburg region. The territory of sites was occupied by ancient people several times during the Neolithic Age – in the Early Metal Ages periods – from 4400 to 2500 BC. The cultural layers of the prehistoric settlements are situated under alluvial sandy sediments 1-1.5 m thick, which lay under the buried soil of the Middle Ages. Features of the microrelief of the site, its stratigraphy and archaeological observations allowed us to select an earlier coastal fishing zone located on the coast of the gulf, and a second fishing and living area, connected to river channels. The archaeological collection includes archaeological finds: pottery, stone tools, products of organic matter and wood, and amber jewelry.

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The early Neolithic site of La Draga (Spain) in the Iberian Peninsula has yielded over 30 concentrations of structures with well-preserved converted wood: stakes and masses of splinters. Most structures were located in hollows of various shapes and sizes. The hollows may have been left over in one case. About 20 fragments of constructions made of splinters were discovered. Some of them were left at the bottom or along the edges of the pits; others were destroyed or relocated. Some constructions look like a fossilized bundle of splinters from 10 to 20 units. In one case the width is 2.0 m long. Their thickness varies from 0.2 to 1.2 cm. Other constructions, which constitute the majority, have a fence-shaped or mat-shaped; their sizes are from 1.05 × 2.30 to 2.20 × 0.5 m. The number of splinters in such structures varies from 12 to 80. The spacers were lying in one to eight rows. The preserved length of the spacers varies from 1.5 to 2.5 cm; their width varies from 1.2 to 4.5 cm; their thickness is from 0.2 to 1.8 cm. The distance between the spacers in a construction was 1.5-2.5 cm. They were bound together with either “robes” or black willow twigs. According to dendrochronology and dendrochronology tests of the wooden structures, these structures date back to the mid-4th - mid-3rd millennium BC. Research has shown that site Okhta 1 had been an actively used fishing site on the sea shore during several millennia. The fishing site was equipped with fishing devices, pile-supported platforms, and buildings.

The early Neolithic site of La Draga is located on the shore of Lake Banyoles, in north-east of Iberian Peninsula (Spain). The site has provided evidences of two phases of occupation between 5300-4700 cal BC. The preservation of the site depends on the proximity to the lake. In some parts of the site a layer of well-preserved wood has been documented, corresponding to the earliest phase. In other sectors only the tips of the poles stuck in the lacustrine chalk are preserved. The spatial analysis of the remains recovered at the site aims to identify possible areas of activity and characterize them. Intra-site spatial analysis of different categories of remains have been explored in order to set boundaries and relationships between different spaces.

Wood architecture in the Early Neolithic (5300-5000 cal BC) site of La Draga (NE of Ibiza)

La Draga is the only Neolithic pile-dwelling site of the Iberian Peninsula. It is located on the shore of the Banyoles Lake (Girona, Spain) in the North-east of the Iberian Peninsula. The site was occupied during early Neolithic (5300-4900 cal BC). The remnants of wood recovered at the site have been studied with the objective of characterizing the wood management process: obtaining of raw material, woodworking technology and the use as tools or construction elements. All this process is usually hidden for archaeofagist, but its economic and social implications are of great relevance. The analysis of wood elements had been carried out involving a wide range of different methodologies: dendrology, description of morphology, experimentation, tool-marks, use- wear and 3D modeling. In this work are summarized the result of the analyses of the architectural elements. We’ll outline the main characteristics of the building process of the wooden constructions at La Draga, from the obtaining of the raw material to its use for architecture, through its elaboration process.

The analysis of architectural elements (beams, posts, planks, framework, etc.) show in one hand the predominance of certain species of raw material, season of obtaining, diameters and supports selected. In the other hand it has been spotted certain predominance on the elaboration process. Finally, a few master lines of the construction structure have been spotted.

The surveys and excavations of the last years in Amindeon region conducted by Florina Ephorate of Antiquities, resulted in the discovery of several prehistoric dry land and lakeside settlements dated from the late 7th to the late 2nd mil BC. Some 31 new habitations were spotted in an overall area of almost 550 hectares, from which 15 sites were partially or totally excavated, covering an area of 25 hectares. From the preliminary overall approach of the excavational data so far yielded, the development of a unique human culture in the region is documented, with an active contribution - especially during the earlier phases - to the neolithisation of Balkans, as part of the basic axis of populations and ideas mobility from the southeastern Balkans towards central and northern Europe. The location of the settlements confirms the special relationship that local neolithic communities developed with wetland environment, an interaction sustained with an impressive adaptive capability throughout prehistory. Even during Early and Middle Neolithic periods (of 7th - 6th mil B.C.) - as documented by the excavational data from the settlements Anarghirí XI and Anarghirí XIII and XIX - although some basic choices regarding the construction and organization of habitation’s space refer to dry land occupation: - the proximity of those settlements to the adjacent marshes necessitate the adaption of building techniques similar to pile dwellings. At late 6th mil. B.C. the occupation of the lakes and marshes’ shores is intensified, resulting the establishment of several lakeside settlements. The most recent partial or total excavation of some of these and the investigation of extended destruction layers, numerous structural elements and artifacts of various organic materials, yielded new data to the prehistoric research of the region. The preliminary study of the evidence from the lowest waterlogged layers of Limnocorí II, Anarghirí IIXa and b reveals dwellings built on water or by the shores, with a wide range of construction techniques exploited for flooding, waiting, rooting etc. Especially the on-going large scale rescue excavation at Anarghirí IXb has so far yielded some impressive wooden structures referring to an organized communication and or defense system of palisades and trackways connecting the settlement to the opposite lakeshore. All these significant evidence referring to the diachronic intra-settlement spatial organization, the form, structure and internal arrangement of the houses, together with thousands of clay, stone, wooden tools related to the productive, gaining and domestic work, as well as some unique artifacts and ornaments related to the variety of ideological means of expression and orientations of the local prehistoric communities, formulate a unique data set for the research of pile dwellings in Southeastern Europe and beyond.
A research project focusing on Lake Degersee in Southern Germany revealed settlement activity and land use in the hinterland of Lake Constance older than the onset of the pile-dwelling period at Lake Constance in the 40th century BC. The outcomes of recent archaeological and palynological investigations suggest new settlement sites and human impact dating back to the 5th millennium BC (see contribution of Mainberger, this session). Within the tri-national project ‘Beyond Lake Villages – BELAVI’ palaeoecological onsite and off-site data from the Western Altgäu region are synthesised with archaeological records. The chronological basis and with it the relation to regional and over-regional vegetation and climatic records is established by high-resolution pollen, charcoal and sedimentary records on annually laminated lake sediments, dendrochronology, and AMS radiocarbon dating.

With regard to the results of plant macrofossil and pollen analyses on the cultural layers at Degersee, we expect to provide further evidence of changes in subsistence strategies and landscape management in response to environmental and climatic changes throughout the Neolithic period.

Dendrochronology provides information on woodland management of settlers at the periphery of Lake Constance. Main construction timber at Degersee comes from ash trees, and tree ring patterns show a cyclic settlement activity with repeated usage of small woodland plots with intermittent fallows. Wood charcoal from cultural layers complement the spectrum of potentially selected construction timber, to gain a more complete picture of wood resource usage. Geoarchaeological investigations look into land use impacts, namely erosion, and together with the taxonomic analysis and dating of embedded charcoal can give further chronological as well as information on prehistoric vegetation cover.

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**TH6-11 Abstract 14**

### The Neolithic Landscape of Westallgäu Region - first results of BELAVI in Southern Germany

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*Keywords:* Cultural landscape vs aquatic landscape, lake shore settlements, Neolithic

*Presentation Preference: Oral*

Precisely dated, laminated lake sediments contain an amazing wealth of archaeological background data. If their palaeoenvironmental, palaeoecological and palaeoeconomic information can be exactly paralleled to waterlogged archaeological evidence from lake shore sites, a dataset on human activities in landscapes far beyond the lake shores is generated. This is the core outcome of a research project completed in 2010, focusing on the small Degersee Lake in South Western Germany. The Degersee project triggered not only a whole series of new discoveries, but also the design of the tri-national Beyond Lake Villages – Project (BELAVI), which started in 2015. The German working – group focuses on the Stone Age of Western Altgäu, a pre-alpine region between Lake Constance and the European Watershed between Rhine and Danube River systems. Topographic and hydrographic models illustrate that in the Holocene the landscape was characterized by woodland growing up on drumlin rows and moraine belts, and by an entanglement of lakes, bogs, lowlands and water courses. The archaeological assessment of the Western Altgäu region is based on a concept of complementary components, with the cultural landscape dominated by farming activities on one hand, and the aquatic landscape with their benefits in respect to foraging, settlement-building, and communication on the other. The presentation will provide with initial results of the GIS - supported landscape analysis and first outcomes of 2015 and 2016 field campaigns.

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**TH6-11 Abstract 15**

### Beyond Lake Villages in the Neolithic of Austria

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*Presentation Preference: Oral*

Austria's prehistoric lake sites have been known for over 150 years. Research in the 19th and 20th century identified a number of prehistoric lacustrine structures, with rich cultural deposits. But research into Austria's Pfahlbau (pile-dwelling) phenomenon has been characterised by discontinuity and modern transdisciplinary research has been limited in practice and at a theoretical level. This has begun to change with several new research initiatives focussed on the Salzkammergut region in Upper Austria. This paper presents data analysis from the international project ‘Beyond Lake Villages’ (funded by FWF-DFG-SNF 2015-2018). The Austrian part of the project focuses on the Lake Altsee-Mondsee region, including both large and small bodies of water: bogs, and newly discovered ‘hinterland’ sites. The aim is to characterise the impact in terms of land use dynamics during the Neolithic with special focus on the 4th millennium BC. The project goals are (i) to establish a highly resolved Holocene...
paleoenvironmental record for the research area. (ii) to enhance our understanding of landscape in terms of spatial networks (iii) to integrate paleoenvironmental data sets with archaeological data. The research is conceived at three scales: (1) Micro-regional, to produce an accurate picture of the complete range of surviving archaeological features through intensive field survey; (2) Regional, incorporating LIDAR data and aerial photography to facilitate a systematic understanding of the archaeological landscape; and (3) Macro-regional, providing new socio-cultural, economic and ideological models/hypotheses that can be tested in subsequent transdisciplinary research.

TH6-11 Abstract 16
Beyond lake villages. Archaeological and palaeoecological research at Lake Burgäschöchlin, Switzerland

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Keywords: 4th millennium settlements, palaeoecology, pile-welling archaeology Switzerland

Presentation Preference - Oral

In 2015 started the international research project “Beyond lake villages: Studying Neolithic environmental changes and human impact at small lakes in Switzerland, Germany and Austria.” (University of Bern in collaboration with Landesamt für Denkmalpflege Baden-Württemberg and University of Vienna; funding: SNF-COFIS-FWF). Three archaeological and three palaeoecological teams work together on three small lakes on the Northern side of the Alps. The aim is to compare environmental changes and human impact of Neolithic societies. The Swiss study area is Lake Burgäschöchlin, a small water body in the central part of the Swiss Midlands. Archaeological research started already in 1877 and several major excavation campaigns took place in the 1940ies and 1950ies. Up to now four settlement of the 4th millennium BC areas are known and single finds indicate settlement activities during the 5th and 3rd millennia BC. The presentation gives an overview on former and recent activities in one of the classic find spots of Swiss pile-dwellings research. A special focus will be put on new archaeological and palaeoenvironmental results.

TH6-11 Abstract 17
Above the lakes – Organic finds from Bronze Age mines in the Alps

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Keywords: Mines, Organic material

Presentation Preference - Oral

Organic finds fascinate as they convey exceptional insights into prehistoric daily life and work routine. Organic objects make up the bulk (far more than 90%) of material culture in the period from the Stone Age to very recent times (19th cent.). Aside from underwater and wetland sites organic materials such as wood, fur, skin, leather and textiles have also been preserved in considerable numbers in several alpine mines (e.g. Hallstatt, Mitterberg). Those ancient mining relics are fundamentally different from the objects we know from wetland and underwater sites in terms of taphonomy, functionality and age of research history. Those hot handles, lightning tapes, buckets, mining timber, excrments and so on are remnants of large scale prehistoric production systems. A particular difficulty in dealing with these objects lies in the uncertainty whether they represent highly specialized mining tools or tools commonly used in the settlements as well. Comparison with the organic finds from wetland and underwater sites is essential in the understanding of the finds from the alpine salt and copper mines. In addition the alpine finds present important complementary information in the analysis of organic finds from bogs, wetlands and water bodies as certain materials that decay underwater are preserved in the mines. Furthermore the Hallstatt salt mines offer the alpine finds present important complementary information in the analysis of organic finds from bogs, wetlands and underwater sites is essential in the understanding of the finds from the alpine salt and copper mines. In addition the alpine finds present important complementary information in the analysis of organic finds from bogs, wetlands and underwater sites is essential in the understanding of the finds from the alpine salt and copper mines.

TH6-11 Abstract 18
News from prehistoric lakeside settlements in Austria

Author - MA Pohl, Henrik, Kuratorium Pfahlbauten, Attersee, Austria (Presenting author)

Keywords: Austria, Neolithic, pile dwellings

Presentation Preference - Oral

The most recent extensive survey undertaken in Austria and a small but successful study of the prehistoric lakeside settlements took place in the 1970s and 1980s. The inscription on the UNESCO list of World Heritage sites in 2011 provided the crucial impetus to resume the archaeological investigations and the associated protection measures. The Pile Dwellings Curatorship was tasked by the Austrian state authorities with coordinating the work and establishing systems of monitoring the sites. In 2013 a monitoring plan was developed with the aim of maintaining long-term observation and putting in place protection programmes; at the same time, archaeological investigations were mounted at five Austrian world heritage sites on the list of “prehistoric pile dwellings.” Now, three years later, a first up-to-date inventory is available, which will allow us to implement concrete protection measures beginning in 2016. Additionally we have got some new data as a result of our research. A new research program has been started with an underwater excavation in Lake Attersee in 2015.

TH6-11 Abstract 19
Wet worlds in context: The Bronze Age pile dwelling of Must Farm in the East Anglian Fens (UK)

Author - Huisman, Floor, Durham University, Durham, United Kingdom (Presenting author)

Keywords: Contextualising wetland living, East Anglian Fens, Must Farm pile-dwelling

Presentation Preference - Oral

The recent discovery of the Bronze Age site of Must Farm in the former wetlands of the East Anglian Fens opens up a new chapter in pile-dwelling research in the UK. Older than the artificial Iron Age islands known as ‘wainwells’ found in Scotland and Ireland, Must Farm consisted of typical Bronze Age roundhouses built on stilts above a former channel of the river Nene. Burnt down at the end of its lifespan this site has been extraordinarily well-preserved. Consequently, Must Farm (dubbed the ‘Pompeii of Britain’), provides an unprecedented snapshot of later Bronze Age life and human-environmental interactions in the Fens. Moreover, the discovery of this wetland settlement in the ‘deep fens’ beyond the fen edge requires a reconsideration of the later prehistoric Fenland narrative. Although the extraordinary findings from Must Farm are important in their own right, it is crucial that this site is placed within its wider spatial and temporal context. This is also true for other pile-dwellings in Europe. To some extent, all pile-dwellings are ‘unique’ (mostly due to their wet location and the level of preservation at many of these sites), but they should not be studied in isolation. Indeed, to better understanding pile-dwellings, they must be compared with other types of wetland settlements. More importantly, nearby dryland settlements areas should also be considered. Only then can we study the origin of pile-dwellings, better understand their inhabitants’ lifeways and their interactions with the environment. This paper will discuss these issues by introducing Must Farm and placing this site in its wider regional, national and international context.

TH6-11 Abstract 20
Sailing the lakes of the Alps

Author - Tiboni, Francesco, Università Aix-Marseille 1, Arenzano, Italy (Presenting author)

Keywords: Boats, Lakes, Monoxyle

Presentation Preference - Oral

The aim of this paper is to propose a new framework to deal with the topic of ancient monoxyles and canoes that have been found in great number in different prehistoric sites of the Alpine region, and particularly to deal with those pertaining to pile dwelling sites. Usually considered simple boats, essentially in use for fishing and for short travels on water, these objects have not been studied in the same way around the Alps. Their knowledge is in fact not homogenous and is essentially linked to single experiences and researches, held by singular scholars, often isolated.

Far from wanting to exhaust the topic, the main aim of the proposed framework is in fact to overlap the often-overestimated idea of a sort of primitivism of these ancient ships, as well as to propose a new and more complex interpretation of their forms and features.

To do so, the paper first tries to examine why the analysis of these boats appears to be usually conditioned by the ethnological interpretation of the “modern primitive monoxyles” in use in some technologically regressed regions of Africa, Asia or Oceania. After doing this, in the second part, the author considers the relationship between man and water in lacustrine environment
during the prehistorical time, trying to put in evidence how and why prehistoric people could have choose to use water transport in such a particular environment. Then, moving from a preliminary analysis of the boats in use from Neolithic to Iron Age in the Alpine lakes, essentially based on the data we have from archaeological literature, the author deals with the possibility to link different boat-types to particular needs, related to the activities for which the boats themselves have been conceived in origin.

At last, the paper tries to put in evidence how this particular topic can be of interest not only to have a precise idea of the relationships between dwelling sites and waterways in the prehistory of the Alpine region, but in a wider area. Considering naval iconography and naval archaeology of the Mediterranean and the North, the author tries in fact to focus his attention on what we can learn about ancient shipbuilding thanks to the analysis of this basic boat-type.

TH6-11 Abstract 21

Pots, pans and dishes to understand food in a pile-dwelling Neolithic society

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Keywords: Dairy products, Organic residues, Pottery use

Presentation Preference: Oral

Traditionally, pottery use has been discussed through morphological characteristics and mechanic properties of the vessels (Rice 1987) but amorphous organic residues analysis has also greatly contributed to understand exploitation of natural resources during the Neolithic (Evershed 2008). Nevertheless these methodologies are rarely combined due to the high fragmentation of pottery and to the impossibility to link ceramic content with specific sites. At the site of Clairvaux XVII (Middle Neolithic, NMB -36e-37e century BC), the large and diversified corpus of ceramic vessels (377 vessels with restituted profiles) combined to anoxic condition favoring lipids preservation offers a unique opportunity to investigate the use of pottery to better understand lake dwelling Neolithic society (Pétrequin et Pétrequin 2015).

The corpus was first classified based on morphological and morphometric criteria. Chemical analysis of the lipids preserved on the surface of the decorated vessels was then carried out using an analytical strategy combining chromatographic (HT GC-MS, HT GC-MS, NanoESI MS and MS/MS) - Mirabaud et al. 2007 and isotopic (δ13C IRMS) techniques. The data obtained on 95 pottery conducted to: (i) the identification of a broad diversity of commodities processed in the vessels, mainly from animal origin; (ii) the establishment of clear relationships between content, traces of cooking, shape and volumes of the vessels.

This study highlights some characteristic consumption pattern of the Neolithic people living at Clairvaux XVII in the first half of 4th millennium BC. First, a clear difference is observed between cooking pots and serving vessels. Dairy substances were investigated for layer 13 and 53 large-volume and 33 small-volume samples for layer 14. This allowed the recovery of the small-sized remains). Around 250 large-volume samples (ca. 5 L) and ca. 120 small-volume samples (ca. 0.3 L) were investigated for layer 13 and 53 large-volume and 33 small-volume samples for layer 14. These large samples were subsampled before sieving, producing one large-volume (sieved with 8 and 2mm sieve fractions, for the recovery of the small-sized remains) and one small-volume sample (sieved with 2 and 0.35 mm sieve fractions, for the recovery of the small-sized remains). Around 250 large-volume samples (ca. 5 L) and ca. 120 small-volume samples (ca. 0.3 L) were investigated for layer 13 and 53 large-volume and 33 small-volume samples for layer 14. This allowed the recovery and identification of over 200'000 plant remains for layer 13 and around 40'000 for layer 14. The data were evaluated on the basis of density (remains per litre of sediment) and ubiquity (percentage of samples in which a type of remain is present), as well as through qualitative evaluations of the spatial distribution of the concentration of remains at the site.

The large-scale sampling strategy applied allowed some new observations concerning taphonomy and economic activities taking place at the settlement. The distribution and diversity of plant remains found in our samples seem to show connections to several formation processes and routes of entry that we are trying to disentangle (lake action, animal dung, areas of accumulation of rubbish, etc.). In addition to this, a better evaluation of the role of some of the main crops like barley and pea, as well as the most relevant gathered plants, was possible, thanks to all these methodological improvements. Our aim with this presentation is to propose our strategy as an optimum for paleoecological evaluations of large-scale excavations in wetland settlements.
TH6-11 Abstract 24
Settlement dynamics and mobility in Late Neolithic Southwest Germany

Author - Kaiser, Mirjam, University Freiburg, Freiburg, Germany (Presenting author)

Keywords: Late Neolithic, pile dwellings, settlement system

Presentation Preference - Oral

The pile dwelling site Bachweise I (Bad Buchau, Kr. Biberach) located at the Federeisen fenn in Baden-Württemberg, excavated in the years 2005 and 2011, can be assigned to the Late Neolithic Schwesemied Culture between ~ 4000 and 3800 BC. The site itself is dated by dendrochronology around 3970 BC.

The objective is to model a settlement system during the Late Neolithic by comparing the features, the corpus of finds and the results of natural scientific analysis of this settlement with other known settlements. The main source of information of this comparison are the known wetland sites.

To understand the possibilities and limits of such a model it is crucial to discuss which aspects of life can not be traced in the archaeological record and are forced to remain in the dark. Nevertheless important factors of how life is functioning among human groups can be hidden there. E.g.: Little do we know about what happened on the mineral soil during the same time.

In a first step a comparison of settlement structures, their duration, subsistence strategy, management of resources and the distribution of material culture characteristics in Upper Swabia will be made. In a second step the comparison will be enhanced down to Lake Constance in the South and up to the Neurons in the North.

Such a model gives an important opportunity to address specific questions in order to get a closer understanding of the way of life of past people: How are the humans adapted to their surroundings? How do they move? What is the impact of settlement dynamics and the associated degree of mobility on the culture of the people and their interaction with each other? How can we assess migration? Do we have to re-evaluate the settlement hypothesis?

The presentation will give an insight in the current state of this PhD project and discuss the preliminary results.

TH6-11 Abstract 25
Bronze Age pile dwellings in Northern Italy: chronology, environment and architectural features

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Keywords: Cultural interactions, northern Italy, pile dwellings

Presentation Preference - Oral

In Northern Italy the widest spread of pile-dwellings took place between the 22nd and the 15th century B.C., during Early and Middle Bronze Age and endured till the 1st phase of Late Bronze Age (13th century), with a considerable difference with situation North of the Alps. From around 2050 cal BC, we assist to the spread of pile-dwellings, mostly around the Lake Garda and its morainic amphitheater, but also in the lakes of the inner areas of the Bencas and Euganean hills. This period is therefore characterized by strong cultural changes and radical reorganization of settlement patterns and socio-economical systems. Some recent excavations allow us to follow the technological and cultural evolution of the communities living in the area and to identify the development of the architectural techniques. The finds of short distance interactions and cultural relationships with Western, Central and Eastern Europe. Interesting is the connection between Vares lake and Swiss plateau and between the Garda lake and the Danube basin. In the pile-dwelling villages the extraordinary preservation of organic remains concerns not only wooden structures, but even of tools made with perishable materials. Thanks to those we can build a true-to-life reconstruction of those communities. The study of the finds and the data obtained from multidisciplinary researches show us an economy based on a settled down agriculture and breeding farm. Craftsmanship becomes more organized and integrated in the development of the architectural techniques. The study of findings shows long distance interactions and cultural relationships characterized by strong cultural changes and radical reorganization of settlement patterns and socio-economical systems. Some recent excavations allow us to follow the technological and cultural evolution of the communities living in the area and to identify the development of the architectural techniques. The finds of short distance interactions and cultural relationships with Western, Central and Eastern Europe. Interesting is the connection between Vares lake and Swiss plateau and between the Garda lake and the Danube basin. In the pile-dwelling villages the extraordinary preservation of organic remains concerns not only wooden structures, but even of tools made with perishable materials. Thanks to those we can build a true-to-life reconstruction of those communities. The study of the finds and the data obtained from multidisciplinary researches show us an economy based on a settled down agriculture and breeding farm. Craftsmanship becomes more organized and integrated in the development of the architectural techniques. The study of findings shows long distance interactions and cultural relationships characterized by strong cultural changes and radical reorganization of settlement patterns and socio-economical systems.

TH6-11 Abstract 26
Osseous artifacts from the prehistoric lakeside settlements of Amiendeon, Western Macedonia, Greece

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Keywords: Greece, osseous technology, Western Macedonia

Presentation Preference - Poster

In the last decade the intensive rescue excavations of the Archaeological Service of Florina unearthed a great number of prehistoric settlements close to the four lakes of the Amiendeon basin that date back from Greek Early Neolithic (c.6800-5600 BC) to Greek Middle Bronze Age (c.2200/2100-1800/1600). The excavation of these sites yielded an impressive and diverse assemblage (more than 4000) of bone and antler artifacts which shows that, as in the prehistoric lakeside settlements of Central Europe, the osseous artifacts played an important role in the everyday activities of the inhabitants of the wetland sites of the region. In this short paper, there will be an attempt to present the osseous artifacts of some of these settlements.

TH6-11 Abstract 27
Cultural layer formation, production and dwelling areas on pile-settlements of Upper Dvina region

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Presentation Preference - Poster

Different processes, conditions and milieu of cultural layers’ formation were described on Neolithic pile dwellings sites excavated in Upper Dvina region. The site Sereta II (remnants of pile dwelling settlement from the 3rd mill BC) is situated in the floor of a Holocene post-lake basin and architectural structures occur within coarse-detrity gil佁 at the depthess of approx. 80-150 cm b.g.l. Although any sediments synchronous to the time of pile-dwelling settlement existence were not revealed - the conclusion based on the analysis of sediments in trenches and a hand auger coring at the site area and immediate surrounding and radiocarbon dating of organic deposits and different ancient artefacts and constructions’ remains. It testifies that the site was established on the open surface not covered constantly by water. It is an important observation for understanding cultural layers’ formation and process of cultural remains deposition, as well as depositional processes of sedimentation on this place. Several zones with artifacts and ecofacts in situ were uncovered at the site - they were: nuts, fish bones, shells and other materials, not mixed, which occasionally and intentionally were accumulated in pits or garbage heaps, nearby preserved remains of dwellings. They could be interpreted as open production areas. Inside the remains of wooden constructions, sandy platforms for fire-places were recorded - remains of all year production areas, which were deposited in another manner. We could also suppose a much higher erosion of the upper cultural layer, where material was admixed by environmental factors during milieu changes (lake’s regressions/transgressions) in the process of its deposition. Here we can trace clay penetration and materials accumulation around wooden piles, fragmentarily of artifacts, and homogenous distribution of material within the cultural layer.

Other particular layers and other organic remains were uncovered at the site Sereta I, with fishing constructions synchronous to Neolithic pile-dwells. Thin interlaminations, fulfilled with small branches, leaves and other materials, not mixed, which occasionally and intentionally were accumulated in pits or garbage heaps, nearby preserved remains of dwellings. They could be interpreted as open production areas. Inside the remains of wooden constructions, sandy platforms for fire-places were recorded - remains of all year production areas, which were deposited in another manner. We could also suppose a much higher erosion of the upper cultural layer, where material was admixed by environmental factors during milieu changes (lake’s regressions/transgressions) in the process of its deposition. Here we can trace clay penetration and materials accumulation around wooden piles, fragmentarily of artifacts, and homogenous distribution of material within the cultural layer.

TH6-11 Abstract 28
Geophysical prospection of submerged Neolithic settlements in Lake Sennitca (Pskov Obl., NW Russia)

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Keywords: geophysics, Neolithic, Sennitca

Presentation Preference - Poster

First archaeological sites on the bottom of Lake Sennitca (13 km², 148 m a.s.l.), located in NW Russia on the border with Belorussia were uncovered in the 1970s. These lacustrine sites, dated to the 4th–3rd mill BC, were located along the shallow shelf of small lake basins and rivers distributed on the recent lake bottom. They comprise the first settlements of LBK communities in this region, prehistoric pile-dwellings, and the eastern most megalithic construction of the 3rd mill BC known so far in Europe. Lots of unique
artifacts were found here, among which a wooden Neolithic ski, wooden zoomorphic figures, bone flutes etc. However, during last 20 years the cultural layer on the bottom of the lake was either destroyed due to lake-level drawdown or buried under modern lake sediments. Another particular feature of this lake is its zero visibility caused by shallow bathymetry and high nutrient loads which makes any common archaeological prospection even more difficult.

In order to find further traces of archaeological constructions and cultural layers a range of remote sensing and geophysical methods, both underwater and on the peat bog shore were applied. For magnetic prospections on the peat-bog shore of the lake we applied the highly sensitive total field caesium-magnetometer (∼0.01 nT) in a varistor configuration. Combined with a high spatial resolution (sampling rate of 12.5 x 25 cm) the results allow us also to detect the weak magnetic signals of archaeological structures of wooden constructions such as rows of post or parts of post-build houses, fish-traps, but also very clearly the traces of paleochannels and the typical strong magnetic anomalies which could be ascribed to ancient fireplaces or kilns.

Supplementing the archaeological underwater surveys three sites in the littoral fringe have been investigated by dense side scan sonar tracks with varying frequencies (80/200 kHz). The sonar mapping revealed details in lake bottom morphology, which is is recently enveloped by soft sediments as well as the precise distribution of ancient stone and wooden constructions on the sites. These prospections not only allowed us to reconstruct in details paleokore, precise distribution of ancient stone and wooden constructions on the sites and to define and to locate the places for further excavations but moreover provides us a comprehensive approach to the site.

TH6-11 Abstract 29
Planigraphy and design features of the Neolithic from the North region of Lake Baikal

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Keywords: Baikal region, Neolithic, Planigraphy

Presentation Preference - Poster

Various functionality of archaeological objects is determined by the characteristics of their layout and design. It is always connected both with practical issues and with the sacred and social views. The ability to follow the example of the one sections of the Baikal coast features of the organization of different types of archaeological objects of the Early Bronze Age is unique. Nowhere in the Baikal region is not identified neighborhoods in which would be located close to each other burial grounds, settlements, parking and a Bronze Age sanctuary. Materials from the north-west coast of the lake make it possible to model a host of human exploration of the surrounding area, taking into account both profane and sacred elements. There are currently aware of only one archaeological site of the Baikal region - Baikal III, wherein the remains of the Early Bronze Age dwellings found. Located on the northwest coast of the lake. Baikal. The preserved part of the monument includes the sanctuary, contourd shaped and a moat, and surrounding it with the southern and western sides of the remains of dwellings. Visually, there are traces of six dwellings. On the ground surface, they are expressed rounded holes. Studied to the Baikal III, began its existence in the Neolithic period. This is evidenced by the finds at the bottom of pits ceramic impressions mesh braid and radiocarbon dates obtained from the remains of bones and charcoal. With the period of the early Bronze Age associated the second stage of their existence. Saturation pits finds this time indicates that at this time in the life of the settlement was the most active. Dwellings were kind of huts. Their lower part occupied square pit with rounded corners, a depth of 0.35-0.50m, oriented along the line northeast - southwest. The walls of the excavation, vertical, floor, or even a slight decrease to the east wall. Dimensions homes ranged from 6.5x6.8 to 10.0 x m. The total area of houses from 50 to 80 square meters m. In the south-western part of the home is fixed Entrance, in the form of an inclined ramp in width from 1 to 2m. The eastern wall of the home was a continuation of the entrance. Along it flowed the economic life of the inhabitants. The western part of the home was a seating area. It found significantly fewer discoveries than in the eastern part of the excavation. Location entrance also contributed to the fact that this part of the huts was more isolated. Closer to the center of the home was located hearth, which often obelisklike stones. Top housing overlapped poles, the remains of which were found along the edge of the pit, in the ancient land surface. Planigraphy and location artifacts 1st cultural layer in the place of pits dwellings indicates that these depressions in the land that is not used for long-term human habitation in the Iron Age. Findings are not attached to the interior of pits. They are relatively evenly spaced throughout the excavation area.

TH6-12 Abstract 01
Ritual continuity and changing monuments in the southern Sperrin Mountains, Northern Ireland

Author - Dr. Brogan, Catriona, Queen’s University Belfast, Belfast, United Kingdom (Presenting author)

Keywords: Neolithic/ Bronze Age transition, Northern Ireland, Ritual landscapes

Presentation Preference - Oral

This paper argues that there was a surprising degree of spatial stability between Neolithic and Bronze Age ritual landscapes in Northern Ireland despite substantial changes in funerary/ritual practices. Taking the southern Sperrin Mountains as a case-study, it is shown that Bronze Age ritual activity tended to occur within established Neolithic ritual landscapes. The conclusion of this paper discusses some of the possible reasons behind this stability including functional, ritual and political reasons.

The Sperrin Mountains form the largest mountain range in Northern Ireland, stretching across the north-west of the country. Glacial activity during the last ice-age has created a landscape of rolling mountains cut by deep glens. Today the upper slopes of the mountains are largely uninhabited as the spread of blanket past has pushed settlement down into the foothills, with the often barren and wind swept uplands reserved for the seasonal grazing of cattle. It would, however, appear that these mountains were not always so desolate.

During the course of the Irish Neolithic substantial anthropogenic changes occurred; as people began farming the land and constructing megalithic tombs in which to bury their dead. These tombs are often regarded as being linked to ideas of ancestor veneration, where the remains of the deceased symbolically link the community to the land they had invested in. Landscape analysis of the Sperrin region reveals particularly high concentrations of Neolithic burial activity, suggesting that this may have been perceived as a ritual landscape.

The advent of the Bronze Age sees profound cultural changes throughout Ireland and evidence from a recent genetic study has even indicated that there was a significant migration of people into Ireland (Caskey et al. 2006). Within the funerary/ ritual spheres, megalithic burials are gradually abandoned as burial within cist and pits becomes more prevalent and new ritual
structures in the form of stone circles and alignments emerge. These dramatic shifts in culture, and possibly even population, speak of change and discontinuity. Analysis of funerary ritual sites within the Neolithic and Bronze Age ritual landscapes. While the face of ritual may have changed, the overall evidence indicates that the perceived ritual significance of the land endured.

TH6-12 Abstract 02
Viking-Age landscapes in the longue durée: change, continuity, and perceptions of place

Author - Dr. Leonard, Alison, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: Landscape, Portable material culture, Viking Age
Presentation Preference - Oral

It is no simple task to assign dates to a landscape. In England, however, metal-detected artefacts recovered from rural contexts provide valuable benchmarks that bring chronological narratives of settlement and activity to light. This can be used to highlight specific ‘moments of crisis’ within narrow timeframes, such as the reduced circulation of coins in certain parts of England during the early Viking Age. When viewed from the perspective of the longue durée on the other hand, it often illustrates that despite centuries of political change and large-scale migration, many places were continuously selected for.

Through case studies in eastern and midland England, this paper explores instances of change and continuity in the rural landscape. Looking backwards and forwards from the Viking Age, when visible shifts in settlement would be anticipated, the evidence reveals notable patterns and curious anomalies. Prominent to Roman roads, for example, is a shared trail the past the case studies, but why does treatment of other Romano-British structural features appear to differ so wildly? Drawing upon a range of supporting evidence such as place-names and environmental data, and looking at the artefactual and landscape evidence within a number of shifting chronological frames, it is suggested that certain discontinuities and continuities can be explained with reference to the evolving agrarian economy. Conversely, the influence of antecedent features such as barrows and structural remains on successive communities requires alternative explanations. It is suggested that in these cases, their integration or avoidance was contingent upon the ways in which communal memories and local perceptions of place were transformed.

TH6-12 Abstract 03
The way to the shore: why going to the beach may not be as straightforward as you might think

Author - Johnson, Andrew, Manx National Heritage, Douglas, Isle of Man (Presenting author)
Keywords: coastal landing places, Isle of Man, old rights of way
Presentation Preference - Oral

Although modern ports and harbours dominate how we relate to the sea and to associated maritime activities and industries in the present, technological and scalar differences resulted in alternative responses to these needs in the past. Seven modern harbours dominate the 150 km coastline of the Isle of Man, but these represent only a small proportion of the coastal landing places used by, and available to, a once largely rural population. Intrigued by the way in which we take access to the beach for granted today, my research focusses on identifying natural landing places – without quaysides, jetties or breakwaters – and the routes which connected them to the agricultural hinterland.

Some landing places were naturally usable, but others show evidence for the adaptation of the intertidal shore and other simple alterations designed to improve safety or ease of use. It is sometimes possible to glean from this the reasons the landing places were exploited: fishing and the collection of seaweed are amongst the most obvious uses. The character and status of the ways to the shore are similarly significant in betraying their former purpose. Some survive only as footpaths, some as tracks leading to individual farms, and others have been transformed into public highways: in this respect, map regression techniques, particularly when allied with GIS, provide a powerful means of gathering and presenting the information.

TH6-12 Abstract 04
Multidisciplinary data-crossing about settlement and land-use in Jura mountains (5th-17th c.)

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Keywords: Landscape, Portable material culture, Viking Age
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This presentation aims to describe the evolution of settlement and landscape in a middle mountain area located in Eastern France during medieval and modern periods (5th-17th c.). We will focus on the first results gathered about the central part of Jura Mountains. This area is characterized by a landscape of high plateaux and high valleys (between 600-1400m), with political/ Swiss border. Numerous high resolution and new palaeoenvironmental analyses performed on past deposits and lakes are available in the studied area. Then, ancient archaeological discoveries, recent field and LiDAR surveys enable us to review and map settlement evolution. These information items are completed by a large collection of medieval and modern archives, still underused. A systematic crossing between these different approaches has been done thanks to a database linked to a Geographical Information System. It may be possible then to describe and understand more precisely the evolution of land-use, beyond the usual prejudices about marginality and late land clearing in mountain territories.

Thus, archaeological discoveries and palynological data show an Early Middle Ages settlement, mostly ignored by scarce written sources. Since the 10th century, land-use is differing increasing in the plateaux and in the high valleys; those changes might be linked with the distribution of parishes, monasteries and feudal structures. Differences increase between the 15th and 17th centuries, as some territories begin to specialize in breeding or craft industries. In the same time, Jura had to sustain violent crises linked with plague and military troubles (e. g. PLAGUE in 1348-49 - Burgundy Wars - 1479 - Ten Years War -1634-1644).

We can estimate the consequences of such events thanks to building archaeology as well as pollen data the decrease of agro-pastoral indicators in the palynological samples.

Comparisons between the several studied micro regions highlight the influence of political structures, trade routes and external investments on natural resource management. During Classical Middle Ages, and even since the Carolingian period, we can distinguish the wide mountain parishes and seigneuries from the fragmented estates of the lower areas, with different land-use and settlement patterns. Then, from 19th century, the border between French and Swiss Jura appears progressively, along with political, religious and economical differentiation. The different evolution of landscape and settlement within the same natural environment is hence witnessing the impact of political, economic and military events on each side of the border.

These first results are meant to be completed by archaeological field operations and to precise the chronology of settlement structures. On another side, the crossing of written sources with statistical analyses of palynological data may enable us to estimate more precisely the impact of various historical phenomenon on the evolution of land-use. Modelling this evolution might be then of a great help to understand periods deprived of written documentation.
Can humans change their spots? Site location patterns in Mid-to-Upper Paleolithic Cantabrian Spain

Author: Javier Orozco, University of the Basque Country, Vitoria-Gasteiz, Spain (Presenting author)

Keywords: Late Middle/Early Upper Paleolithic, Settlement patterns, GIS, Spanish Cantabrian region

Presentation Preference - Oral

Research on the European Middle-to-Upper Paleolithic transition has mainly been devoted to issues of long-standing interest like human anatomy, artifact technology, economic strategies, symbolism or, more recently, genetics. By contrast, other aspects of the archaeological record still require further attention, particularly research on landscape perception and use. As a result, very little is actually known on the decisions and conditions that led Late Middle Paleolithic and Early Upper Paleolithic human groups to settle and move back and forth across the geography in this paper, as a pilot approach to investigate this issue, we aim to explore how settlement patterns changed or persisted in a quite constrained and archaeologically rich area, the Cantabrian region (northern Spain). To this end, locational analysis has been undertaken on a total sample of 94 sites showing human use in a time-lapse spanning more than twenty millennia (ca. 45 to 22 ky cal. BP) - coincident with the so-called Late Mousterian, Châtelperronnien and Gravettian cultures. The study integrates the spatial analysis of different variables relating to factors like topography, geology, hydrography and habitability that are examined and calculated with the help of modern tools, mainly GIS. Results are statistically treated and compared with other archaeological and environmental data, showing a complex mosaic where divergences in settlement patterns through time can sometimes be evident or not, depending on the variables analyzed, and may reveal different – and not necessarily evolutionary – strategies for the peopling of a changing environment. After all, landscape use has always been about decision-making.

The structuring of the Adriatic littoral landscape between Atria and Altinum during Roman times

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Keywords: Landscape Archaeology, Roman Archaeology, Roman Venetia

Presentation Preference - Oral

The Upper Adriatic littoral zone stretching between the ancient centers of Altinum and Atria (Adria) is a low plain continually redrawn, until the modern age, by an extremely complex hydrographic system, of which rivers Po, Brenta, Adige and Bacchiglione are the main agents; but that also includes a numerous series of canals, drains and ditches that until the excess waters to avoid swelling. To all this great mass of water, which has always been a highly destabilizing factor for the plain itself, we must also add the other high morphological variability component of the landscape, i.e. the southern basin of the Venice Lagoon, where the hydrographic system goes (and went) to run out, and that, since ancient times, has offered those harbour areas that were crucial for the economic development of the territory.

If today the relationship between landscape and water looks very tight, we know that was the condition also during Roman times, when classical sources tell us that here was the northernmost part of the great delta of the river Po (that reached Ravenna, the south of Altinum, to the North and, above all, the zone located to the East of the municipium of Atria where the river itself flowed to the sea with more branches, a wide marshland called Septim Maria (i.e. “the seven seas”). Furthermore, we know that in this stretch of plain the river Athesis (Adige), Mediacus (Brenta), Retano (Bacchiglione) and Togisconus (Bovolenta channel) flowed and mingled their waters with Po ones; tappestry filled with sioase (i.e. “canals”) Crotone and Philisiana; two artificial waterways that formed part of an inland waters shipping route that linked Ravenna and Altinum: the existence of such a route is proved by numerous sources, among them the Itinerarium Antonini.
lithoral and the hydrologic evolution affected the North Western Eturia sea- and river ports and landing places scattered along the coastline in Antiquity and in the Middle ages. The Roman road network was constructed on stable soils in the coastal strip and in the main river valleys in the frame of a strategic plan. A post-medieval interesting case study is the coastal plain NW of Pisa. Here since the 15th Century several plans aimed to reclaiming a large swampland South of the Massaciuccoli lake were made but not achieved. In 1653 an attempt was made by the Dutch Van der Strecht, who built a few windmills in order to raise the water level. The coastland proggradation came to end around 1930, the Arno-Serchio rivers solid transport being diverted from their destination to the sea in swamp filling areas in the frame of the systematic land reclamation pursuits by the Lorenza.

That caused the erosion of the Arno delta since the end of the 19th century. The present courses of the Arno and Serchio rivers result from complex natural transformations and anthropic actions taken over the centuries, ranging from the straightening of river segments and the draining of stagnant waters to the construction of embankments, dikes, caisse di colmate and the building of canals to devalue flood waters.

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**TH6-12 Abstract 10**

**Prosper in Valley, Hide in Mountains:**

**Dynamics of Settlement in Ljubuški (Bosnia and Herzegovina)**

**Author:** Dziedzik, Tomasz, Institute of Archaeology, University of Warsaw, Warszawa, Poland (Presenting author)

**Keywords:** Late Antiquity, Roman, settlement patterns

**Presentation Preference - Oral**

The paper analyses the changes in settlement brought about by the Roman occupation of the Trebižat river valley and its surrounding highlands and mountain ranges, a geographically well-defined microregion which today constitutes the modern community of Ljubuški in West Herzegovina. The lay of the land, just a mountain range from the sea coast and with good connections through river valleys and passes with the highlands inland, is such that throughout its history it was the border and contact zone of different cultural, economic and political entities and systems. In antiquity this area was the close hinterland of Narona, a major city of the region. Not only was it important for the subsistence of the city’s population due to the rich agricultural land and the pastures in the highlands, but it also played an important strategic role. The most important road in the province, connecting Narona with Salona, the capital of the province, crossed through the valley as it offered the most convenient route. A Roman garrison ensured the safety of this road, the defence of Narona against indigenous tribes resisting the Romanization process, protecting the borders, and identifying already existing conflicts between the quickly Romanizing farmers in the valley and the more traditional shepherding populations of the highlands.

A non-invasive archaeological landscape project conducted in the area proved that a most close correlation exists in the area between the level of development of the economy, the level of perceived safety and the locations of settlements. The advent of Roman rule, which brought about pacification of the province and economic prosperity, resulted in a gradual shift from the traditional well-defended hillforts located on peaks to settlement in the valleys, with a local centre emerging in the valley around the major military installation, not only the safest place, but also the largest market in the area. On the other hand, in Late Antiquity the military presence was much weaker, and the safety of the regional system was threatened from the outside. In reaction the settlement seems to disperse and move to the naturally defensible places. A parallel to those cyclical developments can be observed also in the medieval and early modern periods. It appears that the choices of places for settlement and of the main economic activities of the population of the region were dependent on the perceptions of safety, which in this difficult, mountainous landscape could be achieved in one of two ways: by resorting to inhabitation of naturally defensive places or by the participation of peacekeeping forces, demanding both an economical and political outside involvement, but giving the possibility for much more intensive local economic development.

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**TH6-12 Abstract 11**

**Comparing cultural transmission patterns in southern Poland during the Bronze and Early Iron Age**

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**Keywords:** Bronze and Early Iron Age, cultural diversity, cultural transmission

**Presentation Preference - Oral**

In our paper we want to show the methodology and preliminary results of the ongoing project addressing the question when, and in what circumstances, the culture of past societies was determined by such factors as (inter-)generational and horizontal (inter-population) transmission of cultural attributes, and when the decisive role was played by the adaptation to local environment. Several well-investigated settlement regions in southern Poland, intensively occupied for a long time and representing various ecological zones and landscapes (Western Malopolska Lowland; the upper Vistula valley, the Carpathian Forestland, and the West Carpathians), were chosen to test the role of these factors.

We apply the comparative method (using standardised data and a set of ‘middle range’ theories) to analyse similarities and differences. The list of variables we included contains: time (the pace and synchronicity of change in past east areas), space (communication factors in inter-population transmission), environment, with its natural and anthropogenic transformations in time, stylistic diversity in manufacturing traditions, organisation of settlement area (at the site and micro-region levels), access to resources, and social hierarchies and relationships. The data are examined using statistical tools, e.g. multidimensional techniques of data exploration, and – in case of stylistic studies – compared with the phylogenetic model. The next step must cover establishing the nature of identified correlations and identification of potential causal relations.

This way we will explore whether cultural diversity is similar – as proposed by the culture-Historical school, recently supported by many evolutionists – to biodiversity and develops through branching of traditions inherited between generations with only slight modifications (so that we can speak of an ‘essence’ of cultural tradition, typical of certain groups in long cycles of historic processes)? Or perhaps is the decisive role played by diffusion - blending of cultural traditions as a result of unique historical events, and the horizontal transmission of patterns within ‘network society’? Or, finally, does the diversity of culture result from tight adaptation to local ecological niche, as adaptationists propose?

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**TH6-12 Abstract 12**

**Pastoral Nomads’ Use of the Semi-Arid Syrian Landscape c. 1810-1760 BCE: A GIS Projection**

**Author:** PhD Josephson Hesse, Kristina, Uppsala University, Uppsala, Sweden (Presenting author)

**Keywords:** GIS, MB Syria-Mesopotamia, Pastoral Nomads

**Presentation Preference - Oral**

Hundreds of Akkadian clay tablets, derived from archaeological excavations at the palace of Mari by the Euphrates, clarify the strong integration between mobile tribes and city-states in Syria-Mesopotamia during the Old Babylonian period (c. 1810-1760 BCE). My project aims to illuminate the social and economic dynamics between pastoral nomads and settled people in this period, with the focus on the former. I will use the economics of food-producing, trade, trade routes, describable routes such as caravan escort and mercenary. Not only are the connections between these groups of people essential, but also their ways of interacting with the surrounding environments.

The paper deals with the first step of methodological network studies in this project, which is to map known sites into GIS together with trade routes, landscape features, suggested tribal territories, natural resources, and some remains (e.g. systems of caravans, corrals, kites) registered in the Syria-Norwegian Palmyra project that I have been a part of. The structured location of several hundred Bronze Age cairns, distributed on strategic hillocks and read outlets, in the mountain range outside the ancient trading centre of Palmyra in Syria, indicates that in addition to have been burial chambers these cairns were secondary used as landmarks of territories and routes for trade and migration of pastoralists with their flocks. The landscape image will constitute the base for my further studies of networks and descriptive connections or relationships between people and tribes with places, trade routes, migrants patterns etc.

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**TH6-12 Abstract 13**

**Road caravanserais of the Medieval Middle East: landscape, architecture and patronage**

**Author:** Ass-, prof. Tavarnari, Cizroa, Abdullah Gül University, Kayseri, Turkey (Presenting author)

**Keywords:** caravanserais, landscape, patronage, architecture

**Presentation Preference - Oral**

In the Islamic world, caravanserais have been faithfully serving travellers, traders and pilgrims for many centuries, sometimes functioning as stopovers until the beginning of the 20th century. The impressive geographical and topographical diffusion of this institution, original to the Islamic world, clearly shows that caravanserais fulfilled a key role in society, in relation both to the physical act of travelling and to the notion of travel as the expression of cultural values. For different reasons tied to religion, knowledge and also trade, travel and travellers have always been important issues for the Islamic civilization but it would be misleading to consider road caravanserais only as way stations for travellers. Road caravanserais were the symbol of the Islamic empire, the centre of a variety of functions that linked together religious, political and cultural motivations. Yet it is striking to observe that until now road caravanserais have been poorly studied from a comprehensive point of view and are consequently till insufficiently understood. For example, although well know elements of several oriental caravanserais as one of their characteristic features, the relationship of road caravanserais to the landscape they have been built in has not been studied thoroughly.
How did the construction of such buildings transform the landscape and its perception by its hosts, the inhabitants but also their patrons? I will attempt a broad contextual comprehension of this question by considering if and how caravanserais engaged in binding together the landscape and creating a distinctive cultural landscape. My approach wishes to inform the understanding of the ways in which different road caravanserais’ construction programs can shed light on how landscape, patronage and power were shared within different Middle East contexts. In this presentation, in fact, I will compare medieval Anatolia and medieval Syria and I will investigate how the construction of road caravanserais changed the landscape in these two regions. Did it change in the same way? What are the similarities and differences?

This good use of the territory, and its associated organization, has crossed the times until the humankind modify natural landscapes.

The contemporary landscape organization keeps different remains of this situation in the inscriptions, in the parceling system and in the road network. It also shows us that the «colonization» by the Roman Empire keeps a part of the former forms when it is in accordance to the new one.

Since the middle of the twentieth century, most of the testimonies of this very organized frontier have disappeared. Because of its originality, it’s now time to look at its last remains as a huge historical monument which needs to be kept for national memory of Romania.

The establishment or development of any settlement will require a reliable supply of fresh water. The vital nature of this resource creates a dependence for water in any discussion of the interaction and relationship between humans and their landscape. During periods of transition, the importance of this relationship, and the effect it has on the development of settlements, can be examined. From the 5th century AD, following the decline of the Roman period in Western Europe, and on into the 12th century AD, the manner in which many of the water systems were used shifted, while other uses remained constant. The movement of various groups into new parts of the continent resulted in changes to the expression of the human relationship to water systems in the urban structures across Western Europe. Places such as Londonium, Lundenwic experienced a significant transition from their previous urban layouts, while others, including Cordoba, appear to continue to function within the original Roman boundaries. This paper seeks to examine the impact that the relationship between the communities that lived in these settlements, and the water systems that they used, had on the urban development of these sites. Does the change or continuity that is displayed through the sites urban development reflect this dynamic relationship? Through examining how water has impacted communities decisions regarding their settlements across Europe on a broader scale, wider trends during this period can be identified and understood alongside regional variation to enable a more complex understanding of the nature of the relationships between Early Medieval communities and their landscapes.

The contours of the city of Antioch on the Orontes are revealed in the ancient writings and the excavations conducted on the initiative of Princeton University throughout the 1930s. The grave stones that remained from the Antiquity can provide us with precious data concerning the urban outlines in assuring the information we present to the hand.

Nonetheless, we must above all be aware that the grave stones are most often fortuitous finds detached from their original place whose provenance is unidentified. In addition, they are usually acquired by institutions or individual collectors via purchase, donation or confiscation. Therefore, none of the researches executed throughout XXth century has offered a veritable comparative approach between the extant knowledge and the concentration of their find spots, although it may have helped us in mapping out the city.

With this objective in mind, we attempted to find the exact provenances of (around 250) grave stones, as much as possible, within the frame of our doctoral research, in the inventory records of museums (Antakya Arkeoloji Müzesi, Istanbul Arkeoloji Müzesi, İstanbul Arkeoloji Müzesi, Musée du Louvre, Princeton University Art Museum, Worcester Art Museum) and of a local private collection (Ovali Oça Kayaşakapıs). Furthermore, we examined reports, diaries, field notebooks, maps, plans, drawings and sketches of the aforementioned excavations in the Visual Resources Collection of the Department of Art and Archaeology of Princeton University.

We have thus been able to draw the topographical context to which the grave stones originally belong. In this paper, we will present main results of our study concerning the grave stones that we led in pursuance of delineating their original place.
The landscape of iron production – from prehistory to the Early Modern Period in present-day Latvia

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Keywords: Late Antiquity, Transformation, Urbanism

Presentation Preference - Poster

The paper will focus on urbanisation in the Central Balkan provinces and how it changed during Late Antiquity, which is also the topic of my doctoral research. The region had a crucial strategic position for the Empire, enabled by central location and good connectivity through natural passages and major roads. The good communication network also enabled a highly-developed trade system and exploitation of resources, especially ore deposits. Its cities were hubs of political and economic power, as well as cultural and ecclesiastical centres.

An older theory, still held in regional scholarship, is that the marauding raids of the various barbarian groups had a devastating effect on Late Antique urbanization. While I agree that raiding had a negative impact on cities, I rather see the raids as factors of transformation which prompted the cities to become more militarized and actively involved in the imperial defence. Cities were given stronger fortifications and military edifices, such as annona storage houses, and new cities emerged. I will use one case study on these newly emerging cities (the unnamed city at the site of Konjukh in the Republic of Macedonia) to challenge the notion of dying Late Antique urbanisation and I will try to elaborate more on the issues that kept regional scholarship clinging to this notion and lagging greatly behind the more developed international scholarship on Late Antiquity and Late Antique urbanisation.

Warfare and Urban Transformation in Late Antique Central Balkans

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Keywords: Brānice (southern Slovenia), flood, medieval, post medieval

Presentation Preference - Poster

In the vicinity of the city Brānice (southern Slovenia) Institute for the Protection of Cultural Heritage of Slovenia, Centre for Preserve archaeological sites is carrying out a large-scale archaeological project as a new Hydroelectric power plant is being built on the Sava River. A number of archaeological sites are under threat of being destroyed by different infrastructural building works and by flooding of huge areas in order to make the accumulation lake. Archaeological research of the area, started in 2008, is still not finished.

On the right bank of the Sava River, east of the village Brānice as there used to be an area of late medieval and post medieval village of Zasave, which existed until 1781 when extensive flooding destroyed the old village. After the floods only a few farms were set anew in the vicinity, and until the beginning of 20th century the area was completely abandoned and became agricultural farm land.

The Sava River is a typical Alpine river. Water levels can rise fairly high because of melting snow and seasonal spring rains. It can still cause major flooding in the event of a so called one-hundred-year flood. Flooding of the area did not stop until the second half of 19th and the first half of 20th century when the Sava River was regulated. Many of the abandoned river channels can still be seen in the landscape. In 2010 the analysis of Lidar data and geological survey were made as part of preliminary research of the area. Investigations led to the conclusion that the area has been heavily transformed and that not many remains of medieval and post medieval buildings could be preserved in situ. Architectural remains of buildings were literary erased from the face of the earth due to massive water erosion that destroyed predominantly wooden architecture.

In 2009 extensive and intensive archaeological field surveys took place in the area. In 2014 and 2015 also trial trenching of 25,3 ha in the eastern part and smaller archaeological excavations in the western part of potential medieval village area were carried out. Archaeological research in the area revealed that only few farm houses were not completely destroyed during flooding and meandering of the river channels. Many river channels were also identified during excavations. A few of them were regulated and were used for communication by the residents of the village, as the channals’ banks were fortified with limestone slabs.

Archaeological research in the area is still being carried out thus final evaluation and interpretation of the identified archaeological structures will be done only after the fieldworks are finished and then all data will be put together and compared with historical and geological data.
Among the factors that affected the dramatic shifts in patterns of living are: deforestation, imposition and acceptance of a macro regional housing model that fits better to the new type of economy, the need for an efficient exploitation of local sources (especially salt).

As a consequence, at the transition from the Middle Bronze Age to the Late Bronze Age in Eastern Romania it occurs a major change in the housing model which was represented by fortified settlements (strongholds, interior visibility, the control of some satellite settlements, the control of the access roads, the placing in the proximity important water courses). This model encountered in the all Sub-Carpathian area will be replaced with a kind of a micro regional swarming model much closer for the cattle breeders communities with new preferences (secondary and tiny watercourses, lowlands, Chernozem soil, solarity, seasonal dwelling structures). Those changes are visible at the level of the communication system and transfer of goods, too. Thus, the dominant north-south road in the Middle Bronze Age is replaced with east-west road that seems to dominate the Late Bronze Age. By adding these features can be certified a kind of a territorial exclusion: the Middle Bronze Age communities preferred the area located between the north-south hydrographic axis represented by the Siret River in the east and the Carpathian area in the west. On the other hand, the Late Bronze Age communities seem to avoid the pre-alpine location and preferred the area bounded by the Siret River in the west and the north of the Black Sea in the east.

Through the interconnection of the data obtained from the landscape analysis, the analysis of materiality, of the different perceptions for this two types of communities it results that for the area of study was applied a model of a total change. In the proposed case study, that took place in a micro region in eastern Romania, there were found the data to support this assumption.
Against the disease. Synchronously, people did trust the very same institutions to scotch the plague, not at least in their constant fear of its return, by devoutly donate more lands and properties to them.

**TH6-13 Abstract 03**

Surgical treatment at the Danish Cistercian Abbey of Gm - A critical analysis

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*Co-author(s)*: Medieval archaelogy, Skeletal paleopathology, Surgical treatment

*Presentation Preference*: Oral

Through eight decades the Cistercian Abbey of Gm, Denmark, has been well known nationally and internationally for its traces of surgical treatments on medieval human bones. The human bones derive from the monastic burial grounds and in around the Abbey run. Most of the bone material was excavated in the period 1933-1936 and followed up with a Danish publication in 1936 and a German publication in 1941, both dealing with the skeletal paleopathology. These publications furthermore argued that the monastery functioned as a hospital in the medieval period 1172-1538 AD, a claim which has since, remained practically undebatable. Modern anthropological analysis is questioning the former interpretation of the human skeletal material. New insight gives the basis to reevaluate the role of the Cistercian monks as physicians and surgeons. This paper looks into the alleged surgical treatment on human bones and deals with the question, whether surgery has taken place at the site, as well as the monastery's role as a medieval hospital.

**TH6-13 Abstract 04**

Heavy metal: health, medical tradition and cultural exchange in historic Iceland

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*Keywords*: disease, osteology, alchemy, heavy metals, culture, Iceland, monastery, hospital, medicine, treatment, syphilis, mercury, palaeopathology, ICP-MS

*Presentation Preference*: Oral

Skókulakvær, located in the east of Iceland near the Vatnajökull glacier, operated between AD 1493-1554. As an Augustinian monastery, Skókulakvær ran a hospital with sophisticated medical practitioners, providing medicinal and surgical treatments. The specialized medical knowledge, range of medicinal plants and herbs, and evidence of imported objects and food found at the site are indicative of Iceland's international cultural inclusion in the past. Between 2002-2011, 271 out of 265 individuals were excavated from the site, presenting a vast array of medical conditions including syphilis, tuberculosis, hydatidosis and Paget's disease, for example. In addition to disease, it is also vital to consider environmental influences on human health as a result of living in a volcanic area. The decades after the large volcanic eruption in Vatnajökull in 1477.

In the 13th century, alchemists began to use cinnabar ore (mercury sulphur) as a medicinal elixir as it was believed to impart long life due to its deep red color and philosophical associations with blood and the soul. Towards the end of the 15th century, distillations and fumigations of mercury from cinnabar became widely used to treat syphilis and remained to be the only viable long life due to its deep red color and philosophical associations with blood and the soul. Towards the end of the 15th century, distillations and fumigations of mercury from cinnabar became widely used to treat syphilis and remained to be the only viable treatment for syphilis until the 20th century. Otherwise, mercury (cinnabar ore) was used as a red colored pigment in scholarly work and during the gilding of metallic objects. Mercury can also be released into air, water and soil through geothermal activity, as seen in high concentrations during the eruptions of Mount Helia (1970 and Heimaey (1973) in Iceland.

Inductively coupled plasma mass spectrometry (ICP-MS) was used to measure heavy metal concentrations in 50 samples from individuals excavated at Skókulakvær. This presentation will discuss the results of osteological and chemical analyses, in order to understand the importance of heavy metals and their potential impact on the health and well-being of medieval individuals. The analysis will provide insights into the uses and potential effects of heavy metals on human health and the implications for archaeological and medical research.

**TH6-13 Abstract 06**

Curing animals and human with wood tar in the Mediterranean from the Middle Ages to Present

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*Keywords*: Ethnomedicine, Pharmacology, wood tar

*Presentation Preference*: Oral

Wood tar, extracted by dry distillation, has been used in human and veterinary medicine since ancient times. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for purposes such as pest control and as raw materials for the production of various medicinal products. However, the use of tars has been debated, and their medicinal properties and potential toxicity have been the subject of scientific research.

This paper will review archaeological evidence for animal-based medicines in Northern Europe, discussing the socio-cultural context of their use and the potential medicinal benefits derived from their consumption. The paper will present evidence from various archaeological sites, including wooden structures and animal bones, to support the use of tars in the past.

The archaeological record provides insights into the medicinal uses of wood tars, revealing their importance in both human and veterinary medicine. The research will focus on the use of tars in the Mediterranean region, where they have been traditionally used for various purposes, including pest control and as raw materials for the production of medicinal products. The paper will present evidence from various archaeological sites, including wooden structures and animal bones, to support the use of tars in the past.

The analysis of tars from archaeological sites will be used to determine their chemical composition, including the presence of active ingredients and potential toxins. The paper will also discuss the potential medicinal benefits of tars, based on their chemical composition and traditional uses in medicine.

The paper will conclude with a discussion of the implications of the research for the understanding of ancient medicine and the use of natural resources in the past. The findings will contribute to a better understanding of the role of tars in the history of medicine and their potential value as a source of new medicinal substances.

**TH6-13 Abstract 05**

The Archaeology of Zootherapy in Northern Europe

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*Keywords*: Animal medicines, Medicine, Zootherapy

*Presentation Preference*: Oral

The World Health Organization (WHO 1993) estimates that about 80% of the world's population rely on zootherapy - the use of non-human animals, their parts and products - as a method of primary health care. In the past the percentage of people who utilised zootherapy was certainly higher, as evidenced by Roman medical texts and Anglo-Saxon leechdoms, which are replete with advice about animals as human medicine. Only in the late modern age have there been any marked decline in animal materia medica, yet archaeological studies of animal-derived medicines are rare. Given how widespread animal-based medicine is in societies past and present, it seems inconceivable that the remnants of zootherapy are not preserved in abundance within the archaeological record.

This paper will review archaeological evidence for animal-based medicines in Northern Europe, discussing the socio-cultural importance of zootherapies in the past. In particular, it will draw on the significance of wild and/or exotic animal species and their medicinal role that is likely to have been due to the widely held, cross-cultural belief that geographical distance is equated with supernatural distance, and that animals derived from 'outer realms' (e.g. the wilderness or far-off lands) are more medicinally potent.
It is well known that many treatments for diseases and injuries existed in the later Medieval period (ca. 1050-1550 CE) in Northern Europe. Written records, surgical instruments and other artefacts for wound treatment, medicinal plants and various materials used to treat illnesses have been widely discussed. However, very little evidence of such treatments is readily observable when we analyse the actual recipients of such procedures. Therefore this presentation aims to provide a critical evaluation of potential evidence for treatment found in human skeletal remains from archaeological contexts from Northern European countries, and, in particular England. Palaeopathological analyses have established that a range of diseases and injuries are visible on the human skeleton, although the majority of diseases would have only affected the soft tissues. The most commonly observed skeletal lesions include dental disease and trauma. Dental disease in the form of caries and periapical lesions increased in the later Medieval period, especially with the wider availability of sugar and finely milled flour that would have promoted dental caries. However, according to medical treatises removal of infected teeth was largely avoided and it must be speculated that the high percentage of teeth lost ante-mortem in medieval individuals can be attributed to natural causes. Fumigation was one form of treatment for ‘tooth worms’ thought to cause dental caries and potentially such treatment could irritate the upper respiratory tract and, if chronic, could lead to inflammatory ailments. Nevertheless, since infections may have a number of different causes and should therefore not be seen as proof for dental treatment.

More solid evidence for treatment is found in form of surgical interventions such as trepanations and amputations. Trepanations, or opening of the cranial vault has been practiced for millennia and evidence for successfully healed (and unhealed) trepanations is known from almost every continent. Trepanations would have been presented to treat head injuries, epilepsy or other neurological problems. Despite a high survival rate of patients in earlier times, the number of skeletons found with trepanations decreases in the later Medieval period in Northern Europe, attesting that other, probably less invasive treatments for cranial trauma and neurological disorders were favoured. Amputations are rarely seen in human remains and the few known examples from late Medieval England and the rest of northern Europe might be due to the low survival rate of affected individuals. Furthermore, unhealed amputations might not be easily observable and they can potentially be mistaken for post-mortem damage. Lastly, fractures, especially of long bones, when healed with little deformities have been viewed as evidence for fracture treatment. However, it has to be acknowledged that fractures of the lower leg and femur bones, when affecting only one bone might naturally heal without angular, even in the absence of treatment.

In conjunction with these examples, further evidence for treatment will be discussed and critically evaluated, but it has to be concluded that without additional contextual evidence human skeletal remains are not an unambiguous source of information if we want to infer medical treatment in the past.

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**TH6-13 Abstract 08**

**Osteoarchaeological Evidence for 18th century Anatomy and Medical Treatment at Wittenberg, Germany**

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**Keywords:** Human Dissection, Renaissance Anatomy, Syphilis

**Presentation Preference:** Oral

The Renaissance University of Wittenberg, Germany, founded in 1502, is well known for some of its illustrious faculty members, including important historical figures like Martin Luther and Philipp Melanchthon. Both supported and influenced medical teaching at the University during the 16th century, while no fixed boundaries existed between medical and theological thought at that time. At Wittenberg University a sound understanding of the healthy human body was seen as a prerequisite also for understanding and healing the human soul. Especially Melanchthon readily incorporated up-to-date anatomical knowledge into his writings, for example updating his own work “Liber de anima” with details from Vesalius’ “De humani corporis fabrica” around the middle of the 16th century.

Recent excavations at Wittenberg and subsequent osteoarchaeological analyses have now recovered and identified human skeletal evidence for medical practice and pre-Vesalian academic teaching of anatomy during the first half of the 16th century. The remains of several individuals buried within the former Franciscan monastery of Wittenberg, which was utilized by the university for a short time before it was converted into a military facility around 1538, show for example evidence of trauma and syphilitic infection and their respective treatment. Furthermore, rare cases of Renaissance anatomical dissection of complete and partial human bodies have been identified at the site, which can be correlated very well with surviving historical information from different sources. The joint analysis of these historical documents in conjunction with the osteo- and funerary archaeological evidence allows significant new insights into the actual practice and teaching of Renaissance anatomy at the University of Wittenberg, the subsequent fate of the anatomised bodies as well as medical treatment of trauma and infectious disease during this time.

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**TH6-13 Abstract 09**

**“Love thy neighbour...”: Social outcasts and the English Middle Ages**

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**Keywords:** Middle Ages, physical abuse, Social outcast

**Presentation Preference:** Oral

Bioarchaeology allows the reconstruction of people’s life-ways even if they are largely ‘left the written record’. This paper focuses on the marginalisation of stigmatised individuals during the English Middle Ages (800-1450 CE) and its osteological evidence.

This study analyses cemeteries from known medieval leprosaria (e.g. Chichester, United Kingdom) as leprosy is recognized to be highly stigmatised and led to segregation of affected individuals. Even if not all individuals in the hospitals were suffering from the disease, all of them were outcasts of society. In particular, cemeteries dating prior to 1350 will be considered as leprosy declined after the mid-14th century and historical documents suggest a greater use of hospitals as shelter for the poor and old.

An increased rate of long bone fractures in leprosarium-associated cemeteries has been stated in the literature (Judd & Roberts 1998). Considering the location of the injuries and the previous exclusion of rib fractures it is hypothesised that the fractures cannot solely be attributed to leprosy, although the disease causes sensorimotoric problems. Interpersonal violence is investigated as possible reason for the increased rate of ante- and perimortem injuries and this aspect is discussed here in detail. The baseline for the analysis is obtained from nearly generated fracture distribution patterns of various social classes and regions throughout medieval England. Leprosy hospitals are known to be quasi-monastic environments but there seems little similarity to the fracture patterns seen in monastic individuals. Therefore the patterns are compared to cemeteries associated with higher and lower social status as well as assemblages from other backgrounds such as execution sites. Social attraction is paid to the occurrence of fracture patterns that in forensic studies have been associated with physical abuse. Previously it has been demonstrated that domestic violence is hardly accessible within the bioarchaeological record. Fracture distribution patterns, including the ribs, will allow new interpretations of the data. Rib fractures have been often excluded from previous studies but are one of today’s major indicators of maltreatment and are considered along long bones and cranial injuries in this study. It is suggested that the social exclusion of the ‘dead among the living’ extended into physical harassment and abuse.

The research broadens our understanding of medieval hospitals as isolation-enforcing shelter, the people’s interactions with social outcasts; the study challenges our perception of the approach to leprosy within the society of the Middle Ages in England. Additionally, bioarchaeological research will profit from the generation of fracture patterns that include bones. It will allow studies which fractures are likely due to daily activities of the medieval English population and set a baseline for future research.

**Reference:**


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**TH6-13 Abstract 10**

**Skeletal trauma and possible treatment in 11th to 19th century Finland**

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**Co-author:** Jakob, Tina, University of Durham, Durham, United Kingdom

**Keywords:** Finland, Palaeopathology, Trauma

**Presentation Preference:** Oral

The aim of this research is to evaluate evidence for accidental and intentional trauma in skeletal populations from Finland. Trauma was studied in 473 individuals dating from the 11th to the beginning of 19th century in Finland. Ancient Finnish populations showed a crude prevalence rate for trauma of 18.4%. The occurrence of trauma (excluding violence related trauma) in spatially and temporally populations close to the Finnish study populations ranges from 1%-35%, so this finding falls in the middle of the reported range. Prevalence of cranial trauma, on the other hand, seems lower than in most of the previously published bioarchaeological studies. Trauma studies are usually focusing on violence, and as most of the trauma in the present study is non-violence related, it was more difficult to find appropriate comparative studies.

Most of the trauma was observed on the axial skeleton, followed by the upper and lower extremities. Ribs are the most frequently fractured bones, followed by the ulna. Distal or midshaft ulna fractures, which may or may not be interpreted as Parry fractures, are one of today’s major indicators of maltreatment and are considered along long bones and cranial injuries in this study. It is suggested that the social exclusion of the ‘dead among the living’ extended into physical harassment and abuse.

The research broadens our understanding of medieval hospitals as isolation-enforcing shelter, the people’s interactions with social outcasts; the study challenges our perception of the approach to leprosy within the society of the Middle Ages in England. Additionally, bioarchaeological research will profit from the generation of fracture patterns that include bones. It will allow studies which fractures are likely due to daily activities of the medieval English population and set a baseline for future research.

**Reference:**

fractures, were found in eight individuals, of which five were estimated to be males or possible males and three were females or possible females. Three had died as young adults, three as mature adults, and one as an old adult. Collar fractures were found in five individuals, of which five were females and one was male. Two of these were young adults, two mature adults, and two old adults. One mature female was diagnosed with a Clay shoveller’s fracture of the 1st and 2nd thoracic vertebra, and one young adult male with a Boxer’s fracture of the fifth metacarpal. Examples of trauma also include two subluxated shoulders and one case of impatia ossificans on the posterior tibia.

Males had more trauma than females and the prevalence was higher in older individuals, which was also found in most of the previous bioarchaeological studies. The ribs, tibia, and skull were more affected in males, while the radius, ulna, and vertebrae were more commonly involved in females. The radius and ulna were more affected in the individuals that died as old adults. Interestingly in our study trauma was found to be positively correlated with moderate or considerable amounts of dental calculus and osteochondritis dissecans, and the implications of these findings will be discussed in more detail.

Most of the observed trauma consisted of well healed lesions with only slight angular deformity and little overlap. Two of the fractures were healed but ununited, and two were unhealed perimortem injuries. Barber-surgeons in many of the locations are known from historical sources and in the mid-18th century provincial doctors were employed to treat the injured.

TH6-13 Abstract 11

LIVING ON THE EDGE: TRAUMA PATTERNS IN MEDIEVAL VILNIUS (16-18TH C.)

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Keywords: Trauma, Vilnius

Presentation Preference - Oral

Skeletal remains provide one of the most crucial and direct sources of evidence for the occurrence of violence, work related activities, and ill-fortune in the past. While fractures are the most common pathological condition, we still struggle with the most plausible explanations for its cause and presumable outcomes.

Vilnius, the city of diversity, both religious and cultural, serves as an interesting subject for studies of everyday life and its peculiarities in medieval period. Thus, 5 different objects representing varying social status were selected for investigation of trauma pattern: Cathedral and Liejekštos street (17-18th c.) - elite members of society; church of The Holy Trinity (17-18th c.) - clerics; Mindaugas street 7 street (16-17th c.) - Vilnius laymen; Mindaugas street (16th c.) - poor.

A total of 109 injured individuals (27.3% of total individual count) were observed among 400 examined males, females, and non-adults. 82 (20.9%) had only one fracture, while 27 (6.8%) suffered more than one injury. Five cases were recorded as perimortal - no healing signs suggested an early death. Males correspond to the universal model which indicates their dependency to a higher-risk group: injured males consisted 75.2% of all injured individuals. The most commonly fractured part of the skeleton was a rib accounting 30.3% of all injured individuals. Female fractures were characterized by injury to the forearm and spine area, while the males were predisposed to diverse fracture locations.

Interesting patterns emerged when compared different sites. While Mindaugas street burial ground considered to consist only young adults, the other sites were more diverse. Males had more trauma than females and the prevalence was higher in older individuals, which was also found in most of the previous bioarchaeological studies. The rib, tibia, and skull were more affected in males, while the radius, ulna, and vertebrae were more commonly involved in females. The radius and ulna were more affected in the individuals that died as old adults. Interestingly in our study trauma was found to be positively correlated with moderate or considerable amounts of dental calculus and osteochondritis dissecans, and the implications of these findings will be discussed in more detail.

Medieval medical cultures in Sweden – practices and ideas mirrored in materiality

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Keywords: archaeology, medicine, medieval

Presentation Preference - Poster

Medical practice is formed not primarily by knowledge, but by culturally motivated apprehensions of what disease is, what causes it and how the body functions. In medieval Sweden (by today's geographical borders) the monastic orders brought with them a medical culture with roots in ancient classical and medieval scholastic traditions. This medical culture included its special material culture, i.a. in the form of surgical instruments and other equipment. These artefacts are encountered when monastic sites are excavated. A previous assumption within medieval history has been that it was the monasteries which brought medical knowledge to the North. However, an extensive survey of archaeological findings in Sweden, has revealed that artefacts related to monastic medical culture did not spread outside the monastic milieu to the surrounding society. This can be interpreted as the result of a very limited dissemination of the practices and ideas associated with monastic medical culture. In this paper possible explanations to this, such as clashing medical cultures or paradigms (monastic versus indigenuous) and diverse traditions and conditions of communication of knowledge, are discussed. The content of the paper is based on some of the results of a larger research project, published as a doctoral thesis in 2013.

TH6-13 Abstract 12

SOCIAL WELFARE AND HEALTH STATUS OF THE UPPER LAUSITZ - a Tormersdorf/Toporów settlement case study

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Keywords: Excavations, Lower Saxia, Paleopathology

Presentation Preference - Oral

Since 2014 the Department of Anthropology at the Wrocław University of Life and Environmental Sciences has been conducting the research project “People, culture and natural environment of the Upper Lusatia” based on the example of research of the settlement micro-region Tormersdorf/Toporów funded by National Science Centre in Poland.

One of the objectives of the research project is to present complete and interdisciplinary analysis of the human population, its culture and environmental interactions on the basis of the Tormersdorf/Toporów settlement from the late Middle Ages until its destroying during II World War in 1945.

Accomplishment of the research includes reconstruction of the biological condition of the population based on broadly approached reconstruction of the health status, including comprehensive analysis of the skeletal lesion.

So far, during two seasons of field work carried out in the micro-region Tormersdorf/Toporów, excavations were conducted within the relics of the cemetery, located to the northwest of the ruins of the village. During archaeological analysis, only one phase of use of the cemetery was found, dated to the first half of the XIXth century and from that period 32 adults (24 men and 8 women) were excavated.

Pathological lesions were present in all excavated skeletons. Its intensity was predominantly high. In 26 cases (81%) interal tooth loss was visible. Dental caries was present in 20 cases (62.5%) and in 9 cases (28%) periodontal lesions were found. Moreover, degenerative and overload lesions of the spine, injuries and bone fractures were observed as well. An unique case of a male skeleton in matura class of age with bilateral amputation of lower thigh was found.

The nature, intensity and incidence of pathological changes found in the skeletons from the micro-region Tormersdorf/Toporów may indicate study group exhibit distinctive features. Variety and occurrence of the pathological lesions may indicate a low level of hygiene, poor health conditions and long-lasting work overloading of the individuals as well.

Based on archival data, it was established that at the turn of the XIXth century in former Tormersdorf theoscal care home (Broder-untdPlegeshaus2004) was functioning. This allows tostate working hypothesis that the majority (even all) ofthe graves found in Tormersdorf/Toporów are likely to be associated with burials of the residents of this institution.
**TH6-14 Abstract 01**

**Muslim and Protestant religious minorities and funerary spaces in south of France**

**Author:** Glaize, Yves, Pessac, France (Presenting author)

**Keywords:** Funerary archaeology, Religious minorities, South of France

**Presentation Preference:** Oral

**During the Middle Ages, the institutionalization of the concept of Christian cemetery raises the question of the integration of the religious minorities. Were religious minorities always in separated funerary spaces and how were they organized? Archaeological data could inform on specific funerary practices of peculiar communities. Thus different types of graves have been identified by funerary archaeology and their analysis could sometimes provide to discuss the presence of minority groups. However their study requires a careful inquiry to identify religious minorities and the possibility of specific funerary spaces. Small groups of graves recently excavated in South of France could be maybe linked with religious minorities as Muslims and Protestants. But their identification and their study require taking in account historical context and different archaeological parameters. The archaeo-architectural analysis crossing at the same time archaeological and biological data allow to bring new data on the identity of the deceaseds, on the funerary practices and the organization of funerary spaces. Examples from recent excavations in south of France, in particular from the city of Nimes, will be analyzed by crossing at the same time textual and archaeological sources. These discoveries allow to discuss the idea of communities such as the Muslims or the Protestants in the funerary spaces. But it is important to analyse their presence over the long term of history and to try to distinguish potential evolution.**

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**TH6-14 Abstract 02**

**Dealing with identities. Archaeological traces of Muslims and Dimmi-s in the Middle Mark**

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**Keywords:** Archaeology, Ethnicity, Identity

**Presentation Preference:** Oral

In this paper I deal with the problems derived from adscription of archaeological data to Berbers, Muslims and Christians in the north of the Middle Mark of al-Andalus. I present both, the results of archaeological surveys integrating data from the Archaeological and Culture Territorial Service of Soria, Castilla-León, and the analysis of materials preserved in the Numantino Museum (Soria) used in my PhD dissertation. I will pay special attention to concrete sites such as Mirlo de Medinaceli and Conquequela. These sites reflect the different powers successively overlapped and the problems concerning the adscription of identifiable bearers in the complex Middle frontier between 8th-11th centuries. The settlement of Umayyads in the north of the Middle Frontier is a process quite well established through written Islamic sources: between the 8th and 9th century different Berbers images, clients of the Umayyad’s lords were settled in this area, years later, after the abdication of Abd- al- Rahman III (939) as Caliph, this area was reunited and became the most active frontier with Christianity in al-Andalus between the 10th and 11th century. However, the explicit recognition of these realities raised delicate problems concerning their chronological and religious-identitarian adscription. In one hand, the settlement of Berbers images in this area, as well as, clients of the Umayyad’s lords raised with the problem of their adscription to a specific material culture. What kind of archaeological data can we use as cultural markers of this specific ethnicity? What interpretation problems present these indicators in order to identify Berber population? Are they fully assimilated with the Umayyad’s elites? Can we demonstrate the islamization traces of this population? After 946, Medina Azahara was rebuilt and became the administrative centre of the Middle Mark, while the nearby fortress of Gormaz became the military centre, the starting point for the northern expeditions replacing the Alcazaba fortress. This area became a sophisticated frontier based entirely in a network of fortress and towers depended on Umayyad power and, the expression of power of the Umayyad Caliphate based on ibad mentality. However, the new Muslims’ rules were not installed over an uninhabited areas, terra deserta, but rather over a territory previously politically-disarticulated. The previous indigenous inhabitants were mostly “Christians”. The new power granted them a protected subordinate place in society through the status of dhimmi-s or protected people. The traces of these people are almost invisible, mainly rock-cut tombs sites. These ones are not associated with architectural or osteological remains, thus making it impossible to determine accurate chronologies, so they merit to be integrated in a collective debate.**

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**TH6-14 Abstract 03**

**From hand to mouth: dietary perspectives on religious minorities in Medieval Portugal**

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**Co-author(s):** Dr. Alexander, Michelle, University of York, York, United Kingdom

**Keywords:** Diet, isotopes, Medieval Portugal

**Presentation Preference:** Oral

Diet had an important cultural and symbolic meaning in medieval societies. In particular, the preparation and consumption or avoidance of certain foods played a significant part in the construction of identities by social status, age, sex and faith. This is especially intriguing for the multi-faith societies of Medieval Iberia were Christians, Muslims and Jews co-existed during the medieval period. In multi-faith societies co-existence and rulers’ religious tolerance towards minorities are inextricably linked, affecting all aspects of socio-religious life including dietary requirements. This paper addresses debates on socio-religious changes in an understudied area of Portuguese history: applying carbon (13C) and nitrogen (15N) stable isotope analysis to investigate the diets of Islamic and Christian communities in medieval Portugal under shifting religious political control. Stable isotope analysis, which provides direct evidence of the diet of archaeological individuals, has been applied to the skeletal remains of Muslims and Christians from the medieval sites of Beja (9th-12th C AD) and Silves (9th-13th C AD). These sites are notable for the presence of communities of Muslims and Christians that co-existed before and after the Christian conquest. Beja provides the remarkable opportunity to analyse contemporaneous Muslims and Christians living under Muslim rule and buried in the same burial ground. In addition Silves offers an insight into the influence of the Christian conquest onto the economy and lifestyle of the Christian minorities in southern Portugal as well as the effect of the shifting political control on the pre-existing Muslim groups. The combination of the data from these two settlements can provide information on the economies and the subsistence strategies put in place by religious minorities as well as shedding light on the development of medieval pluralistic societies under shifting powers and during transitional periods.**

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Archaeology and religious identities: the example of the Évora Inquisition court (Portugal)

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Keywords: Jewish, Minorities, Persecution
Presentation Preference: Oral

The origins of the Inquisition are related to the power that religion had in Medieval times, representing values as engines of collective lives. As a result, the Catholic Church and the Papacy took over, since the 12th century, the leading role in the fight against heresy. The Inquisition had its origin at that time, and its development through the Catholic world led to its official creation in Portugal in 1536, aiming the surveillance of the ‘purity of faith’, the suppression of heresy, and the discipline of religious beliefs and behaviors, essentially related with the Jewish presence in the Portuguese territory. In 2007/2008 an archaeo- logical excavation took place in approximately 12% of the so-called Jail Cleaning Yard, the dump of the Évora Inquisition court. Having as starting point this archaeological excavation, this work aims to discuss several archaeological traces on how the Catholic Church developed mechanisms currently understood as radical to deal with the presence of religious minorities. Twelve adult individuals in articulation (3 males, 9 females) were recovered and a minimum number of 16 were identified from a commingled context. The absence of funerary ditches suggests that the bodies were deposited directly in the dump. Moreover, the variability of the orientation and position of the body and limbs, and the absence of grave goods are not in accordance with the procedures of a Catholic burial. These results are underlined by the fact that the individuals were recovered from a location that was not sacred. Also, the manuscripts from the Évora Inquisition allowed the identification of 87 prisoners who died during the period in which the dump had been in use (somewhere between 1658 and 1634), and showed that at least 11 (12.6%) of them were confirmed discarded in the dump, likely because they were charged of ‘Judaism, heresy and apostasy’. The archaeological traces, as well as the anthropological and historical contexts, are in accordance with the characterization of these individuals as unburied dead, that were not judge by the court of the Portuguese Inquisition and reconciled with the Catholic faith before they died. More than a penalty to the body, this was a punishment to the soul of the deceased. Nevertheless, we will never be certain if these individuals were really Jews, once it could happen that people made their accusations because they were afraid of being accused first. Also, the defendant never knew what crime he was accused or even who made the accusation. From this perspective, the archaeological findings have to be interpreted carefully, but also show us the climate of fear created in people’s everyday life. Even so, these individuals show a unique context which can be used in the future to help interpret other burials which do not fit within the usual scope of the Catholic burial rules in Medieval and Modern times.


Archaeology of the Spanish Civil War: Is new data contributing to a deeper understanding?

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Keywords: archaeology of conflict, Spanish civil war, trenches
Presentation Preference: Oral

Between 1936 and 1939, Spain was blued out in a Civil War, a prelude of what the whole of Europe would go through only months later. After almost 40 years of dictatorship, and the unanimous yearning to reach a peaceful transition into democracy, archaeological research of Civil War sites was all but silenced until just recently. In 2000, our team undertook one of the first excavations of Civil War sites in Spain, “Casas de Murcia”, part of the lines of defenses built by the Republicans to protect Madrid. Trenches, bunkers, machine gun nests, and other features were rapidly built and fiercely occupied for almost three years in order to stop Franco’s armies in his advance towards the capital.

The site, which was not subject to protection at the beginning of the 21st century, was completely excavated and researched, and the results were fully published and presented to the public in a temporary exhibition. The enormous amount of information that emerged from that excavation surprised everyone. For researchers, it meant more data to add to the documents and recovering material culture, for the general public, it became a way to reconnect to the landscape that had witnessed part of a family chronicle; for politicians, it was another good media story. No one was to remain indifferent to what an excavation from this time period could yield.

In the fifteen years that have since passed, many things have changed in Spain regarding the Archaeology of the Civil War. Legislation protects the sites, excavations are conducted in a variety places, mass graves have been unearthed and bodies identified, and objects of all kinds have been recovered and restored. But these accomplishments, far from bringing the population closer to understanding this part of history, have re-opened wounds of the Civil War. The archaeology of recent conflicts is a complex topic. The research becomes intertwined with emotions and fears, and personal stories come to life in a setting of loss and destruction. Why are we not using these new data to overcome differences? Why is the Archaeology of the
TH6-15 Abstract 02

Dealing First Nations to live with Muslims.
A Basque reflection on existence and coexistence.

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Keywords: Archaeology for “convivencia”, Heritage for convivencia; The Inter-American and Caribbean Cultural Heritage Working Group Meeting

On 23rd October 2015 last, several unidentified persons threw rubbish in the mosque of Lluidic (Arab). Several days later, a hooded person threatened and insulted those who were segregated inside. Nobody has been identified in this cases of incidents before 13th November in a village that is proud to coexist with one of the largest Saharan communities of the Basque Country. This duality, which links emerging xenophobia with consolidated internationalist activities, represents a recurring ideological structure in the Basque Country. The attachment is greater with respect to oppressed peoples than to those we support. Indifference is the prevailing attitude with those groups that are not defined politically. Apathy turns into hate when certain tragic events, intensified by devastating media coverage, at precise times shatter peaceful coexistence.

The Basque Country is also going through other internal processes focused on working peace coexistence. The disappearance of ETA efforts to achieve mutual understanding are today two milestones of the Basque social and political agenda. So much so that in the opening ceremony of the recent debut of Donostia/San Sebastian as European culture capital, the main slogan represented was peaceful coexistence. The concepts of coexistence and culture come together in a programme in which archaeology is not represented. As Basque citizens and archaeologists, we want to avow the opportunity of debate offered by this session to reflect on the potential of the mediation of archaeology in processes of coexistence and perspective-sharing in our geographical environment.

On outlining one of the characteristics of the Basque idiosyncrasy with respect to the “other”, we found that one of the principal characteristics generating empathy is the identification with a particular condition of this social subject. Therefore, we suggest that one of the paths towards sustainable coexistence is the generation of emotional connections with the peoples under debate. In synthesis, we have to look for cases that enable us to identify ourselves with the “other” societies with whom we coexist or at least obligate ourselves to understand them. A common denominator could be emigration, a very well-represented aspect in the Basque past and which today defines Muslim communities. And one of the most paradigmatic examples of Basque coexistence is the case of fisheries of the North Atlantic, which involved the interaction between Basques, Europeans and Canada’s First Nations. In the proposed paper, we will reflect on the manner in which the socialisation of this example can generate mechanisms of proximity and tolerance between the Basque and Muslim peoples.

TH6-15 Abstract 03

Heritage for convivencia: The Inter-American and Caribbean Cultural Heritage Working Group Meeting

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Keywords: convivencia, cultural heritage, discipline heterogeneity

In response to ever-growing threats to intangible and tangible cultural heritage in the region, the Anthropology Department of the State University of Campinas (UNICAMP), Campinas, Brazil, organized and held the inaugural meeting of the Inter-American and Caribbean Cultural Heritage Working Group on August 11-12, 2015, at UNICAMP. The goal of the meeting was to establish a permanent collaborative forum to explore ways to improve practical and theoretical approaches to cultural heritage practice. Representatives from major anthropological and archaeological associations based in the Americas and the Caribbean, the UNICAMP Anthropology Department, and interested individuals discussed how stakeholders should engage with these issues to foster outcomes in the best interest of society. In less than two days of working together, the group drafted a declaration on the need to protect and safeguard cultural heritage in the Americas and the Caribbean and stressed the need for improvements in the theoretical and practical approaches used to develop community-based investigations about and interpretations of cultural heritage.

The declaration is expected to foster increased discussion and collaboration on cultural heritage studies. Created in English, the document has already been translated into Spanish, French, and Portuguese. The group is currently seeking formal approval from each of the professional societies and academic institutions that sent representatives to the inaugural meeting that they will become convening signatories to the declaration. A number have already agreed to “sign on.”

Participants in the working group include archaeologists, cultural anthropologists, and linguists. The development of the “Campinas Declaration” is used as a case study to explore the dynamics of international, heterogeneous disciplinary communities working together successfully to craft a declaration that could be a model for collaboration in heritage studies. The declaration itself was crafted through intensive but brief collaboration that created an intellectual bond among the participants. Whether the working group can become a sustainable network of functioning partners will depend on the willingness of the sponsoring organizations to allow the network to flourish and establish working procedures that allow for its independent operation. If the focus can remain on a joint understanding that threats to cultural heritage, both tangible and intangible, are real and shared among disciplines, convivencia is distinctively possible. Archaeologists can contribute much to the success of the relationship because of their experience working with stakeholder communities concerned with both intangible and tangible heritage.
TH6-15 Abstract 04
Integrating Archaeology at Vitoria-Gasteiz (Basque Country):
terrorism, immigration and peace
Author - Professor Xurxo, Ayng, University of Basque Country, Vitoria-Gasteiz, Spain (Presenting author)
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Keywords: Archaeology of Contemporary Past, Community Archaeology, Integrating Archaeology
Presentation Preference - Oral
In the late 1950’s and early 1960’s the small Basque town of Vitoria-Gasteiz became an important industrial center that attracted thousands of immigrants from other Spanish regions. Although it was considered by the franquist regime as a model of ‘social peace’, the city saw the emergence of armed resistance by ETA and a significant labor unrest. Strikes of 1976 ended in a bloodbath. The crackdown on March 3, 1978 is a milestone for the city’s population. The arrival of democracy in 1978 led to the conversion of Vitoria-Gasteiz in the capital of the Basque Autonomous Community. This region has a nationalist majority claiming independence for the Basque Country or at least converting Spain into a federal state.

In recent years the city has experienced a second wave of migration, with newcomers from the countries of Eastern Europe, Latin America, North Africa and sub-Saharan Africa. With 250,000 inhabitants, the Basque capital has become today in a multicultural urban space. As in the 1960s, it is a challenge to integrate these immigrants. A challenge not without its problems. Despite the effort made by the administration (social support) and civil society (platform ‘Gora Gasteiz’) at urban level they are creating real ghettos. A rejection of initiatives such as the construction of mosques (especially those working-class neighborhoods that had housed the first immigrants of the late twentieth century) has been observed.

At this very reality of globalization, in Vitoria-Gasteiz it is being lived another equally important process. The cessation of armed activity by ETA in 2011 has given way to a period of peace building and collective memory throughout Public policies of memory trying to do justice to the victims of the Franco’s regime (1937-1978), of the terrorist group ETA (1956-2011) and State terrorism. Thus, the weight of terror continues to set the social and political agenda of the city in 2016. A purely Spanish terror, for now.

Within this reality, we believe that Archaeology of Contemporary Past is a valid and useful tool to try to consolidate a culture of peace, overcome the traumas of the past and promote a real integration of immigrants. In our communication we show the work of Heritage socialization that we have developed over the past three years: workshops on Archaeology of the Spanish Civil War, guided tours at working-class neighborhoods of Vitoria-Gasteiz, cultural courses about Archaeology of Francisco at community centers... As a case study we will present the example of the district of Coronacion, erected by the dictatorship in the early 50 to accommodate Spanish immigrants. Today Coronacion welcomes much of the new Maghreb and sub-Saharan immigrants. The European Union is developing new between 2016-2020 a regeneration project of the neighborhood (Smart City). Our Community Archaeology Project aims to recover the material traces of the past, to present the history of the neighborhood and promote the integration of old and new neighbors across the Urban Heritage.

Keywords: Archaeology of Contemporary Past, Community Archaeology, Integrating Archaeology

TH6-15 Abstract 05
Uncovering conviviality from the dark depth of modernity:
toward intercultural rights to heritage
Author - Orlandi Barban, Francesco, Castr Di Lecce, Italy (Presenting author)
Keywords: decolonial theory, indigenous archaeologies, intercultural human rights
Presentation Preference - Oral
In 1492 the last Islamic kingdom in Spain was taken and from the reconquista of Granada began the conquista of the so-called “New World”. Until this year conviviality meant that cultural diversity was managed in a way by which each group with its own material and spiritual references was able to define its own path of development. But after the Spanish conquest the perception of cultural diversity was the justification for the exclusion of “others” and the imposition of a dominant culture which was called “Christian” that it was, and somewhere it still is, a synonymous for “civilized”. In Granada, according to the Italian historian Adriano Prosperi, it was the “seed of intolerance” that would have been the source for the legitimation of European expansion and colonial power throughout the world.

By focusing the attention on the process of modernity as a project for imposing a universal ethic and controlling peoples through their racial classification, Latin American decolonial theorists have shown how euro-western powers have been able to shape a world-system characterized by a logic of exclusion/inclusion in which the “Others” were those whose cultural and epistemic difference seemed to be unsustainable with the right way of social relation, cultural practice or economic development. Heritage conservation emerged within the context of imagining the national communities and formalizing imperial powers in XIX century. International protection of heritage followed this ambiguous origin and it has been made possible in the second half of XX century thanks to its institutionalization and bureaucratization. Such a regime of heritage practice has reached its highest recognition in the last few decades through the deployment of multicultural policies within the context of the neoliberal affirmation of cultural diversity. But the same politics have made it possible the organisation and visualization of a world indigenous resistance based on the cultural relation between communities and the lands, in which the pre-modernity, that is the pre-colonial tradition, is articulated with the global context and participate in it by a counter-hegemonic use of universal categories such as human rights and heritage conservation.

Archaeology is a methodology but it is also a theoretical source for linking past, present and future. It makes possible to give an alternative account of human rights trope by showing the resistance exercised by whom have suffered those rights as an imposition, and it allows local communities, specialty indigenous communities, to appropriate the universal mean of human rights and articulating it with their own category of thought and experiences. I would like to show how all human rights shall be interconnected and culturalized (this is “thought” from a perspective product of a particular experience) in order to be a real opportunity for social change and development, and so the ownership of heritage (inasmuch as it is the material and immaterial legacy of the past) for promoting respect among peoples by the mutual acknowledgement of both identity and difference, without avoiding the misunderstandings by virtue of which a real intercultural project is thinkable and enticing.

TH6-15 Abstract 06
The Archaeology of science or what we owe to others
Author - Forrestal, Colin, Berkshire Archaeological Society, Wokingham, United Kingdom (Presenting author)
Keywords: Archaeology, Perception, Science
Presentation Preference - Oral
Humanity today generally accepts the science and technology of this modern global society is a result of Western Judiac Christian philosophy and its gift to the world. Anyone criticising this apparent hedonistic Shangrila or even not accepting modern scientific and technological ways without signing up for this perspective as to how life should be lived and the laws it observes are branded outcasts or worse terrorists. This alienates people’s and forgets to acknowledge the in grained conservatism of human nature. Move to fast to quick people dig their heels in.

This paper examines the origins of this science and technology we are so proud of and shows that it is as a result of co-operation and trade of ideas and goods and that a lot of what we consider western science is anything but. It also examines how modern technology can learn from archaeology. Religion is mostly a social code for a population to live by, that is acceptable to that population. Extremism is found when that religion becomes fundamentalist due to it considered emphasis on modern views and techniques that science, education, archaeology and people suffer. Sometimes though it’s circumstances that change people’s perceptions and a new belief system appears. This paper will also cover these aspects as well.

Keywords: Archaeology, Perception, Science
As a result of the conducted experiments many interesting discrepancies in the effectiveness of individual methods were observed. Some of them seem highly effective, while others appear to be useful only in specific aspects or prove completely ineffective. In the course of the research some of the current ideas regarding the discussed area of prehistoric economy shall be verified basing on the obtained data.
In this paper, we will present the results of five-year Experimental Archaeology Project on making Eneolithic pottery, based on our research in the Kodjadermen-Gumrela-Karanovo VI tell settlement from Subtana-Malo Rosu, south-east Romania. In our work, we have experimented with different hand-making techniques such as building the vessels from one lump of clay, cooling and also molding. Experimenting with the molding technique came as a necessity in our effort to understand the presence of large and shallow plate-like vessels (sometimes larger than 50 cm in diameter), in the pottery assemblages characteristic of these past communities. To understand better the making pots process, we have also tested a series of hypotheses regarding the types of clay, temper, modeling, burnishing, decorating, drying and firing.

Our work is backed up by petrographic and chemical analysis which not only helped us identify the local clay source as the raw material for the Eneolithic pots but also gave us a more precise recipe for the mixture of clay and temper.

The data collected over these years now help us to refine our observations when studying new assemblages, thus leading to a better understanding of the pottery resulted from the excavation, and the people who made it.

This work was performed through the Partnerships in Priority Areas Program - PN II, developed with the support of MEN - UEFSCDI, project no. PN-II-PT-PCCA-2013-4-2352.

TH6-16 Abstract 06
Experimental studies on ceramic provenance from southern Iberia

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Keywords: archaeometry, experimental archaeology, pottery
Presentation Preference - Oral

The undertaken research addresses a problem of provenance of ceramic assemblages from southern part of Iberian Peninsula in the early Iron Age, particularly differentiation between local and foreign origin of so called Tartessian pottery through experimental studies. This investigation took into consideration mainly the technological aspects of pottery production and focused on both different applied techniques (hand-made and wheel-made) and the morphological and typological diversity of analysed assemblages. The proposed paper makes an attempt to examine the Tartessian ceramics not from a traditional typological posture seeking the chronological sequences; the dominant approach used in this research is based on archaeological up-to-date methodology, and thereby shed a light of these, still relatively weak recognized aspects in the study of the Iron Age pottery from the so-called part of Iberian Peninsula. To achieve this goal a non-invasive X-ray spectrometer has been used in order to determine the chemical differences between ceramics from the local sites of Lower Guadalquivir region. The integral part of this study is an experimental examination of clay paste of sherds, samples of local clay sources and raw material obtained from sites surroundings in order recognize the processes of forming the particular types of vessels and establish the condition and temperature of the firing. All analyzed potsherds and clay samples with various added inclusions were fired in oxidizing atmosphere at several temperatures increasing gradually, starting from 600°C and ending at 1200°C. The physicochemical properties of samples were measured after raising the temperature up every 50°C, their radical changes enable a determination of original firing temperature of prehistoric vessels and possible provenance of clay sources.

TH6-16 Abstract 07
The swatch of antiques bronzes

Author - PhD student Devogelaere, Jonathan, Aix-Marseille Université, Aix-en-Provence, France (Presenting author)
Keywords: antiques bronzes, Colours, Swatch
Presentation Preference - Oral

As part of my thesis, entitled “The colours of bronze ceremonial furniture in the Graeco-Roman world, 200 B.C.E. – 200 C.E.: from technical characterization to symbolic values”, I have developed an experimental archaeology project to create a swatch of the variegated colours of antiques bronzes, and to restore the original colours of Graeco-Roman bronze furniture. I intend to change the presumed image of ancient bronze as green, lacking rather for evidence of polychromy and a spectrum of copper alloys. This swatch combines the technical processes of the lost wax method and the addition of polychrome bronze surfaces (via patina and inlay).

I intend to use this study as a repository both for my research and for other studies related to bronze production.

Bronze is an alloy of copper and tin, lead may also be added. The objects examined in this study have a variable percentage of metals, and because of this the colour of the alloy differs. The colour of the alloy can be maintained by polishing but it is also possible to give a patina to the surface of the bronze with a reagent. Other metals and alloys (silver, gold, Copper-bronze) can be inlaid by damascening or by plating to create polychrome decorations. Unfortunately, the archaeological material in copper alloys suffers the effects of time and deposition, which may lead to corrosion and discoloration of the surface, often green or brown. Archaeological bronzes also may suffer from overly aggressive restorations which scour the original surfaces or cover them with a layer of paint imitating green corrosion.

The platelet samples of swatch have been analysed to determine their elemental composition and their patina, so as to compare to them the archaeological material. Initial results suggests that the colours of bronze luxury furniture very greatly, and that the spectrum of colours is a product of the composition of bronze alloy and the techniques used in finishing the surface, either polishing or patina application.
TH6-16 Abstract 10

Six years of experimental traseology at Klaipėda University: accomplishments and future prospects

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Keywords: Experimental archaeology, Stone Age - Early Bronze Age, Use-wear analysis

Presentation Preference - Oral

In Lithuanian archaeological experimental-traseology method currently is a very research area. Very first rudiments of this method originates in the last decade of the 20th century, when with the assistance of use-wear method in foreign laboratories, West and East Lithuania Stone Age sites flint material were analyzed. Later, this method was applied for a several Stone and Metal periods flint material functional analysis, which due to a lack of technologies and specialists in Lithuania, was also studied in foreign laboratories (Russia and Poland). Since 2010 experimental-traseology studies were launched at the University of Klaipėda (Lithuania).

Systematically studies in this institution are orientated on Stone and Early Bronze Ages economies research. In this laboratory, more than 100 units of experimental tools data base are in store, which helps to determine authentic archaeological tool functional dependence.

This paper seeks to represent during the period of six years obtained data of experimental-traseology research of Stone and Bronze Ages flint tools, and to summarize executed experimental results. The research includes archaeological data from major Stone Age and Early Bronze Age settlements and cemeteries from West and South Lithuania sites.

TH6-16 Abstract 11

Experimental archaeology in Latvia: some aspects possibilities for the future development

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Keywords: education, experimental archaeology, reconstruction

Presentation Preference - Oral

The presentation is dedicated to main stages of the development of experimental approach and applying its methodology in the archaeology of Latvia. Presentation examines main stages of development of the scientific thought and various expressions both in reconstructive experiments and interpretations, both in future possibilities of using it in future scientific research as well as a poweful tool in education of archaeology students and tourism.

TH6-16 Abstract 12

Microwear analysis on early medieval combs

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Keywords: bone antler, combs, microwear

Presentation Preference - Oral

The typological study of bone or antler combs can give useful information in their chronological and regional diversity. Macroscopic research and chemical analyses on the other hand help us to identify aspects such as the origin of the raw material, the native aspect of the comb as well as their trade value. The possible use of different tools in early medieval ages is well documented through literature. However, much less attention went so far as to questions as what tools and techniques were applied on individual combs as well as questions about their use.

Through microwear research, an attempt is made to reconstruct the production of the comb, as well as its possible life biography. This microwear method was originally, in 1933 by Semenov, applied on lithic objects, but later it was also used on other materials, such as bone and antler. However, the application of early medieval tools on antler with the aim of making combs was not conducted yet.

The method contains three stages. First, starting from a functional hypothesis, an experimental program is established. In this stage combs are processed respecting both the type of raw materials and technical transformation sequences. Secondly, usage traces, developed on the experimental samples and archaeological samples are recorded with low and high power magnification. Finally, the traces on the experimental and archaeological objects are compared. The interpretation of the production techniques in chronically and regional different contexts can so confirm or refute typological subdivisions. The maintenance of local techniques can be explored, distinct ruptures in used techniques may be associated to other context-based roles, as social, economic and ideological meaning of a material.

TH6-16 Abstract 13

The restructuring of the Artefact Study

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Keywords: Early Medieval, Neolithic, reconstruction

Presentation Preference - Oral

The Artefact Study was created in the Institute of Archaeology of the Nicolaus Copernicus University in Toruń, Poland in 2011. It presents archaeological sources, both movable and non-movable objects (features) coming from different sites and time periods.

The Study is used for teaching as well as for scientific research, as since its restructuring which took place during the years 2014–2015 it hosts investigations in experimental archaeology. Within this field of study, archaeological hypotheses are generated and tested, mostly by approximating or replicating the feasibility of historical cultures to perform various tasks or facts, employing a wide and varied methodology in a controlled environment.

The functioning of the Artefact Study with its broad offer fits in the steadily increasing trend towards interdisciplinary research within the scope of archaeological (anthropological) subjects of interest, in general, the need to use ever-growing means for the expansion of knowledge about the past.

The main objectives of the investigations were planned for and are carried out in three major areas:

- Conducting experimental research related to the reconstruction of material culture in prehistoric, medieval, and early modern periods focused on the restoration of used techniques and known technologies.
- Interdisciplinary studies on building, equipping, and organizing basic craftsmen workshops. Comparative research into archaeological data acquired from archaeological objects employing the results obtained by experimental methods.

TH6-16 Abstract 14

New insights into the Eneolithic architecture based on the experimental archaeology

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Keywords: Balkans, Eneolithic, Experimental houses

Presentation Preference - Poster

Currently is evident for all that the archaeological excavations provide only fragments of data, like the pieces of a puzzle, about the architecture of the Eneolithic period. Thus, the archaeologist and architects are constrained in the interpretative process by the existing data, which leads inevitably to the speculative hypothesis, sometimes exaggerated or unrealistic. In these circumstances, the experimental archaeology makes a significant contribution to the overall knowledge and the understanding of the past, therefore further facilitating the implementation of a high-quality analytical approach.

The aim of this paper is to examine the results of an experimental archaeology project from Romania, whose goal was the reconstruction of a Gumelnita culture dwelling (ca. 4500-3800 BC), based on relevant archaeological data. This reconstruction was paved by an inquiry of the volume of materials used for raising the construction in conjunction with the human factor and the time needed for building. Additionally, five years (2011-2015) it has been recorded the degradation process of the construction under the influence of environmental factors. The data collected over these years now help us to get a more accurate picture of the Eneolithic houses and how the Gumelnita communities build, use and repair this kind of structures.

This work was performed through the Partnerships in Priority Areas Program - PN II, developed with the support of MEN – UEFISCID, project no. PN-II-PT-PCCA-2013-4-2302.

TH6-16 Abstract 15

Neolithic Painted Pottery in Lumea Noua Site (Romania). Manufacturing Technology Experimentation

Author - Dr. Gligor, Mihaï, "1 Decembrie 1918" University, Alba Iulia, Romania (Presenting author)

Co-author(s) - Bintintan, Alina, "1 Decembrie 1918" University, Alba Iulia, Romania

Keywords: Pottery production, microwear analysis, experimental technology, Experimental archaeology, Experimental pottery, microwear analysis

Presentation Preference - Oral

The method will be developed to ‘read’ and detect these production techniques and use wear markers of the combs. The aim is to develop a technique that, combined with typological, scientific and context-based research, can investigate in how far these combs reflect aspects of identity.
Among the wide variety of decoration techniques discovered at the Alba Iulia-Lumea Noua site (Transylvania, Romania), a specific painted decoration has been identified. The present state of research on this technique is not yet fully understood. The small middle Neolithic communities called Lumea Noua cultural group. Being the only material evidence that could lead to the configuration of this cultural aspect for the moment, various archaeological analyses were made on a large number of samples, in order to extract all the information regarding the technology that has been used to produce such painted decorations. Based on the material analysis, this paper presents an experimental foray into the manufacturing and firing of painted pottery, that we know so little about, in the Transylvanian Middle Neolithic.

The starting point was a detailed analysis of typical installations discovered in the painted pottery cultural areas that have evolved in the Transylvanian Middle Neolithic. This was realized by selecting a single-dome kiln type, which could have been used for the mentioned goal. We conducted several experiments in order to understand better how these kilns were constructed and we have tested the functioning system of the device.

The experimental results are a clear indicator of the presence of skilled potters and they could also change the traditional archaeological approach that links the quality of the pots with the elaborate installation for firing Neolithic pottery.

Expenses and Effect: An Analysis of Selected Variables that Affect the Production of Cost Surfaces

Cost Surfaces Analysis has become a common tool within archaeological study. Today, there are numerous GIS packages that allow the creation of cost surfaces and least cost paths at the "push of a button" (ArcGIS, QGIS, Idrisi). However, this is often at the detriment of hiding the technicalities of the program's method, which may not always be ideal for archaeological research. As such it is often advised that these pre-prepared systems should not be overly relied on (Herzog, 2013, 164, Rademaker et al. 2012, 38). Yet, there are few papers dedicated to assessing the effects of varying any of the modifiable parameters available to each program, and therefore few guides in selecting an appropriate methodology. Those that do focus only on a limited selection of variables (Gietl et al 2008, Magyari-S. 2013, 184, Rademaker et al. 2012, 38).

This poster will depict results of analyses that build on existing works by systematically exploring the differences in cost surfaces produced when varying: GIS packages (ArcGIS and QGIS), DEM resolution, Cost components (slope and terrain) and the coefficients that determine the cost of human movement.

It will demonstrate the variability in catchment area size and least cost paths that are produced through changing these variables across ten case study zones in Britain and also present wholly new data identifying the friction co-efficient for 4 terrain types found in Britain. The results identify which variables have the most significant effect on creation of cost surfaces and least cost paths in order to demonstrate which should be made explicit within publications and which have little overall effect to archaeological interpretation.
COMMITTEE ON PROFESSIONAL ASSOCIATIONS

Friday, 2 September 2016, 14:00-16:00
Faculty of Philology, Room K. Donelaičio

Author: Dr. Bonsall, James, Institute of Archaeologists of Ireland, Dublin, Ireland (Presenting author)
Co-author(s): - Wait, Gerard, Nexus Heritage, United Kingdom
Co-author(s): - Hinton, Peter, Chartered Institute of Field Archaeologists, United Kingdom

Keywords: Committee Meeting, Professional, Associations

Presentation Preference - Committee / Working Party meeting

The Committee on Professional Associations meets annually during the EAA Conference. It will reflect on the developments in the past year. Members will present on the situation in their countries and organisations. The committee sees a great potential for Professional Organizations to improve the place and recognition of archaeologists in society by promoting professional conduct and behaviour in the different countries and Europe as a whole. Furthermore it sees a role for these organizations to take on an advocacy role to enlarge the awareness of the values that are inherently connected and make cultural heritage. It aims to work in close cooperation with the board of EAA and therefore to further the aims of this organisation. During the committee meeting in Glasgow it looked for possibilities to stimulate the growth of Professional Organisations within European Archaeology. This exchange of ideas and experiences will be continued during this meeting.

TH6-17 Abstract 01

The Institute of Archaeologists of Ireland:
An update on our Activities

Author: - Dr. Bonsall, James, Institute of Archaeologists of Ireland, Dublin, Ireland (Presenting author)

Co-author(s): - MacDonagh, Michael, Institute of Archaeologists of Ireland, Dublin, Ireland
Co-author(s): - Sullivan, Eoin, Institute of Archaeologists of Ireland, Dublin, Ireland

Keywords: Advocacy, Ireland, Professional

Presentation Preference - Oral

The Institute of Archaeologists of Ireland (IAI) is the representative organisation for archaeologists throughout the island of Ireland. The aim of the IAI, through the representation of our members, is to advance and strengthen the profession of archaeology in Ireland and membership is open to professional archaeologists working in either Ireland or Northern Ireland. The IAI's cross-border work shows the need for professional archaeology to operate without borders. The IAI supports and has been a key partner in the all-island Archaeology 2025 strategy review of the archaeology sector. This paper will report on the IAI's activities and developments over the past year. Members will present on the situation in their countries and organisations. The committee sees a great potential for Professional Organisations within European Archaeology. This exchange of ideas and experiences will be continued during this meeting.

TH6-17 Abstract 02

Professional archaeology without borders

Author: - Wait, Gerald, Nexus Heritage, United Kingdom (Presenting author)
Co-author(s): - Hinton, Peter, Chartered Institute of Archaeologists, Reading, United Kingdom

Keywords: Association, CIfA, Professional

Presentation Preference - Oral

Archaeology should be without borders, and professional archaeology must be without borders. Professionalism depends on an individual's commitment and accountability to an ethical code, and that involves more than just complying with relevant national legislation. The professional is therefore an international phenomenon. In many disciplines, professional institutes have members in many countries - and professional bodies are either multinational or work in strategic partnerships across frontiers. Archaeology is no different. Over the last year, the Chartered Institute for Archaeologists has been in discussion with other professional associations for archaeologists and other organisations with an interest in professionalism. This paper will report on some of the ideas and plans, and will ask session participants what they would like to see.

TH6-17 Abstract 03

Professionalising archaeology in Europe – 2016: a year of progress

Author: - Dr. Wait, Gerry, Witney, United Kingdom (Presenting author)

Co-author(s): - Hinton, Peter, Chartered Institute for Archaeologists, Reading, United Kingdom

Keywords: Archaeologists, Foresight and Horizon Scanning; the future of the Partnerships, Professional associations

Presentation Preference - Oral

Do people join organisations as members anymore? Or do they support campaigns and movements on a topic-by-topic basis, depending on electronic media to collaborate? If present social trends continue, membership of associations generally will continue to fall, with many either running out of money and ceasing to be effective and influential, or urgently needing to find new purposes. Professional associations are different, probably because membership is the price of professional recognition.

Since the EAA meeting in Glasgow in 2015, the Chartered Institute for Archaeologists has been in discussion with professional associations for archaeologists in Europe and beyond, and other organisations that have identified a need for a professional association for archaeology in their country. This paper will report on some of the models for cooperation, collaboration or formal partnership under consideration, and will explore both the opportunities and difficulties of professionalising across borders. Subject to the meeting organisers' timetable, CIfA hopes to be able to invite participants in this session to an informal reception at which stronger partnerships can be made.

TH6-17 Abstract 04

Professionalising archaeology in Europe – 2016: a year of progress

Author: - Wait, Gerald, Nexus Heritage, United Kingdom (Presenting author)
Co-author(s): - Hinton, Peter, Chartered Institute of Archaeologists, Reading, United Kingdom

Keywords: Association, CIfA, Professional

Presentation Preference - Oral

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TH6-17 Abstract 05

Professionalising archaeology in Europe – 2016: a year of progress

Author: - Wait, Gerald, Nexus Heritage, United Kingdom (Presenting author)
Co-author(s): - Hinton, Peter, Chartered Institute of Archaeologists, Reading, United Kingdom

Keywords: Association, CIfA, Professional

Presentation Preference - Oral

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TH6-17 Abstract 06

Professionalising archaeology in Europe – 2016: a year of progress

Author: - Wait, Gerald, Nexus Heritage, United Kingdom (Presenting author)
Co-author(s): - Hinton, Peter, Chartered Institute of Archaeologists, Reading, United Kingdom

Keywords: Association, CIfA, Professional

Presentation Preference - Oral

Archaeology should be without borders, and professional archaeology must be without borders. Professionalism depends on an individual's commitment and accountability to an ethical code, and that involves more than just complying with relevant national legislation. The professional is therefore an international phenomenon. In many disciplines, professional institutes have members in many countries - and professional bodies are either multinational or work in strategic partnerships across frontiers. Archaeology is no different. Over the last year, the Chartered Institute for Archaeologists has been in discussion with other professional associations for archaeologists and other organisations with an interest in professionalism. This paper will report on some of the ideas and plans, and will ask session participants what they would like to see.
Following the Brexit referendum, and the development of trends towards criticism of the ‘European (union) Project’, the Executive Board of the EAA decided it must create time at the Vilnius Annual Meeting for a Round Table. The Round Table will discuss and examine the potential impacts of the Brexit vote for European archaeology, for EAA members generally and especially for our UK colleagues, whom we always hold in the highest regard.

We felt that urgent reflection on this matter was required, because it directly affects the EAA profile and its founding principles. The idea is not to precipitate or hurry. We need to pause, reflect and to look forward with confidence. Remembering that all societies are composed of individuals and what they create, it is a time to bring to mind that inclusivity, solidarity and friendship build understanding and trust. Trust encourages integration and unity of purpose.

One of the main focuses of the Round Table will address how we can foster cooperation, define how cooperation can strengthen links and create supportive networks and define how those links and networks can produce enduring engagement and achievement. Archaeologists generally, and especially those within the EAA, have demonstrated a significant capacity to work creatively across borders and archaeologists (our members) have demonstrated the great value of fostering international, open endeavor and communities. We in the EAA are even more committed to this focus now. We will maintain our enthusiasm for imagining a more inclusive, solidarity and stronger Europe and a more representative EAA in that context.

The aim of the Round Table will be to make room for the collective consideration of how EAA should react and respond. Discussion will aim to define how to position the EAA in this new and complex cultural, social and political environment, recognizing that recent events in the UK are reflective of more widespread processes in European societies that we must recognize. This is a moment when an organization such as ours needs to establish and align its position with clarity, drawing on the very significant intellectual capital of its members. We look forward to this important discussion at Vilnius. We look forward to keep our founding moment when an organization such as ours needs to establish and align its position with clarity, drawing on the very significant intellectual capital of its members. We look forward to this important discussion at Vilnius.
Any scientific study requires data from outside the researcher’s precise field of work. Archaeology amongst the scientific disciplines most frequently calling upon a multitude of other disciplines, both scientific ones and crafts. In this way, zoology has enabled archaeology to consider skeletal remains through a different light in archaeozoology; botany has enabled the use of plants and pollen in analyses; and experimental testing has improved through contact with various craftspeople. The same interdisciplinary has been applied to images with the iconological approach. This has created an approach involving identification using biological, geographical and chronological criteria, integration of dimensions such as ethology (animal behavior) into image comprehension, and classical and logical description.

This presentation shows how iconology can be useful to archaeology through examples covering:
- Carnivore farming techniques in pre-Pharaonic times in Egypt from the 5th millennium BCE and subsurface farming in the Middle-East during the 1st millennium BCE.
- ‘Technicians’ (farmer’s) movement between the Middle-East and Egypt during the 5th millennium BCE.
- The use of animals by political and religious powers and communities of craftspeople in industry during the Bronze Age using feline and bovine analysis.

**GS Abstract 04**

**Natural factors in early metallurgical production in Egypt and southern Levant**

**Author** - MA Białobrzecka, Daria, Jagiellonian University in Cracow, Cracow, Poland (Presenting author)

**Keywords:** copper metallurgy, Egypt and southern Levant, environment

**Presentation Preference** - Oral

The origins of copper metallurgy in ancient Egypt and southern Levant is a subject which always has been in the scope of scientific interest. According to current knowledge it may be traced back to the Chalcolithic period and the Early Bronze Age. In the past, many scientists have put great effort to recreate its general picture. Recently more data have been gained which is useful in reconstructing this branch of craft. In the light of evidences objects made from copper might have been considered by ancient societies as one of the most valuable goods. Moreover, it can not be ruled out that this material might have had special symbolic meaning.

Certainly, environmental conditions played an essential role in shaping the picture of mining and metallurgical activities. They were responsible for the way ancient communities organized particular stages of metallurgical production. Due to similar landscape features the same pattern of production has been formed in areas of Egypt and southern Levant.

This paper should shed light on the subject of the beginning of copper metallurgy during the Chalcolithic period and the Early Bronze Age in areas of Egypt and southern Levant. Importance of crucial natural factors which determined evolution of mentioned craft as well as particularstages of production which depended on them will be represented.

**GS Abstract 05**

**Mosaics of Ulpiana**

**Author** - Assoc. Prof. Dr. Gtekciyay, Haluk, Mimar Sinan Fine Arts University Istanbul, Istanbul, Turkey (Presenting author)

**Keywords:** Early Christianity, Mosaics, Roman

**Presentation Preference** - Oral

Archaeological excavations of Ulpiana began in 1953 and continued with intervals in the following decades. During these excavations, trapezoidal city walls and gates on it; cemeteries in North and West; urban villas and simple houses; workshops; military installation outside the city; three Early Christian churches and a baptistery were discovered. During early years of excavations, mosaics were discovered at two different locations. At the church on the Northern cemetery and a Roman villa. The latter is believed to be a church by some scholars. In 2012 excavations under my direction brought out to light an Early Christian baptistery. It was followed by the discovery of the main church of the city, most probably dedicated to the Saints Flora and Laurus, who were martyred at Ulpiana. Inside this church mosaics were discovered in 2013. They were unearthed until 2015.

Other than the newest series of excavations, discovery of the mosaics discovered earlier at Ulpiana is unknown. This work intends to shed light on all the mosaics discovered at Ulpiana and compare them in style, material and technique. All the mosaics have geometrical patterns. The only exception is the three bird figures. Dedicated inscriptions in Latin were found in the church on Northern cemetery and church of Saints Flora and Laurus. Limited colour scheme on tesserae and only a handful patterns may be taken as an indication of local workshop. In order to support this theory, laboratory analysis were made on the tesserae found in the later series of excavations. Mosaics, which were discovered in early years of excavations on Northern cemetery are very old and represent the 5th-6th centuries. But, with the help of technical analysis and sources it may be safe to assume that all of the mosaics discovered in Ulpiana were made in mid 4th century. Comparison of mosaics regionally and globally may provide further information on similarities and differences in technique and choice of patterns. By doing so we may obtain data which could help us understand movement of workforce and popular design and techniques. Our work is the first step of our larger project, namely, Corpus of mosaics of Kosovo.

**GS Abstract 06**

**Calculated Harmony**

**Author** - Richter, Eva, Budapest, Hungary (Presenting author)

**Keywords:** geometrical evolution system, pattern-family, plaiting, form creation, mathematical thinking

**Presentation Preference** - Oral

Evolution system of a geometrical pattern group which includes the earliest motifs and symbols of the cultural history

In the end of the Upper Paleolithic a basic geometrical pattern-family was born. It can be originated back to the plaiting basketry technique and has been surviving up to the present. The earliest motifs and religious symbols, such as chervon, checker board, thombus and the forms based on meander hook (meander and swastika) belong to this pattern-group. Each can be found in the European Neolithic cultures in different proportions and is presented in varied style. The extensive spread of this pattern-family due to the geometrical rules of plaiting technology, and the cognitive processes of human brain. The both together resulted and determined the development of the same patterns in different cultures regardless of their location and their historical age. The rules of this technology are based on the laws of symmetry. The development of these patterns can be demonstrated within an evolution system, in which the particular patterns were born from a single basic structure step by step by little structural changes. In this universal pattern-family geometric form creation is based on counting, so the manifestation of mathematical thinking can be undoubtedly observed.
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Zubrow, Ezra TH1-34, TH3-14, TH5-02
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FOR NOTES