Multimetal smithing
An urban craft in rural settings?
Svensson, Andreas

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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.

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Spirit Birds at Neolithic Çatalhöyük

Author - Professor Russell, Nerissa, 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, or at least as messengers 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.

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 Kodjadermen-Gumelnita-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. Merulita, Sultana, Vilanea, Yunatale, 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 interface between both species, and it may help to decipher the particular biographies of those past communities.

This approach brings a whole new perspective on the construction of human-bird interfaces in prehistory, and how some 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.

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

Author - Profesora Lazarchik, María, Universidad de Cadiz, Cadiz, Spain (Presenting author)

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

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

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

Keywords: birds 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 Taño de las Figuras (Benalup-Casas Viejas, Cádiz), which represents the 99%94% of the total of bird representations of postglacial/rock paintings in the Iberian Peninsula. In 17 square meters of wall surface 962 pictograms are represented, of which 208 are

Keywords: - Cruz, MaríáJosé, - Malla, Manuela, - Oral

HUMAN-BIRD RELATIONSHIPS IN EARLY IRON AGE SLOVENIA

Author - Frie, 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 Stiria 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 Dolenjska 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 emphasize traditional Dolenjska Hallstatt experience and iconologies. It is proposed that not only were birds considered important observers of human action, but in addition birds may have played an important role in ritual, mediating between humans and other animals as well as between humans and extra-human forces.
Interpreting the Archaeological Record

Human Bird-interfaces in Han-dynasty China as displayed through kingfisher-ornaments in graves

Author - Dr. Kost, Catin, Munich University, Graduate School “Distant Worlds”, Munich, Germany (Presenting author)
Keywords - China, human-bird interfaces, kingfisher

Presentation Preference - Oral

Kingfishers feature prominently in Chinese art. They are a common topic in medieval poetry and their brilliant plumage – a symbol of beauty – was used to adorn headaddresses, combs, fans and screens. Clearly mentioned as creatures living in regions to the south or in the south of the Chinese empire, historical records suggest that already during the 2nd century BCE local groups sent kingfisher feathers and sometimes even live birds to the imperial court as tribute. Even though kingfishers seem to have been known throughout a larger part of ancient China, this talk focuses on depictions that stem from regions forming part of the natural habitat of the various species of Alcedinidae – namely the modern-day provinces of Sichuan, Guizhou, Yunnan and Guangxi. Dating to the times of the Western Han (206 BCE-9 AD) and Eastern Han (25-220 AD) dynasties, graves uncovered there contain small kingfisher-figures made of clay and metal as well as depictions of the birds on tomb tiles. These representations thus provide the opportunity to reflect upon the construction of kingfisher-human interfaces as motivated through close contact and observation. The analysis of how kingfisher depictions were used in the funerary context further allows for conclusions about the possible meanings assigned to these animals. Ultimately, these findings can be contrasted with the modes of exploitation and usage of kingfishers in other regions of ancient China.

Symbolic side of human-bird interfaces in the Late Iron Age (800-1200/1250 AD) Eastern Baltic

Author - Kurisco, Tuuk, ZBSA/Tallinn University, Schleswig, Germany (Presenting author)
Keywords - Eastern Baltic, Late Iron Age, pendants

Presentation Preference - Oral

The aim of this paper is to discuss bird-related pendants in the Late Iron Age (800-1200/1250 AD) Eastern Baltic. The symbolic side of the human-bird relationship is usually approached through folklore, emphasising the importance of the Baltic-Finnic creation song in which the world is formed of eggs laid by a bird. In order to expand the current scope of interpretations, one should focus on archaeological materials and find contexts. Bird-related pendants are the most direct evidence in the material culture that indicate the special role of birds in these peoples’ worldview. Most of these pendants are cast alloy specimens that vary in style and presumably depict several species. The rest of the pendants were made from bone, ivory, and metal. Considerations on the habitats and behaviours of the identified species (certainly an underestimate of the real original number). Observations of depictions and use of kingfisher feathers and sometimes even live birds to the imperial court as tribute. Even though kingfishers seem to have been known throughout a larger part of ancient China, this talk focuses on depictions that stem from regions forming part of the natural habitat of the various species of Alcedinidae – namely the modern-day provinces of Sichuan, Guizhou, Yunnan and Guangxi. Dating to the times of the Western Han (206 BCE-9 AD) and Eastern Han (25-220 AD) dynasties, graves uncovered there contain small kingfisher-figures made of clay and metal as well as depictions of the birds on tomb tiles. These representations thus provide the opportunity to reflect upon the construction of kingfisher-human interfaces as motivated through close contact and observation. The analysis of how kingfisher depictions were used in the funerary context further allows for conclusions about the possible meanings assigned to these animals. Ultimately, these findings can be contrasted with the modes of exploitation and usage of kingfishers in other regions of ancient China.

TH1-01 Abstract 09
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Avian-Human interactions in North Atlantic Island Environments: Modes & meanings of bird capture

Author - Dr. Best, Julia, Bournemouth University, Poole, United Kingdom (Presenting author)
Keywords - Avian Archaeology, Islands, Seabirds

Presentation Preference - Oral

Birds were a small but often important component of diet and economy in the past, particularly in islands, as a diverse range of birds, especially aquatic birds, thrive 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 opportunistically 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.

TH1-01 Abstract 13
Beyond the bones: a multi-strand approach to past perceptions of avian associations

Author - Pitt, Jacqueline, Bournemouth University, Bournemouth, United Kingdom (Presenting author)
Keywords - Avian Archaeology, Islands, Seabirds

Presentation Preference - Oral

Archaeological evidence from the Bering Sea region of the North Paciﬁc indicates that prehistoric human inhabitants possessed a broad and sophisticated knowledge of birds and their behaviors. Reconstructing human relations with birds requires integration of multiple lines of evidence, including imagery, narrative, and human and animal remains. In this presentation, I discuss the archaeological evidence that humans attempted to mimic or acquire the abilities and physical attributes of some bird taxa, such as boons (doves) and shorebirds. Human burials as early as the iktutak period (c. 400 CE), caches, masks, amulets, and ethnohistoric narratives indicate that select bird taxa mediated the human experience of coastal environments.
to Roman period, across Europe. Particular focus is given to one of the most commonly found birds, the domestic chicken. Comparison of bird species present in avian assemblages at archaeological sites during this period is used to identify cultural and behavioural changes in human-bird relationships. The combination of species, site location, and the type of sites within which they are found can tell us much about the societies with which they are associated, from religious practices, to subsistence strategies, and even entertainment.

Employing a multi-strand approach identifying avian importance through depiction in material culture, enables consideration of human-bird interactions even in contexts where zooarchaeological data sets are limited, and provides complementary data where both types of evidence are present. Choosing to depict birds on items of value or significance, such as grave goods or signet rings, represents individual bonds between humans and birds, while frequent depiction on coins identifies a broader societal relationship. The combination of species depicted, both faunal and floral, can be used to better understand aspects of ecology and morphology, and identifies the human-bird connections present in the minds of those creating these artifacts. Such an approach allows us to see beyond just the bones, to better understand the complex relationships between birds and humans.

**TH1-01 Abstract 14**

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

**Author** - Poland, Ged, The University of Sheffield, Sheffield, United Kingdom (Presenting author)

**Co-author(s)** - Dr Grau Sologeosta, Idoya, The University of Sheffield, Sheffield, United Kingdom

**Keywords:** Britain, Duck, Goose

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, their eggs, their feathers, and their fat. We know from historical sources that the economic and cultural significance of these animals has changed over time since the Roman occupation of Britain, but archaeology can greatly improve our understanding of the use of these birds. The problem is that these animals are rarely meaningfully discussed within an archaeological context. This is because their osteological remains are particularly difficult to identify to the species level, even when a comprehensive comparative reference collection is used. This has prevented some key questions from being addressed satisfactorily. For example, when the husbandry of the domestic forms became more common than wild fowling, when selective breeding started to occur, and when these animals started being exploited for very specific economic and cultural reasons.

This paper discusses the changing use of these birds from the early Roman period until the postmedieval period in Britain by combining osteological assemblages from several sites, including a range of different site types and geographical locations. Key changes in the use of these birds will be discussed using four main proxies; differences in taxa frequencies, the relative frequency of immature bones, variation in butchery practice, and changes in size through time. Taxon identification was achieved using recently developed morphometric criteria at the University of Sheffield. This paper was possible due to combining results from two postdoctoral projects and one PhD project at the University of Sheffield.

**TH1-01 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 Otter-Olm provides a fascinating example of unusually 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 funeral.

To what extent are birds important in Roman gardens?

**Author** - Mgr. Uránová, Valéria, 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, partridge, 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 Livia’s house at Prima Porta near Rome from the 1st century AD and from a house at Viminum (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 Mainz-Velten site from the 3rd century AD and for further comparison those from Maison de Velére 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 mosaics in North Africa, which belonged to the villa and which is otherwise difficult to prove. It may also represent an auspiciun, 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 amusor is still not sufficiently clarified.

**TH1-01 Abstract 16**

**Bird: bones & images in Iberian Culture 6th-2nd cent BC**

**Author** - Dr. Iborra Eres, Maria Pia, ICBR Cultuurkrisis Gent/Gent, Valencia, Spain (Presenting author)

**Keywords:** bird bones, bird figurations, 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 1993). 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 these 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 smaller, and, depending on their size, are categorised as small towns, hamlets, farmsteads, hilltops or military establishments. Ritual sites, mainly sanctuaries and cemeteries, have also been found (Grau 2002; Ruiz 1996; 2000; Vives Fernandez 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), gull (Larus fuscus), mallard (Anas platyrhynchos), little bustard (Tetrax tetrax), pigeon (Columba livia), little owl (Athene noctua), barn owl (Tyto alba), Eagle owl (Bubo bubo), white stork (Ciconia ciconia), guil (Larus sp.) and Cory’s shearwater (Calonectris diomedea). Some birds are hunted and the bones used to create musical instruments (Iborra 2004; Iborra and Pérez Jordal 2011; Iborra, 2016; Castañas, 1994).

Bird 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. This paper explores examples of depiction and use of birds and its symbolic role in the Iberian Culture.
Processes of consolidation and structuring - in nature or in culture, in space or in time - which lead to something more permanent, transformational and even 'eternal' can be called petrification. This can be observed in material culture when more durable, heavier, and inorganic materials are used, but also in societies when social relations become more stable, hierarchical and predefined. For this session we suggest studying parallel petrification processes in different spheres of material culture as well as in human interaction. The change from wood to stone in architecture and the replacement of organic containers by ceramic vessels could indicate a more sedentary and consolidated lifestyle. A standardisation of shapes, the development of a 'classic style', and the harmonisation of ritual and feasting practices can be an attempt to unify belief systems and social structures.

However, what if the change occurs only in, for example, grave architecture or affects economic structures without a matching transformation in social structure? Is inconsistency and discrepancy in such processes what Clifford Geertz called the 'style', and the harmonisation of ritual and feasting practices can be an attempt to unify belief systems and social structures.

We would like to invite speakers to investigate across all periods how processes of consolidation or petrification occur and whether parallel developments can be observed in the natural environment in different spheres of material culture and in aspects of social relations and practices.

---

**TH1-02 Abstract 01**

Petrification: 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 material cultures, 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 petrification. Apart from its obvious Christian roots (Apostle Peter) it describes increasing durability, weight and regularity in objects and processes.

My personal approach to petrification 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 communication - e.g. the production of books and especially of historic- and hagiographic in the Roman tradition.

The introduction of Rome-centred Christianity probably also led to deforestation, parceling of the land and hierarchisation of society which all can be described as processes of petrification.

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 petrification can be perceived more easily and thus tend to be overestimated. A diachronic situation like this - attempting to ignore the barriers between epochs and to a certain extent time itself - will at the same time be a chance and a challenge. Petrification offers a concept with which we can observe, describe and compare processes without judging them emotionally or morally. The opposite concept of petrification could be called 'liquidation': it will be the topic of a follow-up session.

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**TH1-02 Abstract 02**

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

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

**Keywords**: material culture, petrification, transformation

**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 we take to infer the petrification of a society from the archaeological record? Do we perceive petrification 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 presence/absence of less durable materials as used in the production of figurines and statues. The use of different materials can also underline different strategies of dissemination of information, of its personal use and of “democratization” of the impact of the underlying message. The case can be rural practice.

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.

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TH1-02 Abstract 06

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

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

Keywords: Iberia, 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 ‘lithification’ 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 static. 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 adornment.

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 iconographic 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 intersections.

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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. Kristian, 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 theorizing and interpreting local processes of migration, integration and consolidation, 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.

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TH1-02 Abstract 08

Tracing “petrification” in prehistoric architectural processes

Author - Dr. Romankiewicz, 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 delicate 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 its forms 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 to bacteriologically 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.

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TH1-02 Abstract 09

Stony landscape, petrified society? Relations between landscape and society

Author - Dr. Mlekuž, 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 each social encounter, each face-to-face interaction. The society can disappear if not performed. Nothing exists and stabilizes it. Stable societies emerge only when additional, material resources are mobilized. Material resources can be understood in terms of society of 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 stabilized by the use of durable material resources. Based on a case study from prehistory of Karst, caustic story landscape 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.

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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)

Co-author(s) - Walsh, Kevin, University of York, York, United Kingdom

Co-author(s) - Raimler, Thomas, Archaeological Service of the Canton of Grisons, Chur, Switzerland

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 pastural 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 pastoral
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’ environments? In this paper the origin of dry-stone pastoral structures in the Alps will be investigated. The available archaeological data will be reviewed, to assess the chronology of their diffusion and to find structural similarities that might minor 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

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 interpretative 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. Willemse, Annemarieke, National Museum of Antiquities, Leiden, Netherlands (Presenting author)

Keywords: archaeology, Games, Objects

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. Malloy, Kevin, University of Wyoming, Saint Paul, United States of America (Presenting author)

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

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 volatile 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. This changing room was also used for rest and refreshments, to play dice, …

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 erließ 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 at 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 finnebalt interacted in order to produce such marvelous artifacts like the Lewis Chessmen.

This paper will explore board games as a facet of play within 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 play) both for the games to work - they are at the core of the ‘capacity to move’ that is the definition of 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, 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 refly and crystallizes 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!

Keywords: cultural transfer, mobility, play
Presentation Preference - Oral

The First paper on medieval tennis offered an account of the architectural developments which took place at Versailles in France, detailing the evolution of the court and its surroundings. This paper considered how these developments were influenced by contemporary theatrical practices, drawing parallels with the construction of bear-baiting arenas. Through an analysis of the archaeological record, it was suggested that these developments were part of a broader trend towards more refined and sophisticated forms of entertainment. The paper also highlighted the social and symbolic significance of the tennis court, and its role in confirming the status of the courtiers and nobles who played there. The paper concluded by suggesting that the evolution of the tennis court was a reflection of the changing social and cultural landscape of the time, and the changing perceptions of the relationship between humans and nature.
Interpreting the Archaeological Record

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 of 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 both 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 interregional 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.

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TH1-03 Abstract 09
Early medieval Sandomierz Chess Set: confrontation of old and new excavations results

Author - master Stempin, Agnieszka, Poznań 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 Sandomierz 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 1598 on through the period of 10 consecutive years systematic archeological works were carried out on some other parts of the Hill. On October 9/1982 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 Sandomierz”.

This definitively 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 rarest finds of this kind in the Early Middle Ages European. 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 podium. 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 Sandomierz was dominating in the professional literature for long years constituting of a source 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 unroof 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 the Early Middle Ages chess pieces on the territory of Poland but also for better understanding of the phenomenon of the find on the territory of the Early Middle Ages European. 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 podium. In the material gathered at that time the chess figures were the only such spectacle find, others being ceramics from the 12th century.

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 Sandomierz in this place.

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TH1-03 Abstract 10
Medieval game pieces with a square base from Central Europe – interpretations

Author - Wlochla, Ewa, Inowrocław, 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 incised lines, are found in numerous archaeological sites in Central Europe. These small 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.

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TH1-04
The Invisible Constant. Building New Frameworks for an Archaeological Understanding of Migration as Cultural Behaviour

Thursday, 1 September 2016, 09:00-13:00
Faculty of Philology, Room 114

TH1-04 Abstract 01
Close encounters. Setting a new research agenda to understand migration beyond explanatory models

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

Co-author(s) - Dr. Accorcia, Valeria, Università G. d’Annunzio di Chieti-Pescara, Chieti, Italy

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 emphasizing the notion of indigenous evolution. Consequently, the long-standing debates between ‘immobilist’ 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 demographic 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...
Europe over a long time span, we aim not only to open up new interpretative horizons for a better understanding of human mobility in the past, but also to contribute in more humane fashion to current debates about immigration.

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**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

Italian territory (peninsula as well as nearby islands) 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 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 provenience and to better focus in 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 site 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.

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**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, unbeknown 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.
migration by nomad-herders. Little efforts have been put into the interdisciplinary studies of the pottery with cord decoration. This presentation aims at examining characteristics of the pottery with cord decoration in the Balkan Peninsula and their temporal and spatial distribution, and explaining how Yamnaya groups and their descendants migrated from the North Pontic area to the Balkan Peninsula.

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.

Firstly, I focus on the pottery with cord decoration from two tell-settlements Ezero and Dydovo with favorable stratigraphic conditions in the northeastern Upper Thracian, and carry out typological and pottery provenance analyses. The former addresses not only the shape and ornamentation of the pottery with cord decoration, but also the decoration technique. Regarding the latter, I take two different approaches. The first is petrographic analysis, which identifies kinds of rock and mineral in the pottery matrix using a polarized microscope. The second is chemical analysis, which measures the chemical components of the matrix of the pottery using EDXRF by a fundamental parameter (FP) method. As a result of these analyses, the pottery with cord decoration, as well as plain pottery and pottery with the other types of decorations, in both tell settlements will be classified into local and non-local types. Adding the chronological view to them, the analyses indicate transition and variety of the pottery with cord decoration in the Upper Thracian.

Secondly, I compare the findings in the Upper Thracian with the typological characteristics of the pottery with cord decoration from the southern and eastern Romania, the remaining parts of Bulgaria and the northern Greece. Referring to the spatial distribution of Kurgan there, I examine the origin in the northeastern Upper Thracian and the following migration events to the south and the west.

In conclusion, I point out two things in order to understand mobility of the beaver 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 Kurgan 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 northwestern 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)

**Co-author(s):** Blank Bäcklund, Malou, Göteborgs Universitet, Göteborg, Sweden

**Co-author(s):** Simoes, Luciana, Uppsala University, Uppsala, Sweden

**Co-author(s):** Munters, Arielle, Uppsala University, Uppsala, Sweden

**Co-author(s):** Storå, Jan, Stockholms Universitet, Stockholm, Sweden

**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 geographic distribution of megalithic burial in western Sweden, another alternative is that the tombs were used by populations from large areas. However, osteological and archaeological research suggests that the graves were used by local family groups. Earlier research suggests that 25% of the mound population might be foreign-born. This is an intransigent thesis on the late Neolithic. In the Late Neolithic there was an increase in human mobility and about 60% of the buried individuals were non-local. It is interesting to investigate the genetic over time in this area. Are there any traces of population shifts while still maintaining the same burial practices?

For the northeastern Upper Thracian presents one of Northern Europe’s largest concentrations of passage graves and a large amount of gallery graves. There are about 525 known dolmens and passage graves in Sweden and out of these 255 are located in Falbygden, only 2 of them are dolmens. This dense collection of graves thus allows us to follow the population buried in this area over a long time period.

The passage graves are organized in clusters in the landscape, as are the younger gallery graves. However, the gallery graves tend to have a greater topographic spread in the landscape, which often have been explained by an expansion of settlements and increase of agriculture and population size. The skeletal material is preserved by the calcareous soils of Falbygden which enables ancient DNA analysis, radiocarbon dating and various isotopes analyses. The geology of Falbygden differs from the surrounding areas in terms of both age and mode of formation, which implies good prospects for identifying mobility comparing Sr isotopes ratios of the buried individuals with the isotopes ratios of the bioavailable strontium. Furthermore isotopes indicative of diet can also be useful to discuss mobility. An increased variation in diet, which can be seen in the Late Neolithic can be 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, Maia, University of Heidelberg, Heidelberg, Germany (Presenting author)

**Co-author(s):** Recchia, Giulia, University of Poggio, Poggio, 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? Interpreting Unfield cemeteries**

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

**Keywords:** cemeteries, exogamous mobility, Urnfield 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 (Bd D - Ha Ia) cemeteries from south eastern Alpine region and Northern Carpathian area. In the end of Middle and in the beginning of the Late Bronze Age, first cremated graves were documented in the south-eastern 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 intended 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 north eastern Pannonia and Slovenia, could also be in part interpreted as testimonies to the burial. 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 Piliny 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 two regions in the beginning 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 used as urns only in female and children graves. Besides the similarities in the archaeological finds between two research areas, we observe also the similarities in the stone grave constructions. Both in Ljubljana and in Radzovica 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 southeastern Alpine region and the northern Carpathian area can be observed mostly from the archaeological finds contributed to female sphere. Having in mind the fact that most of these object are totally absent in the territories between two research work areas (Transdanubia, Middle Danubian Urmfield 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 migrations 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?
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 artifacts, 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 Euboean presence is detectable in the western Mediterranean, including Northern Africa, Spain and Italy. The Euboeans settled in the Sibaritide, where Greek-indigenous coexistence emerged in the settlement of Timpone 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 foundation of the so-called 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 10**
**Greek Migration along the Ionian Coastline (Southern Italy)**

**Author** - PhD Student Crudo, Maurizio, University of Groningen, Roma, Italy (Presenting author)
**Co-author(s)** - Jacobson, Jan Kindberg, Ny Carlsberg Glyptotek, Copenhagen, Denmark

The visibility of the invisibles: migration in the archaeological record. 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 artifacts, thus reaching interpretations that were aligned with the later ancient written sources.

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

**Author** - PhD candidate Rautoni, Anna, La Trobe University, northcoast, Australia (Presenting author)
**Co-author(s)** - Tytell, Robert, University of South Florida, Tampa, United States of America

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 BC. 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 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 multidisciplinary 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 Finocchito. 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, evolving and imitating Greek models, appear in indigenous Sicilian graves as a consequence of these cultural changes. The archaeometric analysis allows us to recognize different clay fabrics, to distinguish Greek imports, Sicilian copies and adapted designs as well as entirely new Sicilian forms. The archaeometric 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 migration 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 archaeoenvironmental and anthropological methods, is a successful method to understand the social, ideological and material interactions of the indigenous Sicilian community of Monte Finocchito 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, Baia Mare, Romania (Presenting author)
**Co-author(s)** - Muntean, C., 1st December 1918 University, Alba Iulia, Romania

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 artifacts, thus reaching interpretations that were aligned with the later ancient written sources.

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**TH1-04 Abstract 13**
**Origin and Development of Balbals Stelae**

**Author** - MA Janki, Pawel, Antiquity of Southeastern Europe Research Centre University of Warsaw, Legnica, Poland (Presenting author)
**Keywords**: Kurgan, Nomads, Stele

Balbal stelae, also known as balbas (Russian: балбас; Polish baby kamienie; Kyrgyz: балбас) 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 surrounded areas. This custom is in practice from the Enesolithic to almost Modern Times. The term balbal 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 Enesolithic to Modern Times, however it was extremely popular in scythian culture, Turkic Kaganate and among Cumans (Kipchaks). 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. Balbals commonly depict warriors holding weapons and drinking horns or bowls. There might also depict so many other items like bells and tools. Probably from balbals may derive other kinds of stelae, for example: deer stones, Bakhtiar liion 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 artform and place of the investigative methodology of balbal.
The Avellino event: a volcanic eruption and mass migration in South Lazio during the Bronze Age?

Author - Dr. Doorenbosch, Marieke, University of Leiden, Leiden, Netherlands (Presenting author)
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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 coring, 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 SINTASTHA 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 (Arkaism, Sintashta, Ustye I, Kamenny Amsar, Kovyak, etc.) and burial grounds (Sintashta, Krivoe Ozero, Kamenny Amsar, Stepnoe VII, Bolshekaragansky etc.) are investigated here. In the stepspe 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 of interaction between Sintashta and Potapovka cultures. In 1970-1990s Sintashta complexes were investigated in the burial grounds of New Kumuk, Ishkinovka II, Gerasimovka II, Bulanovo 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" skeleton) 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 I 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 I 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.

Maloyuldashevo settlement and burial are not only monuments of Sintashta period studied in recent years. During excavations in 2013 of Nizhnebahtiyarovo burial ground the fragment of bone disc cheek-piece typical for Sintashta period was found. In 2015 at the Kosakovo burial ground of Yamnaya (Pit-grave) culture the joint burials of Sintashta period with ceramics with bronze bracelets were studied.

Thus, the Southern Urals steppe at the beginning of the 2nd millennium BC was the region of active culture genesis. Orenburg region is located far from the main Sintashta area, at the territory between the Sintashta and Potapovka areas. New researches of the Sintashta monuments with application of radio-carbon dating and methods of a soil science will provide new important data about the population of South Ural steppe at the beginning of 2nd millennium BC.
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-Nebelsich, 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 dating between the 2nd and first half of the 1st millennium BC have rarely concentrated on gender specific topics such as the importance of costume in relationship to age-groups, regional identities and social standing. Sumptuous female graves are however rarely thematized systematically.

In this paper we 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 case studies ranging from the Early Bronze Age in western 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 steppe.

TH1-05 Abstract 02
Scarcity and dearness: an obvious link? - Dr. Trémaud, Caroline, UMR 8215 Trajectoires, LYON, France (Presenting author)
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 construction and use of large burial mounds (tumuli or kurgan in regional nomenclature) are also often taken at surface value as signaling elevated status and political importance among local and possibly regional communities, with the result being single (anomalous) mounds being used to support ideas of regional systems of (possibly) institutionalized social inequalities. 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, metallographic, GIS-based, ceramic, 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 03
All that glitters is not gold: New Approaches to Sumptuous Burials Between Western Europe and the Eurasian Steppe
Presentation Preference - Regular session

This paper presents the possibilities of analyses by looking at the ostentatious burials from the Low Countries both from a 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. Ebinger-Rist, Nicole, Landesamt für Denkmalpflege, Esslingen, Germany (Presenting author)
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 1990s, controversy exploration of the apparent princely burials 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
single ceremonial tomb discovery, and the related research, has employed modern methods of excavation and analysis to decisively
sudzha. Mapping of all finds indicates their exclusive relationship with the sources of large creeks flowing in deep canyons and
burials. In bol'shoy kamenetz burial was in a stone crypt, built at the base of a high bank of a creek, which flows into the river
burial grounds of Chernyakhov culture. They were found by chance and were considered hoards. Only one of them (bol'shoy
neck-rings), the Byzantine silverware production, gold-embroidered garments, ceremonial weapons and horse harness. Findings
the Dnieper in forest-steppe zone. At the same time (periods D1 and D2 European chronology -- 360 / 370-440 / 450's AD) on
By the beginning of the great Migration period Chernyakhov archaeological culture (its last stage) was spread in the left bank of
structures and the great efforts spent on to hide the ordinary burials of high-level persons, mourning the linearity of the 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 'princes' and "military chiefs" burials.

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 category should be re-evaluated with reference to ethnographic analogies, archaeological evidence from other areas of west-central Europe, and recent excavations reached in the vicinity of the early Iron Age Heuneburg Hilfrost.

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 region can serve as a model to also set the foundation for understanding social hierarchy and the nature of commoner-elite relations.

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 (bol'shoy kamenetz) was published by L.A. Matsulevich in 1934. The study how complexes have been discovered reveals that they are the burials. In bol'shoy kamenetz burial was in a stone crypt, built at the base of a high bank of a creek, which flows into the river Sudzha. Mapping of all finds indicates their exclusive relationship with the sources of large creeks flowing in deep canyons and at the same time associated with the waterways 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 existed. 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 Hun's neither by rituall, nor by the inventory. Prestigious items belong to a common in Hunnic time polychromed decorations. Rather we can speak about a direct link with the Late Antique Besorpus whom 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, mourning the linearity of the 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 'princes' and "military chiefs" burials.

Barbarian chief's "secret" burials in the forest-steppe zone of Eastern Europe

Funerary performances, including prospections, 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 interred grave goods, such as found at Alexandrov or Solokha 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 funerary 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.

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. 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 hierarchies and the nature of commoner-elite relations.

Kurgan and Settlements of the Iron Age society

Aesthetics, Burials, Iron Age

Kurgans and Settlements of the Iron Age society
Interpreting the Archaeological Record

TH1-05 Abstract 10

The Kurgans of Scythian Nobility in the Eurasian Steppes

Author - Dr. habil. Ochir-Goryaeva, Maria, Institute of archaeology Tatarstan academy of sciences, Kazan, Russian Federation (Presenting author)

Keywords: Eurasia, kurgan, Scythian epoch, mobility

Presentation Preference - Oral

Several thousands of burial sites of the Eurasian steppe 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 each 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 earthenwork 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, guards and human sacrifices. Such complex earthenwork 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 the system of geographical orientation in terms of cardinal points. Importantly, the region analyzed encompasses the spatial area shown on the kurgan planigraphical profiles seem to be associated with the cardinal and lateral 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 logistical association between the spatial arrangement and the form of the kurgan in terms of the cardinal points 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)

Co-author(s) - Rubinson, Karen S., ISAW--New York University, New York, NY, United States of America

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 later 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 form of grave good assemblages. Researchers have, in these assemblages, where material evidence exist to the local region surrounding and shrunked the elite. This paper will consider what message the assorted choice of non-local or non-locally inspired grave deposits, intentionality manipulated as means to legitimize, and reinforce, the cosmological and social ordering of Pontic Iron Age communities through carefully designed and produced aesthetic displays.

Granulity, inlay and losswax/lost wax techniques 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 late Han Dyntastic Period of the Western Regions, another set of burials, known from the excavations at Qoquni, and particularly in the tomb of Cheksi, at Baireqi, Xinjiang, display a similar mixture of goods and practices. These 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 froniets 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 Vilnius 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 Abahebo, 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 cemetery types. I will demonstrate on some examples from my current investigations. Information will be provided for scholars 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, Pawel, Antiquity of Southeastern Europe Research Centre University of Warsaw, Legionowo, Poland (Presenting author)

Keywords: Huns, Migration Period, polychrome

Presentation Preference - Poster

One of the most characteristic element of the hunnic culture of the Migration Period is the polychrome style jewellery. In this style the surfaces of gold or glass 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 clousenorn 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 (Bala Hsuan culture and Kencii culture) dated to period between III century B.C. and II century B.C. These artefacts are very similar to polychrome style ornamented objects from the Migration Period. Some scholars (Armrenius 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 (Schmieder 2002: 237-56) affirm that polychrome style evolved from the hellenistic 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

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 person 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 - Dr. Pukienė, Rūta, National Museum the Palace of Grand Dukes of Lithuania, Vilnius, Lithuania (Presenting author)

Co-authors: Kaminskaite, Inute, National Museum the Palace of Grand Dukes of Lithuania, Vilnius, Lithuania

Keywords: Archaeobiology; History of hygiene; Late medieval period

Presentation Preference - Oral

The complex of Vilniaus 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 wood-infratructure objects. Over 3000 wooden or such 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 Malinae) wood were also determined by the wood anatomy analysis. The combs are rather uniform, double-sided, rectangular with lenticel profile and quite simply decorated. The mirror frames are round-shaped with a round socket for a reflecting plate. The majority of 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 that 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. The prevalence of the combs in certain territories is in concert 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, Archeo-culture-Ramanaukeienė, Skaiatkė, 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 barrack, 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 group – 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, and also city historical development. 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.
THE SELECTIVE DEPOSITION OF METALWORK IN THE BRONZE AGE: A PAN-EUROPEAN PHENOMENON?

Saturday, 3 September 2016, 09:00-18:30
Faculty of Philosophy, Room 201

Author - Fontijn, David, University of Leiden, Leiden, Netherlands (Presenting author)
Co-author(s) - Civilyte, Agne, Lithuanian Institute for History, Vilnius, Lithuania
Keywords: Bronze Age, metalwork
Presentation Preference: Regular session

The Bronze Age hallmarks the rise of a globalized metalwork exchange. New technologies involved such as copying, re-cycling even suggest that it was sustained by new, more economiocratical and attitudinal materials. This seems in marked contrast to the deliberate deposition and giving-up of metalwork across Europe. Understanding the rationale behind these practices remains one of the major challenges of European Archaeology. By inviting scholars from different countries in different parts of Europe to present overviews and interpretations of this remarkable practice. Questions of focus on will include: Are there general, widely-shared aspects to this practice across Europe, or is the 'phenomenon' no more than an array of local practices that differ substantially from region to region? Was it a cultural phenomenon that is 'unique' for Europe, and if so, what exactly its distribution? Was deposition of metalwork in metalliferous regions essentially different than in non-metalliferous regions? We invite archaeologists to present the patterns of their region, and aim to cover Europe from the far West (Ireland) to the Far East (Ukraine, Russia). The focus will be on different periods of the Bronze Age, starting from the Early Bronze Age until the Late Bronze Age with the aim, to recognize variable tendencies of metalwork depositions across time and space.

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 sort of practice, 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 the distinct postulate of human behavior as being meaningful.

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 metalwork 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. 2350-1500 BC) and at the end of the Bronze Age (c. 900-500 BC). Thus, we seem to represent related practices.

TH1-07 Abstract 03

Post Medieval Archaeology in Azerbaijan

Author - PhD Khalili, Fariz, MIRAS Social Organization, Agsu, Azerbaijan (Presenting author)
Keywords: Archaeology, Azerbaijan, Post Medieval
Presentation Preference - Poster

Study of post medieval monuments of Azerbaijan is novelty in archaeology. Scientists have not been considering post medieval studies as object of archaeology but concerned it to ethnography.

The ethnographers nevertheless did accept their obligations like studying the uncovered remnants. Researches in Post 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 Gafar Jabiyev and PhD Fariz Khalili 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, store, 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.

TH1-06 Abstract 09

Post Medieval Archaeology in Azerbaijan

Author - PhD Khalili, Fariz, MIRAS Social Organization, Agsu, Azerbaijan (Presenting author)
Keywords: Archaeology, Azerbaijan, Post Medieval
Presentation Preference - Poster

This presentation reports on on-going interpretive work following three months of excavations at four Medieval castle sites in Östergötland, Sweden. The focus is on the use of space in relation to lifestyle and diet. Finds of artefacts and bones are studied in relation to their sites of deposition in the context of the living, working castle environment. Post Medieval Archaeology in Azerbaijan

Author - PhD Khalili, Fariz, MIRAS Social Organization, Agsu, Azerbaijan (Presenting author)
Keywords: Archaeology, Azerbaijan, Post Medieval
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Interpreting the Archaeological Record

TH1-07 Abstract 03

Taming the Might of Bronze – Localisation of Bronze-Related Ritual Practises in Bronze Age Finland

Author - MA Saiio, Jukka, 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 Scandianvan and Russian bronze networks throughout the local Bronze Age (1900/1600–500 BCE). Even though the archaeological assemblage of Bronze Age bronze artefacts is not abundant in the area (having less than 200 specimens), relatively well-established relations to eastern and western bronze centres are indicated by both imported bronze objects (predominantly of Scandianvan origin) and local casting of Russian bronze artefacts types. Interestingly, while many of the bronze object types encountered in Finland were obviously connected with long-distance networks, their deposition patterns appear highly localized even within the area of Finland. Cells 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 ritualization 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 - Viðar, Marike, 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 nomadic/barbarian 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 and the bronze lures. A strong tradition of interpreting these finds in terms of religion, magic or divinities 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 of 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

Author - PhD Sarau, Torben, Museum of Northern Jutland, Aalborg, Denmark (Presenting author)

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 harnesses and bridal, bearing witness of the use of two-horse teams. Most surprisingly, several meters of leather straps were preserved. Furthermore, cheek pieces and phaleriae 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 06

The metal hoards practice in Central and Western Europe: a statistical and geographical approach

Author - Dr. Bittler, Hélène, Paris, France (Presenting author)

Keywords: Bronze Age, Hoards, social practice

Presentation Preference - Oral

During my PhD I was able to study and to characterize the hoard practice of five European regions during the Bronze Age. These areas were chosen according to their high number of hoards and their affiliations to different cultural complex or their strategic position. The study focused on: Western Carpathians, the Middle-Eble-Saale-Gabiet (central Germany), Denmark, the Burgundy doors (Belgium, Eastern France, south-eastern Germany) and the Amurian Massif (Western France). The single finds were included in the study, since they are part of the same practice as the so-called metal hoards. The aim of this PhD was to study the high variability of these hoards and single finds in space and time, in order to better understand this social practice. In this way, different statistics have been used and a GIS has been developed for each region. 1555 hoards and 2776 single finds have been analysed.

The results of these analyses show similarities between the regions as well as regional preferences. In terms of similarities, we can refer to the categories of objects deposited in the hoards or as single finds, which are mostly weapons, adornments and axes. The evolution of the single finds is similar to the evolution of the hoards in most regions, except in Denmark. In all regions, the complexity of the hoards composition (number of categories) increases through time, as well as the number of hoards with fragmented objects. However, this fragmentation is relatively marginal since very few hoards have a high level of fragmented objects (the median of the boxplot is zero). Most hoards and single finds have been buried in low altitude and the spatial analysis reveals high densities of hoards near confluences of rivers.

Regional preferences have been observed in depositional contexts like in Denmark where a lot of hoards have been buried in swamps or lie in the Burgundy doors which have a lot of immersed single finds. The favourite objects are different from one region to another: axes in the Amurian Massif and the MESIG or weapons in Denmark and the Burgundy doors. In terms of composition, differences appear between the studied areas. Thus, the Amurian Massif is the only one with a majority of one-type hoards and also with a majority of homogenous hoards (objects from a unique cultural area). Hoards in domestic contexts could have been also a regional preference, as it is well known in Western Carpathians but rare in the Amurian Massif and totally missing in Denmark. Regarding to several criteria, some of them appeared earlier in Western Carpathians and the MESIG than in Denmark and the Amurian Massif. In this way, it seems that some modalities of the Bronze Age hoards practice took place first in Central Europe before spreading to Northern and Western Europe. Besides, this hoard and single find practice necessarily reflects individual and collective initiatives.

TH1-07 Abstract 07

Oscillating Metal - comparing selective depositions and graves in the Bronze Age of Central Europe

Author - Dr. Neumann, Daniel, Frankfurt a. M., Germany (Presenting author)

Keywords: Bronze Age, Grave, Selective Deposition

Presentation Preference - Oral

The Bronze Age is characterized by a large amount of voluntarily deposited objects made from Bronze. This presentation will especially set the focus on similarities and differences between selective depositions and graves by comparing both from different angles and scales.

As both archaeological features indicate social significance the examination of the regionally and chronologically changing patterns will reveal different strategies of social expression. Furthermore, the interplay between both which is known from many areas of Europe enables us to contrast areas of diverging ritual practice by addressing the selection of objects as well as the varying quantity. This paper takes the pan-European development into account, but will mainly focus on data from Southern Central Europe which is an area – unlike others – that yielded bronze objects from graves and hoards as well.

TH1-07 Abstract 08

The selective deposition of metalwork: an introduction

Author - Nessel, Bianka, Institut für Geowissenschaften, Ruprecht-Karls-Universität, Heidelberg, Germany (Presenting author)

Keywords: Bronze tools, hoards, selective deposition

Presentation Preference - Oral

Bronze Tools and other finds associated with metal working processes are part of the inventory of most Bronze Age depositions. The tools in question have mainly been identified as metal workers tools since they appear in hoards. But functional analyses show, that this is only valid for a comparably small amount of the items. Specific patterns of the treatment and relative occurrence of tools can be identified in hoards throughout Europe. Large mixed depositions with a majority of bronze with various functions are
TH1-07 Abstract 09

Fragmentation as a common feature in European Bronze Age hoarding

Author - Dr. Marazek, 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 „Brucherzhorte“ (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 Elstertwerda was chosen consisting of more than 320 bronzes, 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 bronzes 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 craftmen's deposits and the hoarding of raw metal ("Gusserze").

TH1-07 Abstract 10

Places of deposition of metalwork assemblages in West Bohemia

Author - Prof. assit. Jirí, 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 ever wider set of objects that seem to show identical features, but have different territorial or chronological ambits. We therefore focused on 31 Urnfield Period hoards recorded to date in the West Bohemia region. For our questions, it is important that we were 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.

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) - Chvola, Ondřej, 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 80 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 under the ground 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.

TH1-07 Abstract 12

Urnfield Period hoards in South Bohemia

Author - Doc. Chvola, Ondřej, University of South Bohemia, Ceske Budejovice, Czech Republic (Presenting author)

Co-author(s) - John, Jan, University of South Bohemia, Ceske Budejovice, Czech Republic

Keywords: metallurgy, South Bohemia, Urnfield Period hoards

Presentation Preference - Oral

Not only in Czech archaeology, but also in other countries, the finds acquired by metal-detectors are the phenomenon of last decades. It also applies to metal hoards from the Late and Final Bronze Age (Urnfield Period), which are summarized in this presentation. The region of interest is South Bohemia, from where 23 metal-hoards from the Urnfield Period (i.e. Bz C20 – Ha B3) were known 15 years ago. In the last years the number increased to 81 currently registered hoards. In comparison with the older finds, the most of new hoards are exactly located and in many cases documented in situ, which help us to interpret them, sometimes with the help of chemical and archaeobotanical methods. The new finds bring extraordinary quantitative as well as qualitative enrichment of our knowledge of this Bronze Age phenomenon. Unfortunately only a small part of new metal-hoards are deposited in museum collections, while many others disappeared without any documentation in private collections.

TH1-07 Abstract 13

O’ mighty Danube. The deposition of swords in rivers in the area of middle Danube

Author - Mgr., PhD Babić, Martin, Department of Archaeology, Faculty of Arts, Comenius University, Bratislava, Bratislava, Slovakia (Presenting author)

Keywords: Danube, deposition, swords

Presentation Preference - Oral

The area of middle Danube was a focal point for introducing swords at the end of the Early Bronze Age. It is well known, that since their introduction they occupied a special place in material world, as the is case of Apa type swords. These first swords, as soon as they started to be produced were deposited in rivers. This special type of deposition practice was soon followed by swords of Bos type family, when the only place you could find a sword in this area was in grave or river. This practice continuously gained momentum and reached its peak at the beginning of the early urnfield period (8D-7A). Interestingly, there is almost complete lack of other types of metal deposits in the area of middle Danube during this period. It is most striking when compared to hoard-rich areas in central and north Slovakia, Czech lands as well as eastern Hungary, where swords were among other types of hoards primary deposited in „dry land“. This paper will be based on my personal long-term, not yet published research. Since hallmark studies by W. Torbrügge, R. Bradley and S. Hansen, this area received some research attention. However, I still lacked more robust theoretical models for interpreting this interesting archaeologcal record in context. I will provide a detailed overview of situation reinforced by basic and multivariate statistics. Hypotheses are postulated and tested through theoretical models and methodology based on hermeneutics, advanced formal logic and some basic game-theory elements.

TH1-07 Abstract 14

Between formalism and substantivism: Selective deposition of metal in the BA Carpathian Basin

Author - Szewrenyvi, Vajk, Hungarian Academy of Sciences, Budapest, Hungary

Co-author(s) - Párigyi, Tünde, Northwestern University, Department of Anthropology, Evanston, United States of America (Presenting author)

Keywords: Bronze Age, Carpathian Basin, selective deposition

Presentation Preference - Oral

The study of Bronze Age metalwork in Hungary has a long history; however, it has focussed mostly on typological and chronological issues, within a traditional cultural-historical interpretative framework. The famous hoards of the Hajdúszoboszló, Tolna washé
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 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, Katalin, 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-Obrovka 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
Author - Dr. Kiss, Viktória, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary (Presenting author)
Co-author(s) - Barkóczi, Pálter, Miskolc University, Miskolc, Hungary
Co-author(s) - Nagy, Dóra, Eötvös Loránd University, Budapest, Hungary
Co-author(s) - Szabó, Gáza, Wosinsky Mórf Museum, Szekszárd, Hungary
Keywords: Bronze Age, hoards, selective depositions
Presentation Preference - Oral

The standardised structure of the content of the so called Tölöna-médi 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 Enrusted 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 Tölöna-médi 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
Bronze Age hoards deposition in the Upper Tisa Basin: time, space and cultural context
Author - Kabil, Josip, Transcarpathian regional museum, Uzhgorod, Ukraine (Presenting author)
Keywords: Bronze Age, Metaldeposition, Ukraine
Presentation Preference - Oral

Characteristic feature of the European continent population in Bronze Age is metal works deposition in form of "hoards". Upper Tisa 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 Suci de Susa Culture. Geographically they belong to eastern part of UTR. The earliest hoards consists mainly of prestige objects (ornamented weapons and gold wares).

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 BA3 till the end of Bronze Age.

TH1-07 Abstract 18
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. Scratching 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 selections 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 intensification or fragmentation of networks of interaction had ramifications on metal influx and flows, and thus also upon the underlying metalwork 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, buried, gold, bronze - as part of one cohesive, but diverse, cultural practice.

TH1-07 Abstract 21

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

Author: - Autenrieth, 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 on the river itself and its 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-on-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 depots. The aim of this research is to identify a potential cognoscible correspondence between the rise and fall of watery depositions 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: - Adams, Sophia, University of Bristol, Bristol, United Kingdom (Presenting author)
Co-author(s): - Waley, 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 by the metalworkers. By combining the results from a range of collection processes including archaeological excavation and metal detecting surveys we can explore the context and content 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 dataset 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: - Kallate, 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 safekeeping and storage, and that deposition was part of a long standing social practice presented 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 finds spots.

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. 1550 - 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 Witham, wellknown in the literature for the deposition of prehistoric metalwork. This is surprising, as the River Witham flows as close as 6 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.
THI-07 Abstract 25

Late Bronze Age metal deposits in the West fringe of NW Portugal: contingencies

Author: Sampaio, H., Laboratório de Paisagens, Património e Território (Lab2pt), Guimarães, Portugal (Presenting author)
Co-author(s): Bettencourt, A., Laboratório de Paisagens, Património e Território (Lab2pt), Guimarães, Portugal
Keywords: Agency, Metal hoards, Mirho

Deposition of metal artifacts during the Bronze Age is a wider phenomenon attested all over the Europe. Occupying a western end position rich in mining minerals, the North-eastern Iberian Peninsula also witnesses these kind of past societies manifestations during the mentioned period. The present work aims to explore the archaeological remains of those practices in a narrowed part of the Iberia, specifically, in the Atlantic fringe of the North-western Portugal (between the basins of rivers Ave and Mirho) during the Late Bronze Age. For that, it will be taken into account some of the regional available data, including in progress research, in order to verify some of these practices in such a complex past agency.

Such a task will not only prioritize the different types of metal objects, their hypothetical biographical character and chronologies, but, specifically, and whenever possible, their micro and medium contexts of deposition, including recent contributions from fieldwork research. In a regional scale it is interesting to attest that some deposition preferences prevail.

THI-07 Abstract 25

Late Bronze Age metal deposits in the West fringe of NW Portugal: contingencies

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Co-author(s): Bettencourt, A., Laboratório de Paisagens, Património e Território (Lab2pt), Guimarães, Portugal
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THI-07 Abstract 26

Between two worlds – Hording practices in the Caucasus between European and Near Eastern traditions

Author: PD Dr. Reinhold, Sabine, German Archaeological Institute, Berlin, Germany (Presenting author)
Keywords: Caucasus, Hoards, Ritual practice

Hording metal objects is an important ritual practice during the Bronze Age, both in Europe and in the ancient Near East. Yet, context and places of depositions are entirely different. While in the European tradition, remote places near water bodies are preferred, metal objects in the Near East were predominantly deposited within ritual spaces, buildings or real sanctuaries. The Caucasus mountain range is the border between both traditions. This presentation will focus on the different ritual environments of hording in Caucasian Bronze Age, on the different locations of ritual places – off-sites hoards or sanctuaries, and on the different historical trajectories that led Caucasian people to this specific ritual practice.

THI-07 Abstract 27

Non-burial metalwork depositions in Bronze Age China- a case study of the Shang

Author: Qin, Cao, Oxford, United Kingdom (Presenting author)
Keywords: Bronze Age, China, metalwork

Presentation Preference: Oral

Numerous bronze items, mainly vessels and weapons, have been recovered from Bronze Age (c.1600- 500 B.C.) tombs in China, and such mortuary contexts have always been the focus of research. Though not as well attested archaeologically, comparative metalwork was also deposited in non-burial contexts such as sacrificial pits, building foundations, and hoards. The implications of these depositional phenomena have not been holistically explored. In this paper, I will discuss metalwork depositions during the Shang (c.1600-1050 BC, Middle Bronze Age) in the Central Plains. Questions to be investigated include: what are the variety of depositional contexts for ‘giving up’ metalwork? What compositions of objects were deposited? Can any chronological patterns be discerned? What were the intentions of the depositors and the significance of the deposits to the Shang?

THI-07 Abstract 28

On chronological ‘firsts’ in the Bronze Age. Selective deposition and the visibility of innovations

Author: M.A. Dietrich, Oliver, Deutsches Archäologisches Institut, Berlin, Germany (Presenting author)
Keywords: Bronze Age, Socketed Axes, Southeastern Europe

Presentation Preference: Poster

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 southeastem Europe as a case example. Socketed axes seem to appear at all once in a hoarding horizon parallelized with the central European phase Bo D. It is argued that selective non-deposition of socketed axes can be used as a way to reconstruct the pre-Late Bronze Age History, which however can be reconstructed by taking into account other sources than hoard finds. The transmission of settlement find 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.

THI-07 Abstract 29

The middle Bronze Age necropolis in Gilareva-the Mycenaean influence in Kosovo

Author: Prof. Luji, Kamaj, Museum of Kosovo, Prishtina, Kosovo (Presenting author)
Keywords: Necropolis, The middle Bronze Age, the Mycenaean influence in Kosovo

Presentation Preference: Poster

Kosovo’s favorable geographic position in the central Balkans has enabled its connection with neighboring and farther territories, thus making the influence of various cultures possible from the earliest periods. The development of early prehistoric cultures in Kosovo has been sufficiently explored through systematic work. Nonetheless, there is insufficient knowledge on the development of the Bronze Age in Kosovo. With the finding and excavation of the necropolis in Gilareve, important new steps have been made to complete this gap. Excavations in Gilareve have provided the most precise data for solving important problems of the Bronze Age in Kosovo, as well as for the development of period as a whole. Two necropoleis have been identified marked as Gilareve 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 analogues and chronological determinations of the bi-racial burials 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 time frame. Dating the graves with inhumation can be done through reference to the other numerous finds, some of which have analogies in the larger geographical region, such as jewelry, weapons, and ceramics. The cultural material 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 Gilareve necropolis shows that the Middle Bronze Age in Kosovo had a developed culture with significant influences from, and ties to, Mycenae, 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 Gilareve 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 Kosovo becomes and important stage in the formation and development of the Illyrian and Balkan peoples, their culture and ethnogenesis.

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.

THI-07 Abstract 30

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

Author: Prof. Savinov, Dmitri, Saint-Petersburg State University, St.-Petersburg, Russian Federation (Presenting author)
Keywords: Central Asia, Early Iron Age, offering contexts

Presentation Preference: Poster

“Myriessential” concept is a model of ancient population worldview. It was building 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

Thijs Postma, Daniël Mele - Postma, Daniël, University of Groningen, Groningen Institute of Archaeology, Groningen, Netherlands. (Presenting author)

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 think about how domestic 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 climatological 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 recognise ideological matters 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 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 even more ambitious question: through credible architectural reconstructions and our understanding of past home spaces, can we inspire the design of family architecture in a sustainable future?

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TH1-08 Abstract 01

Building on buildings: creating a solid foundation for the contextualisation of building remains

Author - M.A. Postma, Daniël, Groningen Institute of Archaeology, Lelystad, Netherlands (Presenting author)

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 paper presents a simple strategy to establish a more solid argumentation for interpreting archaeological building remains. 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. The paper presents a simple strategy to establish a more solid argumentation for interpreting archaeological building remains. 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.

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TH1-08 Abstract 02

Hands build a house but what makes a home?

Populating space in an Anatolian Early Bronze Age village

Author - Dr. Picciona, Paola, Rome, Italy

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 paper presents a simple strategy to establish a more solid argumentation for interpreting archaeological building remains. 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. The paper presents a simple strategy to establish a more solid argumentation for interpreting archaeological building remains. 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.

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TH1-08 Abstract 03

From the edge of the settlement to the centre of attention - new building remains from KleinKlein(A)

Author - Mele, Marko, Slovenia (Presenting author)

This paper presents a simple strategy to establish a more solid argumentation for interpreting archaeological building remains. 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. The paper presents a simple strategy to establish a more solid argumentation for interpreting archaeological building remains. 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.

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TH1-08 Abstract 04

CREATING THE SPACE FOR FAMILY AND COMMUNITY

This paper presents a simple strategy to establish a more solid argumentation for interpreting archaeological building remains. 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. The paper presents a simple strategy to establish a more solid argumentation for interpreting archaeological building remains. 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. The paper presents a simple strategy to establish a more solid argumentation for interpreting archaeological building remains. 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.
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 Eznige by one of the founding fathers of Dutch archaeology, A.E. van Giffen. Eznige 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 Eznige ultimately reached a height of 5.5 m and covered 16 ha, about 10% of which was archaeologically excavated in 22 levels.

Eznige 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 these 3-aisled, two-partite houses with built-in byres. Excellent preservation, also of pottery and bone, enabled not only a thorough investigation of the cultural meaning, 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 burials (probably the remnants of the dead which were collected after a process of exhumation) 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 - Eriksson, Susanna, SAU, Upplands Väsby, 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, groundplan shapes 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 of which are gaining on the basic family structure, another long debated issue is the one about which parts of the house where designed for livestock or not. Is it this due to an new roof-supporting holds 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 06
The Dark Ages? Light and its absence in medieval domestic spaces
Author - PhD student Qviåström, 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, Stiftelsen Kulturmiljövård, Upplands Väsby, 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. With 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 house. The houses are three-aisled, east west orientated and divided in 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 been.
THI-08 Abstract 09
At the hearth. Daily life, and domestic architecture in Early Iron Age farmsteads of Western Denmark
Author - Dr. Nygår, Niels 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 benefits from the large amount of completely excavated farmsteads and macrofossil - 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 outhouses and the fencent 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 latter 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 homeliness 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.

THI-08 Abstract 10
Charting the microstratigraphic life-cycle of an early Roman urban property, Roman Silchester, UK
Author - Dr. Barerja, 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 truncated by later building foundations or, as observed at Roman Silchester, by the trenches of Antiquarian excavators. Previous research at Silchester has integrated thin-section micromorphology and experimental archaeology to characterise sediments and occupation deposits to identify doorways rolled, semi-rolled, and open spaces within the properties in order to understand their architectural form.

Building on this previous research, this paper will chart, using a microstratigraphic 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' frontage 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 earthen floors, and the division of spaces. Earlier uses of this property may include the manufacture of glass, and spaces where animals were stalled. 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 acculturation?

THI-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 I 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 indicate considerable nod to the social significance of domestic space in the North Atlantic region.

THI-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 castlecomplexes 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; grouping them 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 farthest corner angle from the main entrance (diagonal 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.

Does 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 households - who made choices about how to use and live in them (within the constraints of their traditions).

THI-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. Clupec, 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 similar constructed structure, settlements from this time frame seeming 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 - McCullagh, Rodney, 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 the Neolithic, would most likely see an homogeneous dominance of the conical roof. This may represent the last 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 metawork masterpieces such as the Mony Musk casket, and to ornate sculpture, such as Forthivarch arch, we have evidence that in some circumstances, builders, designers and craftspeople stepped far beyond what merely practically 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 Whitother, 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.

TH1-08 Abstract 15
Reconstruction of Neolithic dwellings. On the materials of North-West Russia (Smolensk region)
Author - Khvatalskaya, 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, first, clay, etc.), hunting, grazing, etc. This also explains the functional differentiation of settlements and dwellings of different times and the urban conditions. The material and technological processes of production and construction in the settlements of the Neolithic period were due to the use of natural (stone, bone, clay) materials.

Finally, the nature, the layout, the size of settlements and dwellings, details of interior depended on the social and economic 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 untouched 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 set as goal is 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 untouched 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.

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 databases - especially whether compositions suggest both a Levantine and a non-Levantine provenance.

Here we present results from 40 samples that we have analysed using SEM/EDX and LA-ICPMS analysis. The assemblages from which samples were taken consists of fragments of glass vessels, cups, plates, bowls, vases, vessels and bowls; a variety of glass types, decorated and plain, including bottles, perfume flasks, rings, beads, etc.

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 different production zones. A comparison of these glass chemical compositions with contemporary glass artifacts leads to new insights into the production and distribution of glass used in Greek region during the Hellenistic period.
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, lapédan 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 abundance in different areas, and the analogues in the neighbouring regions. This study builds on the 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 prior hypothesis about the vitreous material is largely disproved: rather than being glass paste, the beads are in fact a transitional phase between glass and faience, and the yellow decoration is not painted on but made of true glass.

The two types of glass, and the raw materials used for their production, are very different: the yellow glass is probably imported as ingot, while the cobalt blue possibly indeed locally produced. Furthermore, the archaeological context allows a discussion of the beads’ meaning and use. Their distinct appearance was intentional, possibly in order to reinforce the identities of the lapédan group. Although the lapédan were importing glass from their well-known glass-producing neighbours of the Lower Carniola group, they still held on to this particular type of bead.

Additionally, these beads predominantly appear in female burials, possibly signifying a certain ascribed or achieved status of these women in the lapédan society, which sheds light on the existing female social roles in the Iron Age.

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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) with the collaboration of Bernard Gratuz. We had the possibility to study the important collections of Latrat (Hérault), Bobbigy (Seine-Saint-Denis), Toulouse (Haute Garonne) and a part of the large glass deposit of Mathay-Maniour (Doubs). The study has also been conducted on 40 raw glass fragments from 3 shipwrecks sank between the third century and the end of the second century B.C. One of these raw glass fragment was recast 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 was produces. It give 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’s give news clues on the organization of raw glass productions. The objective of this communication is to share this result in order to open new chapters on European projects on La Tène glass characterization.

TH1-09 Abstract 08

The Irish Glass Toggle: Exploring the function of an enigmatic Iron Age ornament

Author - Jordan, Alexis, University of Wisconsin-Milwaukee, Milwaukee, United States of America (Presenting author)

Keywords: glass, Ireland, Iron Age

Presentation Preference - Oral

The study of personal ornaments in the European Iron Age has long been a fruitful avenue of research for archaeologists wishing to explore topics such as social status, identity, technology, and trade. As portable pieces that can be reliably sourced and serve as stylistic, temporal, and social markers, beads reflect larger patterns of social interaction and communication especially during periods characterized by significant change and increasing mobility. In the Irish Iron Age, the systematic study of artefact types has raised new questions regarding intercultural and indigenous craft production on the island. This paper will focus on glass toggle ornaments, often described as dumbbells, which have typically been categorized as a glass bead form although they lack the distinguishing perforation. Few in number and appearing almost exclusively in Ireland, Irish age toggles span mortuary, ceremonial, and settlement sites across the island. The glass toggles vary in shape and color, and bone and amber examples are known. Through an examination of emergent patterns within the site types, associated artifact assemblages, spatial and temporal distribution, and stylistic variability of the toggle, an analysis of the potential functions and archaeological significance of this enigmatic personal ornament will be explored.

TH1-09 Abstract 09

Roman-British glass bracelets: where La Tène Continental technology meets Iron-Age British design

Author - Dr. Ivelva, Tatiana, 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 distinction and typology of British glass bracelets suggested that British examples stand out in their 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 reappears 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 mostly produced in the similar manner as some of the La Tène Continental bracelet types, that is in a technique similar to that suggested by Jouille 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 tails with curved terminals. A convincing hypothesis was put forward by the earlier scholars that the design of some British bracelet 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

Analyzing 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 inlay red glass flourished 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, 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 tesselae or rods. However, within Britain the use of ‘sealing wax’ red glass was retained, but was 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 ‘nymphaeal’ in southern Italy, in Hellenistic red glass and in red glass from Jerusalem.

Antimony was used in small quantities as a decolurant 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 fluxing agent. However, antimony ores are relatively rare in Britain, and there is no evidence these were exploited. 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 tesselae continued to be coloured with this material into the Roman-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 separate; 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 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

Author: Cesarein, Giulia, Universität zu Köln - Archäologisches Institut, Cologne, Germany, Castrion di Strada, Italy (Presenting author)

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 shallow bowls), technical details and subdivision of the decorated surface.

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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, Aegaeon, 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 socioeconomic dynamics, related to the diffusion and consumption of these luxury items, expression of an extremely restricted elite.

EXPLOITATION STRATEGIES OF THE ANIMAL ENVIRONMENT OF THE LAST HUNTER-GATHERERS AND FIRST FARMERS IN EUROPE

Saturday, 3 September 2016, 09:00-13:00
Faculty of History, Room 218

Author: Margarit, Monica, Valahia University of Targoviste, Targoviste, Romania (Presenting author)
Co-author(s): Baronaent, Adina, Researcher, Institute of Archaeology "Vasile Parvan", Romanian Academy, Bucharest, Romania
Co-author(s): Dimitrijevic, Vouna, Laboratory for Bioarchaeology, Department of Archaeology, Faculty of Philosophy, Belgrade, Serbia
Co-author(s): Prof. Bonsall, Clive, School of History, Classics and Archaeology, University of Edinburgh, Edinburgh, United Kingdom

Keywords: animal environment, Early Neolithic, Mesolithic

Presentation Preference - Regular session

The profound climatic changes and the need to identify solutions for the survival of human kind represent major topics of debate in contemporary society. Throughout their 200,000-year history modern humans have been faced with climatic changes some of them radical, which had a significant impact on the strategies employed for the exploitation and management of the environment, especially the animal life, and were reflected in the types of economic practices.

Through this session proposal, we will analyze, quantify and compare the effects of this phenomenon and provide an integrated view of the ways in which the animal environment was exploited by prehistoric communities at the transition from hunter-gatherer to farmer stockbreeder, identifying and comparing different eco-cultural models developed across Europe. The investigations will cover two priority domains: biodiversity evolution (e.g., taxonomic richness; magnitude of faunal turnover) and correlative human societal transformations, especially in animal management and techniques of exploitation (bone manufacturing). Among others, the aim of our session includes the identification of the modifications that intervened in the relation between the exploitation of the animal environment and the way in which it was reflected in palaeo-economy, habitat, social or spiritual organization. We invite speakers to discuss these topics from different perspectives: both theoretical and practical approaches are encouraged.

Transition to Holocene in the hinterland of eastern Adriatic: Archaeofauna of Zemunica cave, Croatia

Author: Redovcic, Sinisa, Croatian Academy of Sciences and Arts, Zagreb, Croatia (Presenting author)
Co-author(s): Oros Srsen, Ankica, Croatian Academy of Sciences and Arts, Zagreb, Croatia

Keywords: Pleistocene-Holocene transition, mammal remains, bird remains

Presentation Preference - Oral

The archaeozoology of the eastern Adriatic region is well documented through studies of faunal remains from coastal and island sites. However, hinterland is still 'shadowed' due to very little information available, mostly because of lack of explored sites. Zemunica cave is situated in the Middle Dalmatia around 35 km northeast of Split, near the village of Blako. It was excavated in 2005 during rescue archaeological excavations, revealing a stratigraphic sequence from the Late Upper Paleolithic to the Early Bronze Age. Here we focus on the archaeofaunal material recovered from the deposits dated to the Pleistocene-Holocene transition and the Early Holocene.

The vertebrate faunal assemblage comprising large mammal and bird remains shows interesting temporal trends in its taxonomic composition as well as in surface bone modification, indicating changes in the surrounding environment and corresponding subsistence strategies. The results of this study present interesting new data and contribute to our knowledge of the exploitation strategies practised by people living in the hinterland of the eastern Adriatic as adaptations to the climatic and environmental changes of the Pleistocene-Holocene transition.
Between the forest and the river: fishing, hunting and fishing in the Danube Gorges in the Mesolithic

TH1-10 Abstract 02

Author: Živaljević, Ivana, Laboratory for Bioarchaeology, Belgrade, Serbia (Presenting author)
Co-author(s): Živaljević, Ivana, Laboratory for Bioarchaeology, Belgrade, Serbia
Keywords: Mesolithic, archaeozoological remains, food refuse

The first study of the archaeozoological remains from Iocana was made 40 years ago by Alexandra Bollens. 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 palaeoecologies. This has resulted in a new interpretation of the local fauna and Mesolithic hunting activities. All the remains are interpreted as food refuse, with high fragmentation ratios. The list of taxa identified includes molluscs (1 species), fishes (49), reptiles (1) and mammals (16). 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 shows that dog contributed to the food supply, which was also observed in the Mesolithic levels at Lepenski Vir, Vlasac and Padina.

* This work was supported by a grant of the Romanian National Authority for Scientific Research and Innovation, CNCS – UEFISCDI, project number PN-III-P1-1101-1906.

TH1-10 Abstract 03

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

Author: Mijagić, Monica, Valahia University of Târgoviște, Targoviste, Romania (Presenting author)
Co-author(s): Boroneant, Adina, Institute of Archaeology “Vasile Pârvan”, Romanian Academy, Bucharest, Romania
Co-author(s): Bonsall, Clive, University of Edinburgh, School of History, Classics and Archaeology, Edinburgh, United Kingdom
Keywords: Mesolithic, Sus scrofa, tusk

The Mesolithic settlements in the Iron Gates have yielded rich assemblages of modified Sus scrofa canines, exemplified here by the site of Iocana (Romania). This raw material seems to represent, for Eastern European, a hallmark of Mesolithic. Indeed, during the Neolithic, 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 adorments. Deblattage remains are also present, indicating on-site tusk processing. Boar tusk was readily available from the animals that were killed, and analysis of the faunal assemblages 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.

* For the project 33/195: 2014 K.

TH1-10 Abstract 04

Iocana revisited: an archaeozoological perspective

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Co-author(s): Živaljević, Ivana, Laboratory for Bioarchaeology, Belgrade, Serbia
Keywords: Archaeological remains, Mesolithic

The Low Povolzhye includes the northeast Caspian Sea region, the Povolzhie steppes and the semi-desert Caspian Sea region. Following a period of aridification, a humid period began in this region around 6700 cal BC. Desert conditions were replaced by a more favorable steppe-landscape. This allowed a hunting economy to function properly. All sites were located on lake shores, which were a magnet for animals. Onager and saiga antelope were hunted at watering sites in the north Caspian Sea region, onager, saiga antelope, aurochs and tarpan in the steppe Povolzhye, and gazelle in the northwest Caspian Sea region. Red deer, wild boar, wolf, fox and hare were hunted to a lesser extent. Bird bones are rare in the archaeological assemblages. Geometric microliths of trapeze and segment shapes were used as arrowheads. Fish bones, including catfish, pike-perch, pike and sturgeons, were found at individual sites near the river.

There are solitary records of turtles. The only domestic animal was dog. Hunting and fishing took place all year round. Hunts increased further around 5500 cal BC and aurochs and tarpan started to appear in the north Caspian Sea region. But their hunting percentage is low. The number of sites decreased at that time, and the proportion of wild animal bones also decreased. A hunting crisis began to emerge. Hunting of onager and saiga antelope in the Low Povolzhye was decreasing around 5000 cal BC, and hunting tarpan and aurochs strongly decreased. This was due to changes in livestock husbandry. There was a shift from hunting to cattle breeding. Bones of domestic sheep and goats from this period were found on the sites of the Caspian Sea region culture (in the north Caspian Sea region and in the Povolzhie steppes). According to the Khvynkyn culture materials (4700-4500 cal BC), hunting of aurochs and tarpan ceased in this region. The role of onager and saiga antelope became extremely small. In their place, bones of sheep and domestic cattle are found. The changed animal exploitation strategy was not related to developments within the local population. New cultures with their distinctive pottery, new raw materials and special techniques for producing stone tools came to the Low Povolzhye. These tribes hunted, but on a smaller scale. This was not an evolutionary process, but a transformation.

* This work was supported by a grant of the Romanian National Authority for Scientific Research and Innovation, CNCS – UEFISCDI, project number PN-III-P1-1101-1906.
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 Zamosc 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 of the landscape did not influence subsistence strategies of ancient inhabitants greatly, in spite of the appearance of pottery making technology. Bone hunting always occupied an important place in the subsistence activity of the Zamosc 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**

**Author**: Selena, Vitezović, Institute of Archaeology, Belgrade, Serbia (Presenting author)

**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 also antlers, teeth and occasionally, mollusc 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 were represented as a single bone. 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, while offering new perspectives on animal domestication. Here we present the results of an integrated study involving carbon and nitrogen stable isotopes, slaughter pattern, morphometric and biometric analysis of wild and domestic pig assemblages from the northeast Iberian Peninsula, dated between 5700-4800 cal BC. This multidisciplinary approach aims to: (i) evaluate changes in pig management and exploitation strategies, and (ii) assess the broad social and environmental implications during the Early Neolithic in the northeastern Iberian Peninsula. Our results indicate that the diet of Sus scrofa was substantially modified by Neolithic societies in the northeastern Iberian Peninsula. We interpret this change as a result of the new selective pressures to which the wild species were submitted by humans during their domestication. The impact of this change on management strategies is also assessed, taking into account the different work processes and social relationships involved in the management of this resource.

TH1-10 Abstract 09

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

**Author**: Dimitrijevic, Vesna, University of Belgrade, Belgrade, Serbia (Presenting author)

**Co-author(s)**: - Blagojevic, Tamara, University of Belgrade, Belgrade, Serbia

**Co-author(s)**: - Stefanovic, Sofija, University of Belgrade, Belgrade, Serbia

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

**Presentation Preference**: Oral

The economy was based on hunting elk, beaver, aquatic and wading birds, as well as intensive activity. As genetic evidence suggests, cattle was introduced to Europe from its initial centres of domestication in the Near East. However, differences in 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 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 Palaeolithic 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.

TH1-10 Abstract 10

**The Copper Age fishery at Pietrela, 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 metalurgy, incipient social stratification, and (at many sites) a renaissance in the exploitation of wild animals in the subsistence economy (although domesticated animals continue to be important). Since 2002, excavations at the site of Pietrela, 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.
THI-11 Abstract 02
Before and after the emporium. The early and late phases of Walichrum (Domburg-Oostkapelle, NL)
Author - Dr. Deckers, Plataniert, 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 re-examination of all evidence of Walichrum, both archaeological and derived from analyses of Latin vocabulary from contemporary historical sources, to the application of Polanyi’s concept of “ports of trade”, to the use of neologisms such as “early towns” or “proto-towns” or lately the simple the designation of “Viking-age towns” from analyses of Latin vocabulary from contemporary historical sources, to the application of Polanyi’s concept of “ports of trade”, to the use of neologisms such as “early towns” or “proto-towns” or lately the simple the designation of “Viking-age towns” or “towns of the age”. However, apart from a few exceptions (e.g. the works of R. Hodges or J. Caillet), discussions soon turn into debates over terminology rather than on the actual nature of these sites, and most studies have faill in one declare way: the sites under discussion are treated as monolithic entities instead of dynamic environments with distinct development phases and different characteristics over their often considerable periods of existence. Archaeologically, this misconception is often predominately based on the mid-phase of an urban development, which has been taken as representative for the site as a whole. Being covered by metres of cultural layers, a search for these settlements spatially limited roots can literary turn into a quest for a needle in a haystack. The latest Early Medieval developments on the other hand are often either largely disturbed in the plow layers or strongly affected by the subsequent High Medieval settlement activities, including masonry construction and collars. This session, therefore, seeks specifically to address the incoherent phases of urban development at both their inception phases and up through the latest Early Medieval structures on these sites. Papers in the session will address methodological problems, but more importantly, they will seek to widen our understanding of early urbanism as a complex and utterly dynamic process.

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, geoaorcheology, urbanisation
Presentation Preference - Oral
The settlement areas of early medieval towns have in the past been subject to generalisations interpretations of their character, layout and function. Changes in these towns’ dynamics over generations of town dwellers have not often 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 geoarchaeological approaches (micromorphology, microXRF, 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. Illusrating this approach with case studies from the Low Countries, including Tongeren and Antwerpen, and Scandinavia, such as Holmsund 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 or nuance is captured by geoaarchaeological means, but more details can be addressed at the scale of each individual town, perhaps even narrowing down the scope to particular changes at the scale of generations. Not just a diachron full 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 diachron 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.

THI-11 Abstract 01
Emergence and Downfall of Viking Towns: The Concealed Phases within the Archaeological Record
Author - Dr. Kalmring, Sven, Centre for Baltic and Scandinavian Archaeology (ZBSA), Schleswig, Germany (Presenting author)
Keywords: Concealed Phases, Urbanisation, Viking Towns
Presentation Preference - Oral
In Viking studies one of the most attended field of research is – apart from the process of Christianisation and Scandinavia’s integration 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 phenomenon – have existed and change over a time period of some 250 to 300 years. The reason for this is due to the fact that the earliest traces of over time intensively settled communities are covered by metres of cultural layers and thus their spatially limited origins tend to be hard to trace down. And in some regard the same is true for their latest phases of development exposed to ploughing, erosion or modern construction. Despite these obstacles this paper wants to focus on just these hard to grasp phases in order to contribute to a more differentiated view on Viking urbanism in its chronological depth deserved.

THI-11 BETWEEN LANDING SITE AND VICUS – BETWEEN EMPORIUM AND TOWN. FRAMING THE EARLY MEDIEVAL URBAN DEVELOPMENT

Saturday, 3 September 2016, 09.00-18.30
Faculty of Philology, Room 118
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Co-author(s) - Van Oosten, Roos, Leiden University, Amersfoort, Netherlands
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Keywords: early medieval, urbanisation

Workshop

Urban development is one of the most pressing topics within Early Medieval archaeology. Among scholars there is heated debate about how to think about and study these urban places before the emergence of “proper” High Medieval towns. Strategies range from analyses of Latin vocabulary from contemporary historical sources, to the application of Polanyi’s concept of “ports of trade”, to the use of neologisms such as “early towns” or “proto-towns” or lately the simple the designation of “Viking-age towns” or “towns of the age”. However, apart from a few exceptions (e.g. the works of R. Hodges or J. Caillet), discussions soon turn into debates over terminology rather than on the actual nature of these sites, and most studies have faill in one declare way: the sites under discussion are treated as monolithic entities instead of dynamic environments with distinct development phases and different characteristics over their often considerable periods of existence. Archaeologically, this misconception is often predominately based on the mid-phase of an urban development, which has been taken as representative for the site as a whole. Being covered by metres of cultural layers, a search for these settlements spatially limited roots can literary turn into a quest for a needle in a haystack. The latest Early Medieval developments on the other hand are often either largely disturbed in the plow layers or strongly affected by the subsequent High Medieval settlement activities, including masonry construction and collars. This session, therefore, seeks specifically to address the incoherent phases of urban development at both their inception phases and up through the latest Early Medieval structures on these sites. Papers in the session will address methodological problems, but more importantly, they will seek to widen our understanding of early urbanism as a complex and utterly dynamic process.

BETWEEN EMPORIUM AND TOWN. FRAMING THE EARLY MEDIEVAL URBAN DEVELOPMENT
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 12th 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 - Catafon, Diego, Stanford University, Stanford, United States of America (Presenting author)
Keywords: Adriatic, Emporia, Venice
Presentation Preference - Oral

How did Venice’s urban landscape look 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 unforeseen islands among the marshes to live in safety. In these islands the newcomers were able to rebuild a place that - according the historic 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 supposedly non-existent ancient 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 exoteric, but followed precise social and economic designs. The settlement followed the movements of the lagoon and the river mouths: the first Venetians tried to occupy the more distant islands 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-capitale site. A large part of the production (shipyard, industry, commerce, metal and glass productions, etc.) was made by labour forces with a status very similar to slaves. Probably, also, slaves were one of the most valuable goods, which the Venetians traded with the Islamic world. But slaves, dirty workshops or labour class issues are not good ingredients for the myth of the origins or for the official history of a superpower state. Venice proudly defined itself from the very beginning as a democracy and a free republic: Venetians needed a respectable and glorious past, and they made it up, reshaping also the “ideale” of the early city. The idea of the early Venice, moreover, cannot be separated from the present. Traditional archaeology, instead, has studied it as phase of the previous roman past. The archaeological study of its urbanism should it considered in the counter light of the fluid social negations that took place around a very specific environment, creating polyfocal sites, which will be cities in the following times. By the 5-3 centuries BC increasing complexity of fortifications is recorded. The number, height and power of the walls increased. By the 2nd quarter of the 1st millennium BC the middile of the 1st millennium AD the number of settlements increases. In the forest-steppe zone of Trans-Urals they number more than 100. One-third of excavated settlements are multicultural, from 15 to 20 fortified settlements belonged to carriers of this cultural traditions. Within this cultural tradition the dynamics of fortifications is well traced. Fortification 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 S-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, craters, 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 typical of Chinese and Central Asian origin indicating them as centers of trade and exchange. The fortresses became 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. Habib Ochir-Goryayevo, Institute of archaeology Tarastan academy of sciences, Kazan, Russian Federation (Presenting author)
Co-author(s) - Dr. Habib Eldikov, A. Institute of archaeology Tarastan academy of sciences, Kazan, Russian Federation
Keywords: Chasarian Kaganat, steppes, urban development
Presentation Preference - Oral

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 Sarkan-Belaya Vezeha, Pravobereznoye Taimlyanskoye gorodishche (urban development), and Semikarakorovskoye gorodishche. Numerous urban developments in the adjacent areas of the foreststeppe Podorje (the Don basin valley) and Prolomovoye (the Don river 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 Chasarans. 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 Pravobereznoye Taimlyanskoye gorodishche an urban development was opened, which contained the ruins of a fortress wall of white lime stone. One of the stone blocks displayed a tamp of a typically Chasarian shape. The new fortress got the designation of Sarkan-3 as a part of the whole agglomeration complex that includes also Sarkan and Pravobereznoye Taimlyanskoye urban developments. At the same time a Chasarian epoch lower layer was opened under the layers of the Golden Horde urban center on the site at the village of Samosdelka in the Volga estuary. According to the archaeologists that led the excavations, the geographical position and the character of the constructions of the Samosdelka lower layer suggest that these may be the remnants of the town of Illi. In 2008 followed the opening of the Bashanta gorodishche that contained the ruins of constructions made of white clay stone and tile fragments parallel to those found in late Chernomorsk on the Crimean peninsula (Jacobson, 1958, 1964). One of the stone blocks also had a tamp in it. According to two radiocarbon dates (625-655 at 68.3% and 600-662 at 95.4%, and (672 - 782 at 99.8%), resulting from the analysis carried out by Leibnitz Laboratory of the University of Bremen, 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 Khalilov Institute of Archeology of the Tatarstan Academy of Sciences, resulted in discovering cultural horizons from this epoch. As a number of the recovered finds show, it is clear that the Lower Volga was the center of the time of the urbanization of the Chasarian Kaganat. Thus, future 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

Author - academician Makarov, Nikolay, Institute of Archaeology of the Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)
Keywords: -large unfortified settlements-early urbanization, Upper Volga
Presentation Preference - Oral

Early urbanization of Northern Rus’, including Upper Volga region, is usually presented as the formation of the trading centers which emerged in IX-X cc. on the river routes from the Baltic to the East in connection with the Oldenburg 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 Opole region in the Upper Volga, which constituted the core area of Northern-Rus’, conducted in 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 interesting of this category were the -large unfortified settlements- extensive unfortified sites or site clusters, with the area from 4 to 15 hectares. These large unfortified settlements provide 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, became noticeable only in the 13th century. There is no evidence of its social and political importance in the X-XI cc. 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-I cc. Large unfortified settlements of Suzdal land have much in common with the sites in different regions of Rus’, which were earlier attributed as proto-urban centers or trading centers on the river routes. The difference is that the former could hardly be regarded as the sites with the central functions- 10 dwelling sites were concentrated in considerable space, the distance between the neighboring sites varied from 6 to 14 km. Another important point is that large unfortified settlements couldn’t have been used for the control over the water-routes. They are located on the small rivers, often- on the waterways. Field work at the sites of Suzdal Opole lead to re-evaluation of the interpretation of sites, which were formerly regarded as emporia or proto-urban centers in the Upper Volga, like Timerevo and Sarskoe near Rostov. Their status in the settlement hierarchy probably was overestimated. New investigations reveal, that long-distance trade in the Upper Volga in the Viking age was not monopolized by one single center – it developed through the formation of considerable wide networks of sites.
TH1-11 Abstract 12

More than a landing site, less than a vicus. Medieval Gáisr in northern Iceland

Author - Prof. Þelín sladóttir, ORI, University of Iceland, Reykjavík, Iceland (Presenting author)
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Keywords: Iceland, Medieval, Trade
Presentation Preference - Oral

Gáisr is well known from historical records as the main trading site in northern Iceland in the medieval period. The site has extensive ruins and a church and when large-scale excavations began in 2001, it was expected that direct evidence would be found of exchanges between foreign merchants and native Icelanders. 6 years of meticulous excavation failed to identify much evidence for trade taking place at the site, which nevertheless has several of the attributes normally associated with emporia. This has raised questions about the nature of the site and the nature of trade in a marginal economy like Iceland’s. The paper discusses the evidence unearthed at Gáisr and places it in the context of social and economic organization in the medieval North Atlantic.

TH1-11 Abstract 13

From late prehistoric harbours to medieval towns in the eastern coast of the Baltic

Author - Dr. Miäg, Marita, Tallinn University, Tallinn, Estonia (Presenting author)
Keywords: development of towns in the Eastern Baltic, Iron Age, trade and communication
Presentation Preference - Oral

Although several international trade routes run through the Eastern Baltic, Viking Age hill-forts and settlements are predominantly found along Estonian northern and insular coasts, while the number of them along Latvian and Lithuanian coasts is quite modest. The situation changed in the 11th-12th centuries, as several coastal settlements were taken into intensive use. Not all of them developed into medieval towns, and some medieval towns were established in places without any prior settlement. My speech focuses on the predecessors of two present-day Eastern Baltic capitals, Tallinn and Riga. Both of them were founded as towns in the first quarter of the 13th century, however it is at first glimpse the two cities’ differences that stand out. Quite a number of 12th-century archaeological remains have been uncovered in Riga, while in Tallinn no pre-13th century archaeological layer has been demonstrated below streets and walls of the Old Town so far, despite of numerous archaeological excavations. However, settlement remains were recorded a couple of hundred meters away from the Old Town of Tallinn. A closer look also reveals other similarities in the natal phase of Tallinn and Riga, e.g. adjacent hill-forts and the vicinity of probable cult-places. Their similarities also include topographic location of the those accompanying sites, and their place in an overall culture historical complex. It depends on one’s research methods, favourite theoretical schools and later history how to interpret the sites under present-day Tallinn and Riga. Looking around in the Baltic Rim, parallels can be found for the development of these sites, while comparisons to similar settlements with somewhat different later history may be drawn on Eastern Baltic coasts. Ideas of the origin and development of prehistoric Riga and Tallinn will accordingly be presented in my speech, placing them in a broader international context.

TH1-11 Abstract 14

Hot beds? Manure pits in medieval Ackerbürgerstädte

Author - Dr. Van Oosten, Roos, Leiden University, AMERSFOORT, Netherlands (Presenting author)
Co-author(s) - Aerts, Sander, Leiden University, Leiden, Netherlands
Co-author(s) - Habraken, Ruben, Bio Archaeological Research Bureau, Leiden, Netherlands
Co-author(s) - Hekx, Eric van, Leiden University, Leiden, Netherlands
Co-author(s) - Hes, Jantine, Municipal archaeological service of Delft, Delft, Netherlands
Co-author(s) - Riddervoorde, Femke, Leiden University, Leiden, Netherlands
Keywords: agrarian towns, hot beds, 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. Historical texts dating from the seventeenth and eighteenth centuries describe a method of hot beds that might help explain the manure pits. Horse manure was spread on the bottom, and once fermentation had begun, a layer of soil was spread on the steaming manure, ready to be planted with cucumber, radish and melon. The heat produced by the manure guaranteed that vegetables could be planted months earlier than if a hotbed had not been used, and then also harvested earlier.

The main question in this presentation is whether archaeological manure pits can be designated as hot beds. If so, this would reveal a form of urban market gardens. The preliminary results of the multi-disciplinary manure pits research group will be presented.

TH1-11 Abstract 15

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

Author - Dr. Nicosia, Cristiano, Université Libre de Bruxelles, Bruxelles, Belgium (Presenting author)
Co-author(s) - Vdaglah, Luc, Université Libre de Bruxelles, Bruxelles, Belgium
Co-author(s) - Degraeve, Ann, Head of the Department of Archaeological Heritage, Brussels, Belgium
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 centuries 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 (Charnaudas, 2011).

Of course the question should be raised whether there are any archaeological data supporting this hypothesis. Despite the many interventions taking place in the centre of Brussels, no remains of farmsteads 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 (Devos et al., 2009; 2011, 2013, Vdaglah 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 land, and the cultivated crops.

References:
Devos, Y., Nicosia, Cristiano, Université Libre de Bruxelles, Bruxelles, Belgium.

TH1-11 Abstract 16

An agrarian town? – understanding the earliest phase of the medieval town Odense in Denmark

Author - PhD student Hasse, Kirstine, Aarhus University, School of Culture and Society, Kolding, Denmark (Presenting author)
Keywords: Medieval archaeology, Urbanization
Presentation Preference - Oral

The situation of Odense as a developing town in the early middle ages is too long and complex to be interpreted in one line. It is necessary to understand the development of the town as a whole and not focus only on the historical aspect in the late middle ages and the renaissance. Odense was founded in the early middle ages and as such became a town with its own identity. The town grew over time and developed into a town with a strong agrarian base.
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 lacking, 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 micromorphological analysis. With an extensive finds assemblage and well-preserved structures such as buildings, houses, byres and stables, latrines, paths, roads, fences, manureheaps 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.

TH1-11 Abstract 17
Craftspeople in emporia - the original cast.
Non-ferrous metalworkers in eighth century Ribe

Author - Prof. Sindbæk, Søren, Aarhus University, Højbjerg, Denmark (Presenting author)
Co-author(s) - Neiss, Michael, Uppsala University, Uppsala, Sweden
Co-author(s) - Crox, Sarah, Aarhus University, Højbjerg, Denmark
Keywords: 3D laser scanning, 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 work produced a range of items including bits for horse harness, decorative loci and dress ornaments. In each case the finished product demanded a range of specialized materials, and thus presumably the skills and expertise of a group of craftsmen. The need for collaboration between specialized artisans was a vital reason why permanent communities of an urban character emerged in ports with privileged exchange relations with the core regions.

TH1-11 Abstract 18
Multimetal smithing - 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 smithing 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 smithing, as well as manufacturing 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 entailing their identity as “centralised”.

Recent research has come to challenge the unification of this link between urbaniity, centrality and complex metalworking as sites in rural settings with evidence of multimetal smithing are being identified. This shows that the relationship between the craft and centrality (urbanity) must be nuanced and that perhaps multimetal craftsmanship should be re-considered as an urban indicator.

The thesis project “From Crucible and onto Amvil” started in 2015 and focuses on sites housing remnants 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 aim in the project is to elucidate the conceptual aspects of complex metalworking. The term multimetality 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 socioeconomic 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 their internal, topographical distribution as well as architectural features will be incorporated as the main base for a functional interpretation of and motives behind the buildings and the activities pertaining to the site in general. The topic of commercial control and what type of influence the aristocracy had on the early development of these types of sites will be included. Furthermore, the structural fluctuation of the site at Toftum Nøje, and in particular the changes which seems to have taken place during the 7th and 8th century, both in the site in question, but also with regards to the overall development of the Viking Age towns, will be debated in the paper.

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 maritime 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 Aeggerborg, 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 capital 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 centralization prior to the existence of Aeggerborg 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. This paper discusses the basis of a revised model for the socioeconomic development in the Limfjord region, the role of Aeggerborg and the broader 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 emphasize the presence of distinct regional patterns of socioeconomic change.

TH1-11 Abstract 20
No town is an island

Author - PhD Jessen, Mads Deng, National Museum of Denmark, Kløb, 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 developmental 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 kind 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. Craftsmanship and their internal, topographical distribution as well as architectural features will be incorporated as the main base for a functional interpretation of and motives behind the buildings and the activities pertaining to the site in general. The topic of commercial control and what type of influence the aristocracy had on the early development on these types of sites will be included. Furthermore, the structural fluctuation of the site at Toftum Nøje, and in particular the changes which seems to have taken place during the 7th and 8th century, both in the site in question, but also with regards to the overall development of the Viking Age towns, will be debated in the paper.
Production and Distribution networks in the Diocese of Tuam, West of Ireland, AD 500-1000

Author - Tigh, John, Trinity College Dublin, The University of Dublin, Castletown, Co. Mayo, Ireland (Presenting author)

Keywords: Church/Sacral, 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 Doonoughough, 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 item's 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 Cluainlurg, 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 'civitas' to describe sites such as Kildare, 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 ringshirt could not 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 Doonoughough and Tuam have shown that despite the west of Ireland being largely ignored when talking about the Early Medieval Irish economy, its peripheral nature than and now, mitigates the problem of modern urban development that is common, particularly among the environments of formerly 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.

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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 Pierre, Weber, 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 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.

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A town in the making - exploring early urbanity of Copenhagen through the study of social practices

Author - MA Dahlström, Hanna, Aarhus University, Højbjerg, Denmark (Presenting author)

Keywords: Iron processing, social practices, urbanity

Presentation Preference - Oral

Classical ways of defining urbanity 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 urbanity 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 urbanity 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 1050-1300. 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?

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Small town in medieval Russia: the ratio of agricultural, craft and administrative functions

Author - Koval, Vladimir, Institute of archaeology RAS, Moscow, Russian Federation (Presenting author)

Keywords: administrative function, agrarian towns, small towns

Presentation Preference - Oral

Small towns in medieval Russia remains one of the most mysterious phenomena. Unlike the cities of Europe and the Orient, the medieval (11-16 cc.) Rower structures founded towns in Russia primarily as administrative points. Therefore agricultural component of their life was most vital. However, these towns soon transformed to centers of trade and crafts. If this transformation did not occur, town became unviable died quickly. But the ruralization of life persisted in many towns to the 20th c.

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Medieval Oslo Revealed: Latest results from the Follo Line excavations

Author - Nordlie, Erlend, Norwegian Institute for Cultural Heritage Research, Tårnbyen, Norway (Presenting author)

Keywords: Excavation, Medieval, Oslo

Presentation Preference - Poster

We will present the latest finds from the old town of Oslo. The Follo Line railway development will cut straight through the centre of the medieval town, and has given archaeologists from the Norwegian Institute for Cultural Heritage Research the opportunity to excavate an area not previously investigated, which lies between the commercial and residential areas to the east and the harbour to the west, and the religious and royal residences to the north and south. So far we have found remains of possible houses, warehouses and other urban infrastructure. The excavations will be concluded at the end of May 2016.
COSTUME COMPLEX (CLOTHES AND ITS ATTIRE): DEVELOPMENT, RELATIONSHIPS, FORMS AND TECHNOLOGIES IN TIME AND EXPANSE

Friday, 2 September 2016, 09:00-16:00
Faculty of Philosophy, Room 207

Author - PhD Zhiltina, Institute of archaeology RAS, Moscow, Russian Federation (Presenting author)
Co-author(s) - Stepanavičiūtė, Daiva, Director, Public Institution "Vita Antiqua", Vilnius, Lithuania

Presentation Preference - Regular session

Quite often there is an isolated study of typology of any category of jewelry, parts of headdress, garments in archaeology. This situation ignores the fact that in real life and in history technology, forms, and historical context are linked in a common development process. As a result, a costume is formed, which combines the products of different materials. To catch all the details and the specific relationship of this natural and rational process a deep multidisciplinary analysis using different techniques and experiment is required. How the components of the costume complex are interconnected and how they are associated with the environment? The search for answers to these questions is the main objective of this session.

The proposed section welcomes reports upon the identification of relationships between material, technology and forms of the jewelry items; between the material, technology of weaving, cutting system and forms of garments; between the forms of clothes and types of sets of adornments; between the suit and the natural-environment, suit and social order. Presentations considering accessions of both female and male costumes, which include a set of weapons, tools and household items, will be interesting.

The subject of the study may be manifestation of regularities of the assimilation of external influences: «their own and others» in the costume; traditions and innovations; the speed of these processes in time and their orientation in expanse (center – province). The results are important on the study of a funeral and in intravital costume, of everyday and ceremonial or formal one. Any period studied archaeologically may be represented. It is also important to attract visual and written sources, ethnographic materials.

The output is preferred beyond just one category of material, one particular theme or method toward identifying links in the overall development of the complex costume.

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The Eneolithic adornments as components of the costume. The case of Sultana-Malu Rosu cemetery

Author - student Sandu, Roxana, National History Museum of Romania, Bucharest, Romania (Presenting author)
Co-author(s) - Margareta, Monica, Valahia University of Targoviste, Targoviste, Romania

Presentation Preference - Oral

The Eneolithic adornments 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 Balkans. Two communities that were belonging to the Boian and the Gumeșteni cultures (ca. 5000-3800 cal B.C.) used this cemetery. In these circumstances, the beads encountered some changes in form, dimension and the specific relationship of this natural and rational process a deep multidisciplinary analysis using different techniques and experiment is required. How the components of the costume complex are interconnected and how they are associated with the environment? The search for answers to these questions is the main objective of this session.

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Purses-amuets from territory of Tuva in I mill. BC as a phenomenon of cultural symbolism

Author - Busnova, Varvara, Institute for the History of Culture, Saint-Petersburg, Russian Federation (Presenting author)
Keywords: archaeological leather, early iron age, scythians

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 canines, whetstones, needle, in other case - wood composite comb in leather purse (from the tomb Holot 6.83 (Mongun-Taiga). The republic of Tuva, Russia) that has been completely seen along the edge of the product. This burial mound was excavated by Tuva Archaeological Expedition of the Institute for the History of Material Culture Institute (Russian Academy of Sciences) in 1995. During the restoration internship at the State Scientific-Research Institute of Restoration (Moscow), it was possible to revert to it in 2014. Thanks to the pre restoration study, hitherto unnoticed fact noted (ocher coloring) and described structure of leather product.

Of course, together with the dead in the Barrow put the amulet as a comb for the hair brings a deep symbolic load associated forces of nature, it's protection properties. But what was to see the edges of the leather articles? Modern Alla to suit women belt, append sewn leather purse on a path with the umbilical cord first child in the family.

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Sewn jewelry in Old Russian costume

Author - Prof. Stepanova, Iuliia, Tver State University, Tver, Russian Federation (Presenting author)

The report is devoted to sewed jewelry of an Old Russian costume, they typological characteristics, location and appointment in a dress.

Sewn metal jewelry is characteristic both for the noble and for a domicil costume. In a noble costume the plaques of various forms sewed to clothes were widely used. Sometimes the whole sets of plaques of several types formed the ornamental friezes, which were settling down in cervical and breast zone. Similar sets are a part of hoards and come from a number of city and rural burials (for example, the hoard from Tocno, burial in the Tver Kremlin, St. Sophia Cathedral of Novgorod, in Desiatinnaia church of Kiev, burial grounds Lipinskas (the Kursk region), Novnik II (the Vologda region, etc.). The archaeological studied stand-up collar, decorated by sets of plaques, are most numerous.

Sets of plaques, apparently, were ripped off from clothes entirely and keep together with the sewed plaques. Such plaques in the costume complex could be considered as markers of structure or a cut of clothes. The following options of a location of bells are allocated:

1. On rings on shoulders (symmetric); to the line across a breast; in the zone of a belt; in some horizontal lines in the zone of a skirt.

2. On rings on shoulders (asymmetric), chains, brackets amulets and daggers fasten.

The aim of this paper is to explore the beads discovered in the Sultana-Malu Rosu cemetery, from the contextual, technological, functional, and symbolical 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 these 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 - PH II, developed with the support of MEN - UEFISCDI, project no. PN-II-PT-PCCA-2013-4-2302.
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TH1-12 Abstract 06
The variety of female textile funerary equipment from nineteenth century (Biała Rawksa - Poland)

Author - MA Majorek, Magdalenka, Nicolaus Copernicus University Torun Poland, Torun, Poland (Presenting author)
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, coffins, upholstery or clothing accessories (ribbons or shoes).

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.

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TH1-12 Abstract 07
Attire of the female garments: the main historical stages:
- natural, heavy-metal, jewelry, the accessory

Author - PhD Zhilina, Natalia, Institute of archaeology RAS, Moscow, Russian Federation (Presenting author)
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 ethnographic suit. Adornments were made of available natural (plant and animal) materials, but artificial materials (ceramics, glass, textiles) were beginning to be used. Adornments were mainly decorating the body, their forms correspond to its parts: head, waist, belt, bracelet. 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 draped clothes on the body uniting it into a single structure. The attire of Finno-Ugric peoples fully represents this stage.

Some things played the role of hard case (spiral and holder) or of supporting framework (head hoops), others cover cloth with metal layer (sheet and hanging plates, interwoven spirals). Attire played on pre-stylistic 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 incrustation). Constructive function of attire was protection. Metal details the best way perform the function of protective noisy parts ploying.

III. Jewelry attire is typical for class society, for developed Middle Ages. Jewelry is made of precious materials in difficult jewelry techniques (cloisonné 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 bell-shaped pendants and back head net complemented Russian compound headdress (“kichka”). Gold diadem in cloisonné enamel complemented band headdress.

Construcive connection of jewelry and clothes became not very important, though sometimes it was preserved. On the basis of fine and peculiar jewelry techniques original art styles 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 as other costume accessories, 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 accesorize 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.
Jewelry: decoration or a detail of construction? Theory and practice

Author: PhD Stapanosian, Daiva, PL Vita Antiqua, Vinita, 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 typologizing it according to the shapes and ornamentation. Mostly only the metallic decoration details remain from the attire 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 relation 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 woman’s dress; the shape of the bracelets let 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; decoration details found in the area of the head give us an image of 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 yarns 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.

Presentation Preference: Oral

Costume of deads or costume of livings?

Author: Dr. Ciuperc, Bogdan Iosif, History and Archaeology Prahova County Museum, Ploieşti, 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

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 epoches when we do not have cemeteries, and there are epoches when we do not have settlements, archaeologist preferring to excavate the cemeteries. Such a situation is in Lower Dniube 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? Or of a group? Or of all? Or of the other, non-eval? Or of the dead? Or of the living? Or of the image of the buried person? Or of the image of the family? How can we interpret the very same object discovered both in a settlement and in a cemetery from those questions point of view? It is an expression of the dead ascribed to the living space, the so called “closing objects”? or can be ambivalent?

We intend to propose some answers and more debates based on the discovered from the mentioned area and not only, dated in the time frame of second half of the 1st Millennium AD, a region and epoch of dramatically changes in the hole Europe.

Presentation Preference: Oral

Jewellery on mosaics from Roman Africa. Functions, aims and reliability of representations

Author: MA Mech, Anna, University of Warsaw, Warszawa, 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 - figurial mosaics. They depicted both mythological scenes and everyday life and were displayed in public places and private 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, abiding 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 traditions reached way farther back in time than the existence of the Roman Empire, for example the representations of chauss for jewellery (punxices) which are known status symbols already on Classical Greek grave-stones.

Presentation Preference: Oral

Transformation of Zupan from military to elite element of the men’s costume according gentry

Author: PhD Barvenava, Hanna, National Academy of Sciences of Belarus, Minsk, Belarus (Presenting author)
Keywords: complex, costume, Zupan

Zupan - one of the oldest components of the costume wearing by the elite of the Belarusian society. From the 10 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 XVI and to XVIII 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 nobleman, manifestation of their political life.

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 peculiaries 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 yellow 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 revot for independence. After the destruction of the nobility as society class, Zupan has transformed into a retina - Belarusian component of the traditional male costume. Today Zupan becomes a component of the Belarusian intelligentsia costume during family (weddings), and corporate events.

Presentation Preference: Oral

Small adults – forms of children clothes until 2nd half of 18th c.

Author: Grupa, Dawid, Institute of Archaeology, Nicolaus Copernicu University Torun Poland, Toruń, Poland (Presenting author)
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 robe was 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 fashionable 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, seen in accordance to fashion of their parents’ clothes. Children needs were neglected, their garments had to reflect parents’ wealth 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 18th 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 free body movement, necessary for 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.

Presentation Preference: Oral
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 within inhumation graves, rare representations of human figure or fortunately survived pieces of clothing. But still we can say that people are dealing with everyday 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 um tradition and human figure representation when at least in funeral sphere we can observe the emergence of well-defined 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 costume and further studies within the scope of male/female suits as well as everyday and ceremonial costumes.

Women's headwear from the burials of the III-IV centuries in Suzdal Opole

Author - Dr. Zaytseva, Irina, Institute of Archaeology of RAS, Moscow, Russian Federation (Presenting author)
Keywords: burial rites, headwear, Migration period
Presentation Preference - Oral

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 Opole. In the small cemetery 18 burial pits with 23 burials were excavated. They performed the rite of ingumation. Funeral rite, 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 III-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 girl 8-10 years. 2 women were buried wearing head corollas of different types: 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 at the end of the 1-II cc. In IV-V c. 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 corollas put on the top of the textile shawls, which were a part of women's headdress. In this version the head corollas were not placed at the top of the textile shawls, which were a part of women's headdress. In this version the head corollas were not placed at the top of the textile shawls, which were a part of women's headdress. In this version the head corollas were not placed at the top of the textile shawls, which were a part of women's headdress. In this version the head corollas were not placed at the top of the textile shawls, which were a part of women's headdress. In this version the head corollas were not placed at the top of the textile shawls, which were a part of women's headdress. T. Kravchenko claimed that the head corollas put on the top of the textile shawls, which were a part of women's headdress. In this version the head corollas were not placed at the top of the textile shawls, which were a part of women's headdress. In this version the head corollas were not placed at the top of the textile shawls, which were a part of women's headdress. In this version the head corollas were not placed at the top of the textile shawls, which were a part of women's headdress. In this version the head corollas were not placed at the top of the textile shawls, which were a part of women's headdress. In this version the head corollas were not placed at the top of the textile shawls, which were a part of women's headdress. In this version the head corollas were not placed at the top of the textile shawls, which were a part of women's headdress. In this version the head corollas were not placed at the top of the textile shawls, which were a part of women's headdress. In this version the head corollas were not placed at the top of the textile shawls, which were a part of women's headdress. T. Kravchenko believed that the head corollas put on the top of the textile shawls, which were a part of women's headdress. In this version the head corollas were not placed at the top of the textile shawls, which were a part of women's headdress. In this version the head corollas were not placed at the top of the textile shawls, which were a part of women's headdress. T. Kravchenko believed that the head corollas put on the top of the textile shawls, which were a part of women's headdress. In this version the head corollas were not placed at the top of the textile shawls, which were a part of women's headdress. In this version the head corollas were not placed at the top of the textile shawls, which were a part of women's headdress. T. Kravchenko, N. Trubnikova and I. Belotserkovskaya made a reconstruction of the typical headwear of female burials of the early III-IV centuries in Suzdal Opole. T. Kravchenko believed that the head corollas put on the top of the textile shawls, which were a part of women's headdress. In this version the head corollas were not placed at the top of the textile shawls, which were a part of women's headdress. In this version the head corollas were not placed at the top of the textile shawls, which were a part of women's headdress.

Two costume assemblages from the Dnieper region: on the reconstruction of identities

Author - Dr. Rodnikova, Vlasta, Institute of Archaeological Research of Sciences, Moscow, Russian Federation (Presenting author)
Presentation Preference - Oral

In Soviet and Russian science “identity” in relation to archaeological materials is traditionally considered mainly in ethnic context. Only some recent studies deal with other aspects of the problem - social, professional, religious, gender, age identity, etc. Most of them are based on the analysis of jewellery and clothes accessories.

Bright phenomena in the history of material culture of Eastern Europe are two costume assemblages, known in the Dnieper region in the Roman and Late Migration periods. A set of jewellery from the so-called range of East European enamelled ornaments is mostly dated to the second half of the II – III c. AD. In the Dnieper region such items are connected with Late Zarubintsy and Kiev cultures which are considered as Proto-Slavonic by the majority of modern scholars. The area of enamelled ornaments as a whole includes also the Baltic, Volga, Kama regions, the Crimea and North Caucasus. Wide spread of these objects in Barbaricum can probably mark some general processes occurred in a considerable part of Eastern Europe, in which Proto-Slavonic tribes were involved along with other groups of population. The nature of these processes, however, is unclear. Usually enamelled items are represented as stray finds or come from hoards, which show a set of things, but not their correlation and positions in a costume.

This complicates the attribution of concrete ornaments and determination of identities (social, professional, age, sex, etc.) which they may reflect.

At the end of the VI – VII c. AD another jewellery assemblage has been extended in the Dnieper region, which is known as “decorations from the circle of the Martynovka hoard”. It belonged to bearers of Kolticin and Penkovka cultures that are considered to be a part of the eastern Slavs. Martynovka-type ornaments come also from several nomadic burials. Today there are two main hypotheses explaining the fact that the same attire was used by different ethnic groups of population. According to the first, this assemblage marked the formation in the Dnieper region of a new social identity and manifested the belonging of its owners to a certain socio-political structure. According to the second, it reflected the emergence of professional community of jewellers, whose production determined the local fashion. Combining both hypotheses, we can assume that joint activities of several jewellers workshops was carried out under the protection of the power structure, which “made an order” for the creation of a new costume as a visual display of its existence. The assemblage includes male and female costume accessories. Their further study allows to identify social, age, marriage and other status of their owners.

Despite the considerable time gap, the set of enamelled ornaments and the Martynovka-type female attire show significant similarities in the structure and in the forms of a number of artifacts. Perhaps it reflects a continuation of local costume traditions (probably in a cut of clothing, embroidery, applique and other forms, which are not fixed on the archaeological materials of the Dnieper region) for more than 500 years.

Sasanian influence on the Chinese and Central Asian textiles

Author - MA Kossowska, Dominika, University of Warsaw, Otwock, Poland (Presenting author)
Keywords: China, Silk Road, textiles
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 medallion-type decoration. It is believed that this convention has its roots in Sassanianeaving tradition, but the oldest depiction of it is known from “jin” fabrics discovered in Turfan oasis (Kirinjiang and Dunhuang (Grihala). Because of its technical features (warp-faced compound satty) it is obvious that they were made in Chinese workshops. Some components of the motive depicted on these textiles are pure Sassanian (animals decorated with flying ribbons, pearls medallions), 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 Sasanian 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.

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
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, dress has long been recognized as an indicator of group affiliation. The study of dress is particularly important when we rely on the use of available knowledge from burials, literature, and images to draw the possible look of the well-off Grobin woman in the 7th-8th century. Unfortunately, during this period, mainly cremation burials are used for women, thus adding to the difficulty of reconstructing such dress. Some later evidences from Sweden and Denmark are used, although with limitation, in the process also local evidence to Scandinavian fashion has been detected and further analysed, thus trying to determine how far one has influenced the other. It must be noted that is only hypothetic version lacking definitive proof in form of actual archaeological finds, although backed by strong supporting evidence.

TH1-12 Abstract 21
Peruvian textiles in Warsaw National Museum
Author - MA Kosowska, Dominika, University of Warsaw, Otwock, Poland (Presenting author)
Keywords: Paracas, 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 depicting flying creature characteristic to Paracas culture (faza Nercopólis: 500 B.C. – 200 C.E.) and other two are tapiz 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 fardos - funeral bundles. Two tapiz fragments were originally sewn into the small purse (tapuzum 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 - Elkina, 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. Belyavskaya 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 years was of great interest. In the burial, numerous textile fragments, forming the shape of a trapozoid, 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 tuli, bugle brass, 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 (cload). 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 collar 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.
Burying parishioners at Köyliö, Finland – Aspects on attire and burial habits

Author: Doc. Lipkin, Sanna, University of Oulu, Oulu, Finland (Presenting author)
Co-author(s): - Jalonen, O., University of Turku, Turku, Finland
- Uotila, K., Muuritutkimus ky, Kaarina, Finland

Abstract

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. Osteological 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.

In the period from the late 5th to the early 8th century, which was marked by political, cultural, social and economic changes, funeral communities between northern Gaul and Panonia 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 Rheinland, belongs in this context. On the basis of numerous soil blocks and their careful excavation 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 Rheinland. 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 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 (to 670/80). The young woman wore a fine sapphire bandtorn that was open or silt 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 368 with extensive weaponry (sword, scaramaax, 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 lirig or feathers scattered loose).

In both cases the selection by the funeral 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.

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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): - Lott, Johanna, Studio Västsvensk Konservering, 41502 Göteborg, Sweden

Abstract

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.

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Smallclothes: The Construction of a Woman’s Garment from the Late-Paleolithic

Author: Wilson, Kelvin, Kelvin Wilson, Rubberkirk, Netherlands (Presenting author)
Keywords: Costumes, Paleolithic, Women
Presentation Preference - Poster

A female figurine scratched onto a small stone found in 1961 near Geldrop in the Netherlands, and dated to around 9,000 BC, shows her dressed in a loin cloth worn low on the hips. A new look at what hitherto might have been thought of as several random lines, suggest they may be instead interpreted as details of the garment’s construction. The resulting reconstruction throws a detailed glimpse on one of the garments worn by Europe’s prehistoric reindeer hunters.

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Costume, Paleolithic, Women

Presenting: Magdalena Przyrowska-Sztuczka, Institute of Archaeology Nicolaus Copernicus University in Torun, Torun, Poland (Presenting author)

Keywords: clothes, Lusatian culture
Presentation Preference - Poster

Among the extremely rich ornamentation on Lusatian culture pottery, most common are geometric patterns in the form of engraved triangles, lines and herringbone motif. Anthropomorphic motifs are not so common. Usually these are very schematically human figures presented in the form of a few lines. So far they are known two finds of Lusatian culture pottery from Polish territory, depicting human figures in more details. First one is from Trzata Radosz, site 1, and the second is from Wencja Górna, site 21. On the first vessel, the characters are dressed in ample robe tied at the waist, which are visible vertical stripes. They can be interpreted either as stripes on the fabric forming a decorative pattern, or as a drape of fabric folds in the shape of peapods. On the second vessel is a human figure in form of a triangle with a schematically shown limbs. On the background triangle are circles. The closest analogies to this presentation are those of the vessels of Sopron in Hungary and Maiersch in Austria. There is also another anthropomorphic motif on a vessel from Qasawa, depicting two groups of people presented in the form of two triangles touching the tops and filled with diagonal lines. Is it possible that, that is fabric strips or draping the folds? A similar presentation is on a vessel from Prächtling in Upper Franconia. In this paper I would like to reflect on the possibilities of interpretation of these ornamentations and it is possible to use them in reconstructions of clothes of Lusatian culture.
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 - Ulanowska, Agata, Polish Academy of Sciences, Łódź, Poland (Presenting author)
Co-author(s) - Siennicka, Malgorzata, The Danish National Research Foundation’s Centre for Textile Research
SAXO Inst, Copenhagen, Denmark
Keywords: Bronze Age Europe, Bronze Age Mediterranean, textile production

Presentation Preference - Regular session

The textile craft, with its complex technology and socio-cultural significance, has been a key craft in the societies of Bronze Age Europe and the Mediterranean. Although complex and socially and economically important, textile technology has been often considered rather traditional and noninnovative throughout many centuries of the Bronze Age.

The present session aims to examine textile technology in search of its traditional and innovative elements, by investigating the evidence of archaeological textiles, textile tools and their changes over time, the botanical and faunal environment, textual sources and the imagery of textiles and cloths. The session will focus on the Bronze Age in Europe and the Mediterranean, although papers on transitional periods from the Neolithic to the Early Bronze Age, and from the Late Bronze Age to the Early Iron Age are also welcome.

We particularly welcome all papers discussing the various aspects of traditions and innovations traced in textile technology, especially those regarding raw materials and their processing, textile techniques, textile tools and equipment, the organisation of textile production and the dynamics of its specialisations, cross-cultural and cross-craft interactions, and changes in the textile craft in relation to socio-cultural transformations of the past societies.

TH1-13 Abstract 01
Bronze Age wool economy: production, trade, environment, husbandry and society

Author - Dr. Sabatini, Serena, Gothenburg University, Göteborg, Sweden (Presenting author)
Co-author(s) - Bergendrant, Sophia, Gothenburg University, Göteborg, Sweden

Keywords: sheep-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 archaeological and anthropological material best is used in order to identify, and interpreted the impact wool production had on the society, and the environment. The basis for this paper will be well-documented material from Hungary (Benta Valley) and northern Italy, areas that have clear indications of extensive wool textile production.

The available contemporary written sources from the Mediterranean and Near East bear witness to the fact that sheep husbandry was a vital component in wool based economies. In Europe only archaeological material can guide us to understand the importance of sheep-husbandry and woolen textiles. Strontium isotope analyses that has been conducted on the well-preserved textiles from Scandinavia shows that wool in the same textile came from various geographical areas, both probable local and none local. This shows that a complex system of production and trade must have existed in Europe during the Bronze Age. This paper aim discussing the cultural, economic and social role of wool production in the above named regions.

TH1-13 Abstract 02
Manufacturing Traditions in Textile Archaeology

Author - Dr. Band-Bürges, Johanna, Landesamt 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 recognise 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 9.10.2018 (www.pfahlbauler2018.de), a key textile find from Pfahlbau-Ingelheim (CH) has been analysed and reconstructed anew. 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 recognised appearance and manufacturing technique as a unity.

TH1-13 Abstract 03
Textile impressions on ceramics from the late Neolithic to the early Iron Age in Central Europe

Author - Schaefer, Stefanie, University Kiel, Kiel, Germany (Presenting author)
Keywords: Bronze Age, Central Europe, Textile ceramic

Presentation Preference - Oral

Due to their bad preservation conditions, textiles represent an unusual find in archaeological find contexts. Impressions of textiles on ceramic appear, however, more often and provide information about textile technology and raw materials. The so-called textile ceramics occur worldwide in all time steps. The objective of this paper is to analyse this phenomenon from the late Neolithic to the early Iron Age in Central Europe. The function (functionality versus ornamental art) as well as the analysis of used raw materials and techniques are up for debate. Silicone impressions, experimental archeology and grouping procedure serve the investigation. In a case study the production technology, the materials and the usage will be analyses in the social context of the Bronze Age settlement Bruszczewo in Poland. This central settlement was integrated into a commercial network and had many different raw materials. The socio-cultural meaning of textiles was probably far more important than we can imagine today, living in a world of textiles mass consumption. Grave findings of web weights illustrate this. This contribution’s intention is also to examine the value of textiles in general.

TH1-13 Abstract 04
Innovative or traditional?

Diachronic approach to weaving technology in Bronze Age Greece

Author - Dr. Ulanowska, Agata, Centre for Research on Ancient Technologies, IAE PAN, Łódź, Poland (Presenting author)
Keywords: Bronze Age Greece, textile production, weaving technology

Presentation Preference - Oral

Weaving in Bronze Age Greece has been acknowledged as highly advanced technology resulting in greatly valued products of supreme quality and high importance to local economies and external trade. Because of the notable time-consuming character of the textile craft and its overall complexity, it is assumed that even slight changes in textile technology (including weaving) must have had a direct impact not only on the properties and presumably the aesthetic qualities of textiles, but also (by effecting the amount of the necessary workload) on economics and social life of past societies.

Traditional and innovative elements in the weaving craft throughout the Bronze Age are not easy to understand based on the archaeological evidence. They may be grasped in presumably progressive changes in the forms of textile tools (yarmloom weights) and their distribution which may have reflected the transfer of technical novelties, styles and techniques, and they can be observed in the iconography of fabrics and cloths.

In this paper, diachronic changes and the long-lasting traditionalism of certain types of loom weights are considered and analysed in search of gradual development and ground-breaking novelties of the Aegean Bronze Age weaving technology.

TH1-13 Abstract 05
Tradition and innovation of textile manufacture in Early Bronze Age Greece

Author - Dr. Siennicka, Malgorzata, University of Copenhagen, København S, Denmark (Presenting author)
Keywords: Aegean, Bronze Age, textile production

Presentation Preference - Oral

The manufacture of textiles and garments had a long tradition in the Aegean already prior to the beginnings of the Early Bronze Age. Numerous textile tools, especially spindle whorls andloom weights, are preserved from the Neolithic sites which demonstrate...
that spinning with spindle whorls and weaving on the warp-weighted loom were commonly practised. 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 from the Aegean, we can study textile tools made of stone, bone and clay in order to comprehend technological traditions and innovations in textile production.

On the whole, changes in the use of spindle whorls and loom weights, their dimensions and shapes, may shed some light on alterations 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 Peleponnese.

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 Minoanisation 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 Helladic 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 Çeşme Bağlararası.

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 Kleeblind-Gauss 2015). Late Middle Bronze Age occupation layers in Çeşme Bağlararası are situated on a small promontory feature an affluent harbour town with very early evidence for wine production (Şahoğlu 2015). Evidence of textile tools and production from both sites comprises mainly terracotta spindle whorls, numerous centrally pierced shorters 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:


Note on (representations of) Minoan female dress in Mycenaean Greece

Notes on (representations of) Minoan female dress in Mycenaean Greece:

Minoan and Mycenaean wall-paintings, as most recently documented in B. R. Jones’ monograph study ‘Akradhas’ threads’, form the most central category of evidence in reconstructing Aegean Bronze Age textiles and costumes. They are not, however, without their own interpretative challenges, amongst which, particularly for Mycenaean mural art, a pronounced conservatism in particular 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 conservatism 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 wallpainting 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 question in the proposed paper.

Note on (representations of) Minoan female dress in Mycenaean Greece

Notes on (representations of) Minoan female dress in Mycenaean Greece:

Hala Sultan Tekke site, Cyprus

Hala Sultan Tekke site is located in the southern – east part of Cyprus, ca 7 km from Larnaca. The investigation has been being undertaken at the Late Cypriote city of Domoriatsa, a typical southern city, within a project entitled new Swedish Cyprus 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 localisation of settlement part, workshops for metallurgy and textile production, and a possible commentary. All of the areas are dated to the Late Bronze Age (Late Cypriote I: 1450-1200 BC and Late Cypriote III: 1200-1050 BC).

Additionally, two stages of site occupation have been discovered. Stratum I and Stratum II 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 site. There are both artefacts, including spindle whorls and dozens of loom weights and brackets the alternative uses of twisted fibers in the Aegean Bronze Age, with particular reference to the settlement of Ariarath of 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.

References:

- Kofer, Dominika, Polish Academy of Sciences, Katowice, Poland (Presenting author)
- Kofel, Dominika, Polish Academy of Sciences, Katowice, Poland (Presenting author)
- Kofel, Dominika, Polish Academy of Sciences, Katowice, Poland (Presenting author)
- Kofel, Dominika, Polish Academy of Sciences, Katowice, Poland (Presenting author)
TH1-13 Abstract 10
**Technical Innovation in Flax Yarn in the Northwest of the Iberian Peninsula. The Spinning Bowl**

**Author:** Doctoranda Ruiz de Haro, María Irene, Escuela Internacional de Posgrado - Universidad de Granada, Almuñécar, 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 Castrejón de la Lezón 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 Castrejón 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 related 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.

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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 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?

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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.

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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)

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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.

Textile 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.

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TH1-13 Abstract 15
**Hallstatt textiles from Poland. Analysis of textile finds from the bi-ritual cemetery in Świebó**

**Author:** Młż Slamska, Joanna, Polish Academy of Sciences, Łódź, Poland (Presenting author)
**Co-author(s):** Antosik, Łukasz, JAE 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 and voivodeships. 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 Świebó, 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 wapen remains, braided ribbons, threads and strings.

Material acquired from the cemetery in Świebó is the largest textile collection from Hallstatt period, discovered in Poland. In 2015, the museum warehouse of MŁŻ was opened in Sosnowiec, and material from the cemetery is stored there. Further research will be conducted in cooperation with local museum.
Comb or a vertical loom? Attempt to interpret of the decoration on the urn from Szymud, Poland

Author - master of arts Przymorska-Sztuczka, Magdalena, Institute of Archaeology Nicolaus Copernicus University in Toruń, Toruń, Poland (Presenting author)

Keywords: Pomeranian culture, vertical loom

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 also 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 want to draw attention to another possible interpretation of ornamentations on urn of Pomeranian culture from Szymud, 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 important are 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 important 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.
TH1-14 Abstract 03

Little Bodies at Work: Child growth, development and children's ability to perform work

Author - Dr. Lorentz, Krisi, The Cyprus Institute, Nicosia, Cyprus (Presenting author)
Keywords: children, human bioarchaeology, work
Presentation Preference - Oral

The relationship 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 exploration, cross-sectional growth data from the immature skeletal remains from Anglo-Saxon mortuary populations of Blackgate, Newcastle-upon-Tyne, and Raunda, East Northamptonshire, 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. Behavioral 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. Other heuristic models for conceptualizing childhood, for example in the Anglo-Saxon period, can be found through ethnographies 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, 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 burial practices may be regarded to have represented different stages of human development: children were considered to have, and thus the funerary materials offer an ideal data to explore the status of children in Pre-Roman Eturia, Latium and Rome. This paper will examine, the birth and death, nurture, play and education as well as everyday tasks of children. Even though funerary materials primarily indicate perception of death, it is also possible to extrapolate an individual’s role in everyday life. For instance, textile work was a duty of girls by the latest as juveniles, but both archaeological and ethnographical data suggest that even small children learned manufacturing technologies, perhaps through play. Funerary data proved that even small infants had been bestowed important status within their families, and their enthrallment was already in process prior to their death. Socialization through gender roles is also visible through examination of funerary materials. In this paper, child burials, nurture and education, play and textile work will 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. Other heuristic models for conceptualizing childhood, for example in the Anglo-Saxon period, can be found through ethnographies 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 05

Childhood interrupted: infant burials on Colonia Iulia Emona’s northern cemetery

Author - Zupanek, Bernarda, Museum and Galeries of Ljubljana, Ljubljana, Slovenia (Presenting author)
Keywords: cemetery, grave goods, childhood, Late Roman period, children
Presentation Preference - Oral

It is commonly estimated that in Roman era around 50% of individuals born were unlikely to reach maturity. From the sources we can conclude that high infant mortality was connected with lack of attachment, lesser pollution resulting from child death and, possibly, marginal position of children in community. Here, I wish to reconsider these assumptions using a group of Late Roman infant inhumations from Colonia Iulia Emona (Ljubljana, Slovenia) as a case study. Those infant inhumations represent around 20% of all inhumations in the colony’s largest cemetery in Late Roman period. They are a constant group exhibiting similar characteristics in terms of burial rituals and grave construction. Grave goods, when present, often include apotropaic objects, such as phallic amulets, cresupia and nails, connected with mors immorta.

TH1-14 Abstract 06

Children and rituality: interpretations of funerary evidences in Estonia during the prehistory

Author - Dr. Abbate, Stefano, Independent Researcher, Roma, Italy (Presenting author)
Keywords: children, Estonia, funerary archaeology
Presentation Preference - Oral

In the prehistoric Estonian communities, due to the scarcity of evidence in archaeological record, the role of infants and children is difficult to group; indeed, the largest European cemeteries, children burials are severely lacking, limiting interpretations about the social identities. Contrary to what is usually attested in Central and Southern Europe, in Baltic funerary contexts, social patterns appear more complete, including all age groups; particularly, in Estonia the youngest society members were highly integrated in mortuary spaces since Bronze Age. By analyzing some Estonian case-studies (e.g. Kasuküla, Josõälä) and comparing the findings with other researches conducted in the largest European cemeteries (e.g. Olmo di Nogara, Italy), we can improve our knowledge about the role of children in past societies. This project aims to set this youngest part of the prehistoric communities on the social and cultural background: through spatial analysis and the study of grave goods associated with children/infants burials, we can suggest that children have not played only a marginal role but rather the youngest members have represented a significant component within hierarchically social structures in Estonia during the Protohistory.

TH1-14 Abstract 07

Weaponry in child burials: work, play or a symbol.

Study cases from Latvia’s Iron Age cemeteries

Author - Viška, Alja, SA “Arheologiskā izpēte” (Archaeological Research Ltd.), Alūksne, Latvia (Presenting author)
Presentation Preference - Oral

Weaponry (e.g. spears, one sided swords, axes) are occasional findings within child (usually boys) burials in the Iron Age (study cases will mostly focus on the Middle and Late Iron Age, i.e. 9th - 12th century) cemeteries in Latvia. These artefacts can be found within burials of different ages of children, starting with a 1-2-years of age. So how can we analyse and interpret these findings - were they used only as symbolic representation of gender/social status and therefore in some cases could be found already with 1-2 years old boys? Or axes and spears within juveniles or adolescents boys’ burials are a sign, that they were already working or learning their future occupation? And how about miniature weapons - is it possible to correlate them with a playing as a part of a learning? The main goal of this paper is to give some reflections about weaponry as a part of a mortuary inventory within child burials based on study cases from Latvia and form a discussion whether it is possible to see evidences about playing and working within subadults’ burials.

TH1-14 Abstract 08

Christianisation of children’s death in Western Pomerania

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

Between 1124 and 1128, Western Pomerania was visited by the missionary bishop Otto from Bamburg who Christianised the region. He founded several churches and taught people how to practise the true Christian life. One part of this community that was involved in this big historical event were children. The aim of this paper is to present the differences between the children burial from Western Pomerania from the pre-christian medieval period and the period right after the Christianisation. This will be done to examine essential elements of changed religious practices in treating children’s dead bodies.
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

This paper examines the relation of children and animals, as illustrated by animal-shaped objects used as toys or grave goods, as well as domesticated animals used as pets by children from infancy onwards, or being presented as gifts to boys in adolescence (the fourth and final stage of childhood) by prospective lovers. Its ultimate goal is to evaluate 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). These 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 funerary reliefs, showing children playing or fighting with animals. Animal-shaped toys, such as rattle, held by either toddlers or their nurses to lull them to sleep, include pig or wolf images, possibly meant to ward off evil. We hear of rocking horses in literature, or come across wheeled animals, often either in fight, since they were used to evoke a protective spirit in young boys. Moreover, stocks, as well as hares, tend to copulate a lot, so they are often suitably depicted as erotic gifts in the context of pederasty (boys’ love), along with other animals associated with hunting, such as deer, or pet birds, such as doves.
TH1-14 Abstract 14

Slave and servant children in Archaic and Classical Athenian art

Author: Dr. Dipla, Anthi, Hellenic Open University, Athens, Greece (Presenting author)

Keywords: servant, slave

Presentation Preference - Poster

This poster will explore the life, activities and social status of working children in ancient Athens, as illustrated on vases and on funerary reliefs, dating from the 6th down to the 4th c. BC. Varying or changing attitudes towards child labor and slavery will be identified and discussed. Numerous slaves were used to support households, even the poorest ones, and productivity in many Greek city-states, greatly outnumbering their citizens. Children were a common source of labor in ancient Athens. They were not only slaves bought as such or born to slave parents, but also of lowly social status, or exposed at birth and taken in. Such working children are often depicted on vases or reliefs performing a wide range of menial chores. They are identified by their activities, since the offspring of citizens or well-off foreigners (medeis) were only engaged with play or education at this age. Occasionally they are also singled out by their exotic racial features. Girls are usually shown serving women as maids, helping their mistresses to dress, or performing other household deeds. Boys are depicted assisting men in the palaistra or gymnasium, or at their workshops, or serving them at banquets. From a very tender age they were apparently put to hard labor; sometimes they are shown squatting, taking some rest and waiting for their masters’ call to fulfil their needs, even the most degrading, such as helping revelers to vomit or urinate due to overconsumption of wine. We know that boys were also tried to work as male prostitutes at brothels. Conversely, we quite often find dancing girls entertaining men at banquets on vases, or even serving as prostitutes. They are depicted during training, instructed by an older woman, or performing in the context of a symposium or a brothel. By comparison, prostitution was considered to be unacceptable for the citizen class and could cost boys or men their civil rights and girls women their life. Being under aged at labor, and a slave, and a foreigner, and a girl, constituted, with scalable emphasis, the “polar opposite of the male free (Athenian) citizen”, therefore the ultimate outcast, the ultimate “other” in Athenian society.

TH1-14 Abstract 15

Children and environmental stress in Wielbarkian societies

Author: Dr. Omelie-Ochronowska, Marta, University of Szczecin, Szczecin, Poland (Presenting author)

Co-author(s): Fatmir, Rada, University of Warsaw, Warsaw, Poland

Keywords: children, environmental stress, Roman Period

Presentation Preference - Poster

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 an 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.

TH1-14 Abstract 16

Glass ornaments from a girl’s grave in Bytom Odrzanski

Author: Grupa, Dawid, Institute of Archaeology, Nicolaus Copernicus University, Torun, Poland (Presenting author)

Keywords: children, glass, ornaments

Presentation Preference - Poster

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: CEMETORIES AS CULT SITES

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

Author - Plukowski, University of Reading, Reading, United Kingdom
Co-author(s) - Karzewska, Maciej, University of Białystok, Białystok, Poland (Presenting author)
Co-author(s) - Baneasa, Roxana, Reading, United Kingdom

Keywords: Cemeteries, Cult, Religion
Presentation Preference - Regular session

Richly furnished cemeteries in Europe have long been the focus of scholarly attention, providing one of the most abundant sources of information on pre-Christian societies. The majority of analyses have focused on dating and typologising grave goods and burial types. Western European scholarship has viewed burials as actively constructed rather than passively reflecting culture, rejecting direct correlations between religion, ethnicity and burial practices. Prevailing interpretations of cemeteries regard them as places for the disposal of the dead and public forums for social competition. In recent years there has been a resurgence of interest in the religious significance of burial rites, with funerals considered as forms of performance linked to the expression of cosmological narratives, and the cemetery serving as a ‘theatre’. This has continued to define the study of burials in eastern European scholarship, where there has been more acceptance of pre-Christian cemeteries as foci for a ‘cult of the dead’. The aim of this session is to revisit the links between religion, cult praxis and the use of cemeteries in contrasting geographic and temporal contexts, in order to promote a new understanding of the complexity of these sites, through the application of multi-proxy methodologies. Papers are welcome on any region and relevant time period, including the use of multi-faith cemeteries.

TH1-15 Abstract 01
Cult and Burial Sites as Arenas of Ritual and Performance

Author - Dr. Sanmark, Alexandria, 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 (~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 sites of place-name indicating outdoor cult (such as theophoric names and place-names containing the element (~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 Eddic 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’.

TH1-15 Abstract 02
Necromancy in grave reopening practices in late Iron Age Scandinavia

Author - Dr. Klevnäs, Alison, Stockholm University, Stockholm, Sweden (Presenting author)

Keywords: Burial, Exhumation, Magic
Presentation Preference - Oral

Vendel and Viking Period burial places in Scandinavia have long been seen as likely sites for cultic activity, indicated archaeologically both through their widespread conversion to Christian places of worship and by sporadic but persistent finds of evidence for offerings at graves. Burials of this period were often also re-entered and disturbed. High profile re-openings like that of the Oseberg mound in Norway are part of a much wider pattern of re-examining and re-working burial. Such re-opening practices have frequently been linked to supernatural beliefs, usually on the basis of written sources, and in particular involving communication with the dead. This paper reviews the evidence for disturbance of later pre-Christian burials in Scandinavia, arguing that reopening here cannot be seen as a single phenomenon: it was carried out on a variety of timescales and in different ways. However, a consistent theme throughout the archaeological evidence is the focus of re-opening activities on the body of the dead and the artifacts immediately associated with it. The treatment of human remains and their immediate attributes varied – they could be removed and taken away, damaged or destroyed in situ, or removed and left close to the grave. But the focus on these material remains is a key recurring element in Scandinavian reopening practices from the later Iron Age into the medieval period. The evidence from burial disturbance is thus that if cemeteries retain power as cult places, where other worlds are reachable, this power is based on the presence of bodies in graves – it is centred on the physical remains of the dead.

TH1-15 Abstract 03
The Langeid cemetery - landscape, life and afterlife

Author - Wern, Camilla Cecile, Museum of Cultural History, University of Oslo, Oslo, Norway (Presenting author)

Keywords: grave, ritual, Viking Age
Presentation Preference - Oral

A Late Viking Age cemetery with 21 graves in Langeid, Aust-Agder County, Norway, will be used as a starting point to discuss cult practices relating to burials in the this period. Ideas that will be explored are how new graves relate to older grave monuments and to the landscape and settlement patterns, how and where the treatment of the corpse (both inhumation and cremation) may have been performed, and to which degree external and internal features of the graves may indicate how they have been perceived and how people have related to them on a physical level. Further, the choices of grave goods will be used to discuss the kind of afterlife that the living helped prepare the dead for. Secondary burials in four graves may give insights into the importance of burial rituals in a reuse phase.

The cemetery is highly interesting in two particular aspects, which will be contextualised with similar and/or contrasting examples. Firstly, it covers the very last part of pagan burial custom, at a time when surrounding regions had converted, and show mostly Christian burials. The religious shift in society seems to some extent to be reflected in accentuated pagan customs in remote areas. Secondly, there is evidence of fairly systematic reopening and manipulation of the graves not very long after the initial burials, which attest to not only activities relating to the actual burials, but also to a later consciousness of the cemetery and its contents, which can be argued to be ritual in nature, and could be interpreted as continued cultic activity on the site.

TH1-15 Abstract 04
Positioning ritual: Interpreting corpse postures in early medieval England

Author - Mui, Sian, Durham University, Durham, United Kingdom (Presenting author)

Keywords: Anglo-Saxon, body, funerary archaeology
Presentation Preference - Oral

The notion of mortuary theatre encapsulates the drama and performativity of funerary tableaux in early medieval Europe. While evidence for mortuary performance is more easily identified in exceptionally sumptuous burials, the narratives of the non-elite may be considerably more challenging to interpret, as a result of smaller-scale funerals and less material evidence. However, even in the absence of ostentatious display of wealth, the corpse in the grave was heavily implicated in the early medieval mortuary theatre. The funerary body was progressively constructed and articulated through its positional arrangement, clothing, and other accompanying features. This paper discusses the ritual significance of corpse positioning in early Anglo-Saxon inhumations, bringing together corpse-positional data from over 2000 graves from 33 cemeteries across England. Patterns of recurring corpse postures demonstrate that positioning ritual was conscious and meaningfully practised in the early Anglo-Saxon period. nuanced variations in positional preferences within and between cemeteries suggest that body representation was closely linked with the conception and expression of individual and group identities, locally as well as regionally. Addressing the role of the body in early Anglo-Saxon death rituals, this paper explores the belief and practice underlying the organisation of bodies in graves and attempts to unfold the hidden narratives behind the early medieval corpse.

TH1-15 Abstract 05
Christian and pagan: Eggs as grave goods in the Late Iron Age cemetery at Kukruse, NE Estonia

Author - Dr. Orai, Eiler, University of Tartu, Tartu, Estonia (Presenting author)

Co-author(s) - Jõnna, Tönnõ, Estonian Literary Museum, Tartu, Estonia
Co-author(s) - Pressiese, Samanta, University of York, York, United Kingdom
Co-author(s) - Demarchi, Beatrice, University of York, York, United Kingdom
Co-author(s) - Best, Julia, Bournemouth University, Bournemouth, United Kingdom
Co-author(s) - Vahur, Signe, University of Tartu, Tartu, Estonia

The Langeid cemetery - landscape, life and afterlife

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The cemetery is highly interesting in two particular aspects, which will be contextualised with similar and/or contrasting examples. Firstly, it covers the very last part of pagan burial custom, at a time when surrounding regions had converted, and show mostly Christian burials. The religious shift in society seems to some extent to be reflected in accentuated pagan customs in remote areas. Secondly, there is evidence of fairly systematic reopening and manipulation of the graves not very long after the initial burials, which attest to not only activities relating to the actual burials, but also to a later consciousness of the cemetery and its contents, which can be argued to be ritual in nature, and could be interpreted as continued cultic activity on the site.

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Co-author(s) - Vahur, Signe, University of Tartu, Tartu, Estonia
Co-author(s): Mārtins, Ikura, University of Tartu, Tartu, Estonia
Keywords: conversion period, eastern Europe, egg symbolism
Presentation Preference - Oral

In 2006 Klaipėda University in collaboration with Kaišiadorys museum started investigation of the Bajorai cemetery (Elektrėnai - Oral). In 2009 two wealthy female inhumations were excavated in the conversion period (12th–13th century) cemetery at Kukruse, NE Lithuania. In 2014 the cemetery 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, burying cremated deceased in burial grounds became a uniform burial practice. Burials often contained spindles and awls, whereas male burials included weapons (and sometimes also spurs and stirrups), knives were the most popular; they were found in the burials of males, females, and children. Female burials distinguished with sacredness of space and the afterlife. Sacredness of Space and the Afterlife: The Topography of Medieval Lithuanian Cremation Cemeteries

Author: Petrasauskas, Gediminas, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: sacredness, the afterlife, topography of cremation cemeteries
Presentation Preference - Oral

In 1913 Stefan Krukowski excavated 22 barrows at Wysokie site (Vikliautinis, dis. Varenos) 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 Milzi kapis means in Lithuanian “the grave of giants” and it relates to the part of the site excavated in 1913. During the exploration mentioned researcher found inter alas six barrows without any burial or artifacts inside them. Despite this, these structures revealed certain traces of funeral rites, for example layers of carbon and ash. The same layers were also discovered in the other burial mounds 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 burials. Cenotaphs in the East Lithuania 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 Alšinkis (Alšinkos, dis. Trakai). The barrows with numbers: 9, 10, 11 and 15 did not contain any traces of graves and burial 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 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 Samogalia – 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 inhumation but cremation continued till the 2nd quarter of the 15th century alongside with that. In case of inhumation, the dead were buried both in coffins and without them. Their orientation varied but the tradition of orienting heads westwards started to prevail. It is especially obvious in the burial sites located in the areas where the process of Christianisation was more advanced; burial goods in such graves also tend to be fewer. Nevertheless, most of the burials dating to the late 14th – early 16th century still contain burial goods. In most of the cemeteries studied burial goods were present in more than a half of the graves; their numbers varied from one to several dozen of items. Knives were the most popular; they were found in the burials of males, females, and children. Female burials distinguished with the numbers of jewellery items, whereas in the male burials only rings were a common jewellery piece. Besides that, female burials often contained spindles and awls, whereas male burials included weapons (and sometimes also spurs and stirrups), flint strikers, razors, and belt buckles. Other burial items, such like pouches, purses, coins, chain inks, pots, poultry bones, and amulets (laws of wild beas in metal sheets), were found in burials of both genders.
Interpreting the Archaeological Record

TH1-15 Abstract 10
To build closer ties by going through the ritual action.
Burial mounds of the Luboszyce culture

Author - MA Raczyńska, Marta, Jagiellonian University, Institute of Archaeology, Mogiło, Poland (Presenting author)
Keywords: burial mounds, Luboszyce Culture, rituals
Presentation Preference - Oral

Archaeology shows that material remains found in the sacred space of cemetery reflect cultural, religious and social diversity. On that basis we can discuss about multi-faceted relationships between groups of humans, their habits and behaviours. Nevertheless, it is generally known that sepulchral objects are only final products of funeral ceremony which is both a rite of passage regarding the dead (van Gennep 1909) and some kind of identity performance in order to consolidate community (Turner 1969).

On account of that, cemetery as the special space of transgression and communication between the living and the nether world should be perceived also in the context of its social function. The problem is that the Lower Lusatia region, as the area of Luboszyce Culture (Domalski 1979), was the frontier zone of different archaeological units (the Przeworsk and Wielbark Cultures, as well as the Elbe cultural circle). Relics from there, for that reason, combine the various features of neighbouring cultures over the time. In facts, burial mounds dated from the middle and later Roman Period (II-IIv c AD) are difficult to archeological interpretation. For instance, some barrows with remains in cremation site (Horno, Kr. Spree-Neisse) are associated with the Przeworsk Culture because of the warrior equipment inside (Janczak 1990), while others surrounded by stone circle (Luboszyce, Krosno Odrzańskie county) – with the Wielbark Culture, due to lack of weapon and typically female costume elements in graves (Schuster 2011).

In terms of cultural anthropology, the ancestor worship as an important element of religion of various barbarian societies (Tacitus, Germania) seems to be the key to reconstruct and study these ritual actions building new order and establishing social roles on the ground of symbolic ones (Turner 1982). Behaviours like that, because of peculiar cultural diversification in the landscape, may have been resulted in creation of new patterns, including syncretic forms of burial rites (Domalski 2010) and, perhaps, mythological narratives.

TH1-15 Abstract 11
The role of animals in the funeral rites of the population of the Przeworsk culture

Author - Dr. hab. Rodzińska-Nowak, 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. Among the bones of domesticated domesticated remains of Gallus gallus. These findings are interpreted as traces of sacrificios 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 zoomorphic 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 that time zoomorphic figurines become more numerous also in other cultural milieus of Barbaricum and in the Roman provinces. This may indicate the existence of some interregional trends in the spheres 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 motives, for example a hen and a rooster, occur in the areas lying on both sides of Limes in this period.

TH1-15 Abstract 12
The multicultural cemetery in Ulów (site 3, Poland) – the magic of the place or the random choice?

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Keywords: burial rites, multicultural cemetery, Ulów, SE Poland
Presentation Preference - Oral

Ulów is a small village in Lublin Voivodeship (SE Poland) situated in the region of Middle Rzeczca. The complex of archaeological sites in the woods of the vicinity of Ulów was found by searchers with metal detectors 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 4) and two contemporary settlements (sites 1 and 5), separated from each other by a deep valley of rivulet, now, intermittent. At the same time, it is a border between two zones – sacrum 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, Funnel Beaker and Corded Ware Cultures), as well as the Bronze Age, the early Iron Age (the Trzciniec and Suslawian 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 Ulów 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 geological and geomorphologic conditions or with cultural tradition, or whether it was the random choice.

TH1-15 Abstract 13
The area of the ritual activities.
Case studies of the cemetery in Paprotni Kolonii (NE Poland)

Author - Dr. hab. Karczewski, Maciej, Institute of History and Political Sciences, Białystok, Poland (Presenting author)
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Keywords: cremation cemetery, rituals, Roman and early Migration Periods
Presentation Preference - Oral

The cemetery of the Bogaczewo Culture from the Roman and early Migration Periods in Paprotni Kolonii village, in the Masuria 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 cremation cemeteries of Bogaczewo Culture, related to the Gáidlins tribe mentioned by Claudia Pliśmę.
TH1-15 Abstract 18
Phenomenon of multiple burials and its significance in the studies of Early Mycenaean elites
Author - PhD candidate Dudlik, 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, Mycena, Tyrins and Prosymna. 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 stelae 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 individualizing 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 tombs 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 stelae 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 (bhumis) and Mycena (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 to designate for some groups of society. 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.

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

THI-16

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)
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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 workshops 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, Ludorgi flint for spearblades, Baltic flint for diagnostic Karanovo I and II 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 Baltic 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).

THI-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)
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Keywords: 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 obsidian artefacts from many sites throughout this region. Obsidian from the Aeolian island of Lipari was widely used in Sicily, Malta, peninsula Italy, and as far 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 islands of Ustica to the north. Small amounts of obsidian from sources on Sardinia and Palmaire were made their way to southern Italy. Prior studies of the obsidian sources show multiple outliers 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 sub-sources, including Gabelloflato and Canneto Centro on Lipari, and Baia del Teurchi and Lauro 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 socioeconomic 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 southeast 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.

THI-16 Abstract 02

Provenancing Archaeological Obsidian from Bulgaria

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Keywords: obsidian, sourcing

Presentation Preference - Oral

Use of obsidian is documented in a small number of Neolithic and Chalcolithic sites in Bulgaria. With no known geological sources in the eastern Balkans, the obsidian must have been obtained from areas further afield. Establishing the provenance of archaeological obsidian can provide insights into social and economic contacts among regions and clues to the nature of those contacts. We report the first results of non-destructive XRF analyses of obsidian artefacts from Bulgarian prehistoric sites and comparisons with geological sources in Anatolia, the Aegean, the central Mediterranean and Carpathians. Our findings have an important bearing on lithic raw material exchange systems in the Balkans from the Early Neolithic onwards.

THI-16 Abstract 03

Sites, Sources and Flint Routes

Author - Manolakakis, Lawrence, CNRS-Lab. Trajectoires, Nanterre cedex, France (Presenting author)
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Keywords: Bartonian flint, sources, procurement, control, Neolithic, Michelsberg, routes, access

Presentation Preference - Oral

During the Middle Neolithic in the Alpes and Vosges valleys, the numerous sites dating to the Michelsberg Culture mostly exploit Upper Bartonian Tertiary flint (QtB). This was predominantly used for producing flakes, although long blades and polished axes were also made. Other Tertiary silicifications are used, as well as varying amounts of Secondary flint. Survey was recently undertaken to record all Upper Bartonian outcrops located between the Vosges valley and the well-known source at Romigny/Lhery. The aim here was to address a number of issues. Is there a source of Bartonian flint closer than Romigny/Lhery with sufficiently large and good quality nodules for production of long blades? Are there any mine shafts of the kind known in other Michelsberg areas? Are drifted enclosures involved here in controlling access to resources? Is it the case elsewhere in Michelsberg contexts, for example at Jablines, in the central Paris Basin, or Sperren in Belgium? Using the results obtained, we tested various models of routes between sites and sources, based on least-cost analysis algorithms for return trips. This enabled us not only to identify the possible routes used, but also to calculate more precise distances involved. Different hypotheses were tested, including direct or indirect access, with or without an enclosure controlling either access or distribution. To conclude, the preliminary results are compared with evidence elsewhere of Michelsberg lithic procurement territories.

THI-16 Abstract 04

Lithic raw material and flint mining sites in Lithuania in the Final Palaeolithic-Early Neolithic

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Keywords: Final Palaeolithic, Neolithic, lithic raw material, flint, mining sites, workshops

Presentation Preference - Oral

High quality flint nodules (Baltic erratic flint), which are found in abundance on the ground surface and in the larger river and lake valleys in nowadays southern Lithuania were usually used for knapping by the Stone Age people. Furthermore, flint concretions in Lithuania are associated with Upper Cretaceous chalk / chalk marl blocks transported by glaciers and their outwash streams. The blocks of Pre-Quaternary rocks occur quite frequently in the southern and southeastern parts of Lithuania. Till now, the Final Palaeolithic flint mining sites and workshops had been discovered at 4 places in south Lithuania. Eleynas, Margynys, Tiltas and Būdos. Several others have been only preliminarily identified. However, the small hunters’ communities in northern Lithuania, which territories lack good-quality flint raw material, were forced to import a high-quality raw material from southern regions of the country. Such cooperation between the southern and northern local communities continued until the end of the terminal point manufacturing tradition (Middle Mesolithic). Later exchange contacts are interrupted and the northern part of the country’s population was forced to settle for poorer local flint raw material, or even choose a different raw material for their tool production.
quartz, quartzite, sandstone. One of such non-flint raw processing cases are set out in the study of the Early Mesolithic Pasiełko-1 site in eastern Lithuania, where knapped porphyry, quartzite and sandstone material amounted to 15 percent of the total debris from the site. These raw materials were reduced in manner of flint knapping (bipolar core + soft direct percussion + blades and flakes as blanks). At the end of the Mesolithic, the situation changed dramatically and local fisher-hunter communities of north-eastern Lithuania made their contacts with people from the Vadelä / Upper Volga Region and got access to sources of high-quality reddish flint. A few hundred years later, together with banded flint raw nodules the first ceramic / pottery making tradition have reached the Lithuanian territory around 5800 cal. BC. The reddish banded flint was widely used in manufacturing of various types of microliths (backed blades, lanceets) and working tools. The majority of blanks were struck from single platform conical cores using soft hammer percussion and pressure flaking. In some sites (Sudost-2, Sudost-4) about 5-10 percent of the debitage consists of such kind of flint. The imported grey flint from south Lithuania was also used but in much less quantity than in earlier times. The lack of high-quality flint raw material is quite visible in the majority of the late Mesolithic-early Neolithic settlements' assemblages from north-east and north Lithuanian, due to sizes of cores, tools and debits which are 3-10 times smaller than usual. Other kinds of rocks used widely for the production of special tools (axes, chisels, grinding stones, etc.), too. Daugava-Dyina river corridor was widely re-used at the tum of the Neolithic-Bronze Age, when the yellow flint was imported from the Vadelä / Upper Volga region.

**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 flint resources in Iberia are quite distinct from the ones in coastal Mesozoic sedimentary basins. This is reflected in lithic assemblages where quartz is clearly dominant while exogenous 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 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 alteration, quartz, jasper, opal, chalcedony, 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 not only on dwelling structures (hearths, post holes, floors), portable art (engraved slabs), anvils, 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.

**TH1-16 Abstract 06**

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

**Author:** Faragó, Norbert, Eötvös Loránd University, Budapest, Hungary (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-Csószhalom reflects well these combined phenomena, where two different habitation units (tall and horizontal settlement), two different geographical regions (Central Europe and the Balkans), two different scenes of life (farming and pastoralism) 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 tall is more oriented toward to distant sources. In other situations the stone itself became a medium and bears a significance of its own, no matter which type of flint it is made of. In some cases, the raw material choice and the technology used may have been forced by practical reasons, without any other motives behind it.

**TH1-16 Abstract 07**

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

**Author:** Astrid, Nyland, Oslo, Norway (Presenting author)

**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 21st extraction sites, we have identified a chaine opératoire analysis of the practices involved in direct lithic procurement in the Stone, Bronze 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, estimations of scale and duration of quarrying, and to a some degree, the risk’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 procurement 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.

**TH1-16 Abstract 08**

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

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

**Presentation Preference:** Oral

Along the coastal strip of southernmost Norway, a large number of lithic artefacts 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.

**TH1-16 Abstract 09**

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

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**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 Funneld Beaker Culture, Globular Amphora Culture, and Corded Ware Culture. For the research presented in this paper, we combined raw material analysis with morphometric, morphologic, micro-wear 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 south Poland and “Scandinavian flint”. Based on these results, we created models of chaîne opératoire 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 route - 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

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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 “Krzemionki”. Intensive research on prehistoric flint exploitation in the quarter of the twentieth century was summarized during the 1970 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 analyze 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 a previously unknown method of exploitation and also changed our ideas 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 to 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

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Keywords: Dynastic Period, Egypt, flint mining, remote sensing

Presentation Preference: Oral

Flint as a material for the production of implements in Egypt was still common during the Bronze Age. It was used 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 placed mostly in wadis, such as in Wadi el-Shikh, Wadi Sojor, Wadi Umh Nadaibar and in Western Thebes. These places attracted the attention of researchers since the end of the 19th century. However, none of them has been comprehensively examined. Only recently research has been resumed. In the area of the wadis 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 debitage at Kašov–Cepegov I (Bukk Culture), Slovakia

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Keywords: Early Neolithic, lithic technology, obsidian

Presentation Preference: Poster

This paper will present the result of a new study of the site of Kašov–Cepegov I in eastern Slovakia. Excavations at Kašov were led by Anttiroiko and Werra in the mid-1980s. Excavations revealed one pit with hundreds of obsidian waste concentrations and associated decorated potter sherds belonging to the Bukk Culture (Bneész 1991). The exploitation and trade of obsidian is usually linked to the Bukk 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 site was one of the most important obsidian deposits in the whole area. The typology of obsidian blades is quite similar to that of other similar sites but there is a significant difference in the size of pieces used. The typology and technological characteristics of obsidian blades from Kašov–Cepegov I 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-Cracow flint. To better distinguish these 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 archaeological artifacts from four prehistoric sites from Chelmno Land. In this paper we present the results of the analyses and their potential implications for our knowledge of Linearbandkeramik communities’ exchange and distribution of siliceous rock. Acknowledgements: The investigations were funded by the National Science Centre in Poland (PRELUDIUM 2; UMO-2011/03/N/HS3/03973).
TH1-16 Abstract 15
Local flint pebbles reduction strategies in the settlement of Sámáre
Author - Katárina, Marcu, University of Latvia, Riga, Latvia (Presenting author)
Keywords: Latvia, Neolithic, pebble reduction strategies
Presentation Preference - Poster
This study is an analysis of local flint pebble reduction strategies in the settlement of Sámáre. 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 Strums and Lūcija Vanina. During excavations in the site we 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 proximal debitage 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 for flake removal from a pebble the 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 massif 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 Sámáre settlement by Valdis Bèrziņš, then the first dwelling groups where raw material quality affected the pebble reduction strategy are mostly those where were used local pottery tradition: dwellings with Early Sámáre Ware and dwellings with Late Sámáre Ware; while in dwellings where raw material quality did not affect pebble reduction strategy Typical Comb Ware pottery was mostly used.

TH1-16 Abstract 16
Localisation of Sources of Obsidian Registered in Bohemian Prehistory (Czech Republic)
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Keywords: Czech Republic, Neolithic, obsidian
Presentation Preference - Poster
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). Heavy Pottery Culture: STK; 5000–4500/4400 cal. BC). On the data obtained, it is possible to locate the raw material of nine samples to the Slovakian source called Carpathian 1b (Brezov – Čajkov). However, the raw material of the two remaining samples dated to the same period comes from Hungarian sources, Carpathian 2b (Bédelényi – Olaszlátka). It is therefore evident that in the Neolithic period, obsidian from the Slovakian source Carpathian 1b 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 color), 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.

TH1-16 Abstract 17
Chocolate flint extraction points and workshops in Oronsko, Poland. Spatial and functional analysis
Author - Kieronb, Tum, Institute of Archaeology and Ethnology Polish Academy of Science, Warsaw, Poland (Presenting author)
Keywords: chocolate flint, Oronsko, Palaeolithic
Presentation Preference - Poster
Oronsko village and location is located in the northeast part of the chocolate flint deposits (one of the most valuable raw materials of Poland), on the northeast Mazovian margin of the Holy Cross Mountains and Radom Plain, in the eastern part of the Mazovian district, Masovian voivodship. The history of research in this area began in the early XX century, when S. Kruszowski discovered numerous sites connected with the exploitation of local raw materials that are dated from Late Palaeolithic to Early Bronze Age. In view of this research, the use of underground, mining methods there was also confirmed, and dated as early as the Late Palaeolithic and probably Early Bronze Age. All of the sites known from archival research (conducted also by other researchers until recently) have been collected in one database. This contains several hundred sites concentrated in the northwest part of the chocolate flint outcrops (about 60 km2), connected with the Stone Age settlement. The problem was that the density of their data results besides potential prehistoric settlement factors) from the accessibility for research of the area, connected with the hydrology of this region, with many marshy areas that were inaccessible for surface observations, as well as the accuracy of research in particular areas. In part of this area, few investigations such as road building have been undertaken, which would have led to detailed surveys and excavations. Regardless, the database highlights the intensity of the sites and their broad chronological range. This database is consequently increased. Recently, after new surface field works that had to verify known mining sites (mining fields, workshops), new data were collected. This paper presents the information from the sites already known from earlier researches in light of new data obtained during the field works as well as remote sensing, aerial and satellite imagery analysis. Generally, it raises the problem of the Stone Age (mainly Palaeolithic and Mesolithic) settlement organisation system in the vicinity of the flint outcrops, its preferences and dependence on natural conditions, as well as the quality of chocolate flint outcrops vicinity and mining in different periods of the Stone Age.

TH1-16 Abstract 18
Analysis of household units from chipped stone tools at Alsónyék-Bátraszek (Hungary)
Author - Szalay, Kata, Elitvita Lórdi University, Budapest, Hungary (Presenting author)
Keywords: chipped stone tools, Late Neolithic, Lengyel culture
Presentation Preference - Poster
Alsónyék-Karizsá-dűlő site belongs to the Southeast-Transdanubian group of the Late Neolithic Lengyel culture. The chipped stone tools stem exclusively from the settlement at Alsónyék. The research focuses on the raw material definition, thus, the centre of the research is the typological and technological analysis and the aspect of household archaeology. The settlement's collection is processed in the aspect of household archaeology, which research method has gained ground in the last few years. This is backed by favourable conditions, such as the large-scale excavations joined by large-scale construction projects, and the archaeologist's more frequently used “toolbox”, including new types of analyses in natural sciences. The technical analysis of the chipped stone tools provides an opportunity to reconstruct the tool making procedure, which may result in the tool production system of a cultural unit. The operation of the creating procedure, the phases of the sequence show the tool making place and aspect / character in the site on a rudimentary level. This method enables the localisation of the activity zones within the settlement. The activity zones, defined from the results of the technological analyses on all kind of artefacts, determine the final household units. The settlement structure at Alsónyék comprises large pits, which contain the great majority of the chipped stone tools. The postfamed houses and the large pits determine four, significant comparable household units, which allowed of a hypothetical assumption. The raw material distribution of the household units reveals near equivalent ratio, and, additionally, every category / type of tools occurs in the site, which consequently leads to a presumption that there was a complete tool making activity in the settlement. However, on the score of differences between typological categories of the household units, the procedures of tool making are located partly within the site.

TH1-16 Abstract 19
The Flint Inventory of the Neolithic and Bronze Age from the sites at Żylicy (western Belarus)
Author - Vensitch, Scherbach, Sviatlana, Institute of History NAS of Belarus, Minsk, Republic of Belarus (Presenting author)
Keywords: flint industry, Neolithic, Przysh-Pišemn culture
Presentation Preference - Poster
The site belongs to the Southeast-Transdanubian group of the Late Neolithic Lengyel culture. The chipped stone tools stem exclusively from the settlement at Alsónyék. The research focuses on the raw material definition, thus, the centre of the research is the typological and technological analysis and the aspect of household archaeology. The settlement's collection is processed in the aspect of household archaeology, which research method has gained ground in the last few years. This is backed by favourable conditions, such as the large-scale excavations joined by large-scale construction projects, and the archaeologist's more frequently used “toolbox”, including new types of analyses in natural sciences. The technical analysis of the chipped stone tools provides an opportunity to reconstruct the tool making procedure, which may result in the tool production system of a cultural unit. The operation of the creating procedure, the phases of the sequence show the tool making place and aspect / character in the site on a rudimentary level. This method enables the localisation of the activity zones within the settlement. The activity zones, defined from the results of the technological analyses on all kind of artefacts, determine the final household units. The settlement structure at Alsónyék comprises large pits, which contain the great majority of the chipped stone tools. The postfamed houses and the large pits determine four, significant comparable household units, which allowed of a hypothetical assumption. The raw material distribution of the household units reveals near equivalent ratio, and, additionally, every category / type of tools occurs in the site, which consequently leads to a presumption that there was a complete tool making activity in the settlement. However, on the score of differences between typological categories of the household units, the procedures of tool making are located partly within the site.
Interpreting the Archaeological Record

TH1-16 Abstract 20

Application of morphometric methods for the lithic analysis based on 2D and 3D visualizations

Author - Zane, Liga, University of Latvia, Riga, Latvia (Presenting author)
Co-author - Kairns, Marcia, University of Latvia, Riga, Latvia

Keywords: 2D and 3D visualizations, morphometric methods, stone tools

Presentation Preference - Poster

Traditionally, tools are regarded as indicative for characterization of ancient cultures and many of the prehistoric cultures have been distinguished mainly based on the characteristic shapes of tools and applied processing technologies. The relatively high level of preservation of stone artefacts determines their special value in prehistoric studies, especially regarding the most ancient periods. Studies to date confirm the importance of morphology analysis not only for typology and classification, but also for tracing similarities, differences and transitions of shape characteristics comparing archaeological evidences in temporal and spatial context. Moreover, morphology analysis of artefacts reflects also ancient man knowledge, skills and cognition. Morphology analysis quantitatively can be carried out using morphometric methods. Traditional morphometric methods used in archaeology mainly correspond to linear measurements, however, such data do not characterize shape, but refer just to some shape features (e.g., size, certain proportions), thus, such data are not complete. Important contribution to improvement of morphometric methods has been delivered by development of various geometric morphometric methods. These methods are not widely used in archaeology, and studies carried out so far mainly have demonstrated the benefits of certain applications that have been borrowed from other research fields where such methods have been adapted. In this respect, the number of studies conducted do not allow to evaluate the suitability of applied methods and point to fact that still there has not been developed an approach which would allow to characterize distinguished tools or tool types, mostly in narrow regional context often applied in case studies, but would be also used as a method for obtaining data for wider comparisons and determination of standard characteristics of artefact shapes. The mentioned indicates that it is necessary to develop a context based on precise and uniform documentation of artefacts and one of topical approaches is 3D visualization. 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 Arcon Breuckmann smartSCAN 3D scanner and software OPTOCAT. As well the objects were visualized in 3D by photogrammetric methods using images obtained with a Canon EOS 70D SLR camera, which were processed using software Agisoft PhotoScan Professional and MeshLab. The studied objects had dimensions from 0.5-20 cm. Subsequently, application options of various 3D visualization morphometric methods were evaluated using 2D images and 3D models of the studied objects. In order to conduct comprehensive morphology analysis of lithics, 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 allows also choosing items for further detailed research that would be useful to conduct using 3D visualizations.
Interpreting the Archaeological Record

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 Trusses in the Swedish 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 dendrochronologically and span from the 1110s up to around 1250. A group of roof trusses with two curved struts (often meeting the rafters and tie beam) appear 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 dates from the tenth 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 13th century up until the beginning of the 16th century, very few constructions 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.

Archaeology 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, Medieval, and 8th-10th centuries’ habitation evidence has been found beneath the 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-12th centuries’ medieval graywarden and later still by numerous medieval and modern intrusions. 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.

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 Christianity 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 extent 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 located. 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 Raimund of Anagni, and it was the same spot where today rests the Romanesque church. It is thus possible to reconstruct the development of the cathedral over the centuries from the Early to the Late Middle Ages. The church of St. Mary can be situated within the historical evolution of the territory at a time when the Carolingian kings recognized and guaranteed to the Church of Rome its spiritual and political power by granting it large portions of land to rule. Evidence of this wide administration is found in the exceptional epigraphic record that is today held at the Diocesan Museum of Anagni. The record consists of a corpus of inscriptions all of which are inscribable to the same charta latae, namely a documentary epigraph, a copy of a rotary deed which lists chartals and landed properties attributed to the cathedral. The inscriptions, characterized by strong stylistic and palaeographic similarities, are engraved on parts of sculptural ornaments belonging to the liturgical decoration of the ninth century church. The examination of these inscriptions has generated two results. Firstly, a reconstruction of the extent and importance of the land donated to the church; secondly, a hypothesis about the original location of the marble pieces today decentralized by their display in a museum. The decoration engraved with inscriptions has an even more important value if we consider that many of the fragments were consciously reused by Bishop Peter from Salerno for the Romanesque makeover with a clear symbolic intent of reconnecting with a historical moment of supremacy of the Roman Church in which bishops, as local representatives, were the pinnacle of territorial power.

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

The medieval hospitals of England: a complex issue

The medieval hospitals of England: a complex issue

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 assessed that the Swedish material may consist of some hundred Romanesque roof structures and probably almost a hundred Gothic structures. Until the conduct of above mentioned surveys our knowledge of the number of preser-vated objects was scarce and more or less random. In the present stand it seems that the early mediev-al 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 tent to its proper importance as a source for the dating of churches and for understanding the proces-se 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 dendrochronologically and span from the 1110s up to around 1250. A group of roof trusses with two curved struts (often meeting the rafters and tie beam) appear 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 dates from the tenth 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 13th century up until the beginning of the 16th century, very few constructions 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.
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 hospital 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 Charters 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 and function, has been limited. Previous architectural discussion of English medieval hospitals have focussed specifically on the infirmary and 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 in this field, 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 chantries. 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 Bartholomeo’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 of this ordering of space may have had for those residing in the hospital complex, both staff and inmates. Ultimately the nature of the structured space is not surprising, 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 late medieval period.

**TH1-17 Abstract 08**

**Saint Gunther and the Central Bavarian Forest - Was his monastery the beginning of settlement?**

**Author:** Ranzipinger, 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 archaeological data in general. Evidence of settlement, landuse and the human impact on landscape and nature.

The monastery of Rinchnach, 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 prospection data, cores from swamps or colluviums and other archives could give us hints and reliable data about the activities there and tell us, whether the foundation of the monastery really was the beginning of human settlement in the forest. Another advantage is that the combination of archaeological, geographical, geological and historical sources can give an insights into landuse, agriculture, the origin of building materials and perhaps the general human impact on flora, fauna and landscape itself. Furthermore with analyses like radiocarbon dating or archaeological reasearches, a chronological overview can be given.

However, if these works are still in progress, the presentation will only give an overview on preliminary results. Its goal is to show the possibilities of archaeoogical and its necessity to create reliable data that can be well interpreted and answer archaeological and historic questions.

This way, historical events in the impact that mankind had on different sites can be reconstructed. With interdisciplinary methods, the progress of technology and new approaches, various data can be collected and used to work with.

Altogether, these methods can contextualize this medieval monastery in relation to settlement activities in the Central Bavarian Forest and offer information about its influence on the region and how human activities shaped this low mountain range in the last millennium.

**TH1-17 Abstract 09**

**Medieval Oslo’s Masonry Buildings Revisited**

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**Keywords:** Masonry buildings, Norway, Social topography

**Presentation Preference: Oral**

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-con structed 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 the paper is how the secular masonry architecture reflects the builders’ status, motives, and activities.

**TH1-17 Abstract 10**

**The metailworker’s farm. A study of a medieval “bygård” in Oslo**

**Author:** Edman, Therese Marie, Norwegian Institute for Cultural Heritage Research, Oslo, Norway (Presenting author)

**Keywords:** building 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.

The excavations have shown that several of the neighboring properties may also have been used for metalworking. This 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 until a new law, Magnus the Law-ender’s law for the towns, was introduced around 1276. This law regulated metalworking activities to the fringes of the town because of the risk of fire. The excavated building was destroyed in a fire, demonstrating the need for such regulations.

**TH1-17 Abstract 11**

**Finnish medieval brickmakers’ marks as markers of identity**

**Author:** BA Aalto, 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, apostropic 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 focussed on trade were constructed, with the newly created land to the north, east and west developed into private houses for the elite. A curious mix of maritime 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 13
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 Carinîn Grad in southern Serbia, which is supposed to be the imperial city Lustiniana Prima, existed for merely 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 Carinîn 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 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 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. It is necessary to examine the activities in- and outside the building to understand the function the household fulfilled in the system settlement regarding social, religious and economic aspects. The building accommodated one or more persons who belonged to an average or low social stratum. Taking their perspective on the settlement raises the question of their everyday life. The household 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 balanced between the inside of the house and its exterior which denotes the pattern of disposal organisation. This and other daily 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 a settlement.

TH1-17 Abstract 14
The Formation of the three-compartment rural house in medieval Central Europe
Author - Associate Prof. Vareka, Pavel, University of West Bohemia, Plzen, 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/granary (mostly in Eastern Central Europe) or a byre (mostly 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 characterized as a synthesis or type of cultural hybridity based on the mutual influences.

TH1-17 Abstract 15
Special building materials? The architectural importance of placed deposits in early medieval Europe
Author - Dr. Sofial, Clifford, University of Oxford, Oxford, United Kingdom (Presenting author)
Keywords: Architecture. Society, Worldview
Presentation Preference: Oral

Deliberate barbarism of animals, vessels, and other artefacts are persistent (if rare) discoveries in and around buildings throughout early medieval Europe. Sometimes called 'foundation deposits', such discoveries have traditionally been interpreted as blessings upon a new home, charms to ward evil off, or offerings to a supernatural power. Recent research has preferred to view these deliberately 'placed' deposits as traces of household practices, intended to achieve practical domestic results. This paper proposes that placed deposits can be partly understood as a kind of building material widely used throughout early medieval Europe, with specific examples drawn from southern Scandinavia, Germany, the Netherlands, England, Ireland, and Iceland. 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 doorways. 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 cornerstone of an 'architecture' of destruction.

TH1-17 Abstract 16
Architecture decoration from Malkoto kale near Voden, Bulgaria
Author - Bakantzhev, Stefan, Regional historical museum - Yambl, Yambl, 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 0.9 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 Friedrich Barbarossa (1122 - 1190). In 1188 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 it's 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 presence here show the importance and wealth of the owner of the Malkoto kale.

TH1-17 Abstract 17
The Alp Fenga - Analysis of a post medieval alpine dairy hut in the Silvretta 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 16th/17th century. Furthermore with the help of dendrochronological examination, analysing finds (e.g. the only cooked 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 geoarchaeological methods. Besides 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 Silvretta Alps.

TH1-17 Abstract 18
Possibilities to interpret of Vilnius old wall bricks using geochemical research method
Author - Sarcevičius, Saulius, Lithuavos istorijos institutis, Vilnius, Lithuania (Presenting author)
Co-author(s) - Tariauskaitė-Račiauskaitė, Rūta, Nature Research Centre, Vilnius, Lithuania
Keywords: brick, geochemical, Vilnius
Presentation Preference: Poster
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 (Barczenová, Talaváčková, 2015, Archaeologia Lituana, v. 16, p.45-62) enables to hypothesise 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 date 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, P, Br, Zn, Pb, etc.).

Aiming to obtain more precise interpretation of brick origin and technological processes using geochemical method it would be useful: a) to take more (5) 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 anthropogeochemical 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 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.

SOCIAL DYNAMICS AND TRANSFORMATION DURING THE LATE NEOLITHIC AND BRONZE AGE

Saturday, 3 September 2016, 09:00-13:00
Faculty of History, Room 330
Author - Anfinset, Nils, University of Bergen, Bergen, Norway (Presenting author)
Co-author(s) - Valentin Eriksen, Berit, Stiftung Schleswig-Holsteinische Landesmuseen Schloss Gottorf, Schleswig, Kiel, Germany
Keywords: material culture, resources, technologies
Presentation Preference - Regular session

This session aims at exploring the avenues of social dynamics through periods of significant transformations during prehistory. In specific the session wants to highlight the Late Neolithic and the Bronze Age with particular focus on the LN/EBBA and EBBA/LBA transitions. Are these just conceptual divisions, or are there material culture that provides an understanding of the social dynamics leading towards the observed profound transformation of the societies? We explicitly seek to frame these issues by exploring the relation between material culture and resources leading to social and political constellations and how this is framed by environmental differences.

What happens when resources and technologies change or are transformed? Further we want to question if there is a sharp decline in the LN, which gave rise to the BA, or if there are regional variations in this respect. Likewise, we want to question what happens during the transition to the LBA (Monte Ito IV) by analyzing the social dynamics involved. The session welcomes case studies and comparative studies addressing these themes, but also theoretical approaches on social dynamics in periods of transformation. The session will be geographically limited to the Nordic Bronze Age sphere including all parts of Northwest Europe (e.g. the Baltic states, Nordic countries and countries bordering the Atlantic).

A glimpse of the main street in Medieval Oslo
Author - Birkeland, Kristina, NIKU, Oslo, Norway (Presenting author)
Keywords: Middle Ages, Oslo, street
Presentation Preference - Poster

During the excavations at the Folio line project a small plot outside the main excavation area was explored in the medieval town of Oslo. Although the first meter of the cultural layer was disturbed, there were still preserved 11 stratigraphically layers of which 9 was from a street. It was soon determined the street was the main street in Medieval Oslo – Vestre strete (western street). Vestre strete connected the Maria Church with the Cathedral and Bispegården (the Bishops House). The part of the street excavated was situated only 50 meters from Bispegården. The plot excavated was on the edge of the street and shows development of the street through several centuries. From the excavation we realized the street was swept and kept clean as garbage only was situated on the edge of the road. This is confirmed by the written sources as The City Law of Magnus Lagab (1276) states the streets had to be cleaned before Christmas. There were a limited amount of objects found, but some of them tell us about production in the town. In one spot horn debris together with a horn comb were found, in another spot a whetstone together with whetstone blanks were discovered. All objects were situated on the edge of the street. The excavation has just been finished and we expect dating from CH4 and dendro-chronology this summer, together with results from soil chemistry samples. This is the street with the most layers ever excavated in Norway, and together with the main excavations at the Folio line project it give new and exciting information about the medieval town of Oslo.

One burial at a time: Integrating eventful archaeology and mortuary analysis
Author - Polanyi, Tamas, 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.

Big-men and small chiefs – social transformations during the early 2nd millennium BC
Author - PhD Iversen, 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.
Interpreting the Archaeological Record

New types of longhouses as a result of an increasing need for storage in Late Neolithic?

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 demand 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 creation 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 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.

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 Unetice culture. The amount of imported metal had, however, not yet reached a level, which allowed the creation of formal hierarchies.

Barrows and depictions show the display of wealth and surplus, possibly deposited as the culmination of large gatherings and feasts, which included the distribution of food and drink. The variation in length evident in contemporaneous dagger types 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 hierarchicalisation was probably that it was difficult to monopolise the necessary raw materials (for example flint for the production of flint daggers).

Notion of the individual in archaeological interpretation

One of the typical features of the given period, inhumation of the whole body, is interpreted as the evidence of increased emphasis on the individual in funerary practice. This may be seen and has been discussed as enabling e.g. a remembrance of an individual or a creation of a bond between an individual belonging to some group and a particular part of landbase. In the paper I want to focus on the barrow cemetery of Five Knolls near Dunstable, South England, excavated in the 19th and early 20th century.

I use these barrows as an example on which I want to explore the ways in which the modernist concept of “individual” have been used to interpret the change in funerary practices, or, to put it more explicitly – how the modernist concept of individual proliferates into the discussion of features within archaeological context. My aim is not to refute the idea of the individual altogether, but to explore other potential productive ways of interpreting the funerary practice based on close readings of the barrow. Inspired by Judith Butler and her concept of citation in performance theory, I understand the graves as composed of references to the founding burial practice and not as an instance of the supposed rising role of the individual.

TH1-18 Abstract 05

Investigation of transition phases by the example of the Bronze Age amber finds in 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 craftmen 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 (UNeBA 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.

TH1-18 Abstract 04

Notion of the individual in archaeological interpretation of Neolithic – EBA transition processes

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 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 in two main features not least notable in shape and construction, 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.

TH1-18 Abstract 03

New types of longhouses as a result of an increasing need for storage in Late Neolithic?

presentation preference: Oral

At the location ditbakke, 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” emerge 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.

Keywords: Early Bronze Age, individual, Late Neolithic

Finding a place call to home: an analysis of Bronze Age settlement change in South West Britain

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 commercial archaeology 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 c. 2200-1500 BC (Allen 2005); 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 2008); 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. Pope 2005). Instead, this paper will present a new method that systematically compares the contents of settlement ensembles using the initial results of my PhD research, focusing on 60 settlements sites found solely within the southwest region of Britain (Wiltshire to Suffolk, 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 ensembles 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 ensembles’ contents has begun to identify trends in priorities of these site’s 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 to comment on how effectively this period represents a time in which society changed profoundly.

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Interpreting the Archaeological Record

TH1-18 Abstract 07

Renfrew reloaded: the social organisation of monument construction in Neolithic Wessex

Author - Harris, Barnabas, UCL, Institute of Archaeology, London, United Kingdom (Presenting author)

Keywords: Monumentality, Social organisation, Wessex

Presentation Preference - Oral

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 great henge enclosures of Stonehenge, Avebury, Dorchester 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 influences, 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 functional, 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 reframe 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 testing. The results are considered in terms of how they may be used to construct an alternative narrative of large-scale social change in Wessex from c. 4000 BC – 2000 BC.

TH1-18 Abstract 08

Making silent stones speak. A diachronic view on flint craftsmanship in Bronze Age Denmark

Author - Prof. Dr. Eriksen, Berit Valentin, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany (Presenting author)

Keywords: Bronze Age Denmark, craft specialisation, lithic technology

Presentation Preference - Oral

An archaeological examination of lithic inventories from a number of Danish Bronze Age settlement sites will provide the basis for a discussion of the role of skilled mass production of lithic artefacts in past metal using societies. Based on a contextual chain operator analysis the paper will focus on the technological and socio-economic processes pertaining to raw material exploitation patterns and procurement strategies through time and will examine the question of control over and access to resources. The concluding discussion will proceed to address the degree of craft specialisation and the role of flint craftsmanship on a diachronic scale in relation to contemporary socio-economic structures.
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 Samarskiesy culture. The flint artifacts (about 2000 copies): about 60% of the findings are represented with blades and tools made from blades; about 20% are represented with flakes. The blades are very considerably in size – from microtills 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 dredging. 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, wreackages 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 moulds, 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 Yarmouk 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 few 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). 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. The BA-layer could be dated by 3900 – 3400 лет ВС (cal).

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TH1-19 Abstract 02
Bronze Age foodways in the Carpathian Basin: similarities and differences, continuities and changes

Author - Dr. Molina Muñoz, Elena, Autonomous University of Barcelona, Bellaterra, Spain (Presenting author)
Co-author(s) - Rosell-Mérib, Antoni, Institut de Ciencia i Tecnologia Ambientals, Autonomous University of Barcelona, Barcelona, Spain
Co-author(s) - Micó, Rafael, Autonomous University of Barcelona, Bellaterra, Spain
Keywords: Beeswax, human feeding, organic residues
Presentation Preference - Oral

The archaeological record of the Carpathian Basin is characterized by a series of communities with stylized, rather diverse material culture. This has traditionally led scholars to believe that the area is divided between culturally rather different groups. While in some respects this may be true, there is a considerable number of cultural traits that cross-cut such boundaries through both space and time. The aim of our paper is to examine if this is also true for Bronze Age foodways. ‘Subsistence economy’ is generally a rather neglected field of Bronze Age research in the region, and its wide-ranging cultural implications are rarely considered. Using a combination of lipid analyses and archaeoecological data, the study of macrofossil implements used in food production and of the ceramic repertoire used to prepare and serve meals. Our aim is to reframe if the reconstructed foodways of the Bronze Age Carpathian Basin show similar cultural boundaries as some aspects of material culture or cross-cut them instead.

TH1-19 Abstract 03
Evidence from experimental & organic residue analysis of beeswax and honey uses (Argaric Bronze Age)

Author - Dr. Molina Muñoz, Elena, Autonomous University of Barcelona, Bellaterra, Spain (Presenting author)
Co-author(s) - Rosell-Mérib, Antoni, Institut de Ciencia i Tecnologia Ambientals, Autonomous University of Barcelona, Barcelona, Spain
Co-author(s) - Micó, Rafael, Autonomous University of Barcelona, Bellaterra, Spain
Keywords: Beeswax, human feeding, organic residues
Presentation Preference - Oral

The Argaric 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 repertory, with a high degree of standardisation distributed in 8 ceramic forms. Nevertheless, the Argaric 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 over a small set of ceramics. To ascertain the feasible sources and transformation processes of the identified lipids 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 beeswax in a specific archeological context allow us to infer and hypothesize different uses for beeswax in addition to secondary use of honey by Argaric societies.

TH1-19 Abstract 04
Finding broken grain in the archaeobotanical record: ethnoarchaeobotanical and experimental approaches

Author - Dr. Antonin, Ferran, Integrative Prehistory and Archaeological Science, Basel, Switzerland (Presenting author)
Co-author(s) - Aton, Natxila, University of Liébana, Liébana, Spain
Keywords: Cereal milling, cereal products, dehusking
Presentation Preference - Oral

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 (groats, bulgur, flour, bread, etc.), which makes the archaeobotanical recognition of cereal food remains exceedingly difficult. In the last decade, a larger number of archaeobotanists have shown their concern for the identification of archaeobotanical 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.
Since 2013, archaeobotanical studies are led on the Islamic rural settlements of Albaicín (Extremadura, Spain) and Las Sillas (Àragon, Spain). These studies, based on about 150 samples extracted from various types of domestic (kitchens, ovens, storage and patios) and craft (forge) contexts, allow us to propose a first review on past agricultural biodiversity and practices in rural al-Andalus, based on direct material evidences. From the analysis of the carpological samples, 19 cultivated/gathered taxa were found: 7 cereals, 1 pulse, 1 technicul/ib plants and 10 fruits, and approximately an additional 20 weeds/wild plants. This communication will characterize Islamic diet and agricultural practices in rural al-Andalus, compare the spectra obtained with those existing during previous periods and enlighten the possible introduction and role of “new” or “exotic” plants in rural contexts.

**TH1-19 Abstract 07**

**PLANTCULT: An investigation of plant foods among prehistoric cuisines of Europe**

**Author:** Prof. Valenotti, Soutiera 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 Shka) 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 remnants of plant foods, combined with experimental replication of various aspects of food preparation techniques originaligraphic investigations and insights of ancient texts, the project aims to provide a multifaceted and integrated approach of Europe’s cuisine during late prehistory. In the present communication we focus on the data and methods that will form 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. Wethold, Julían, Irasp, Metz, France (Presenting author)

**Keywords:** Archaeobotany; Early modern times, late Middle Ages

**Presentation Preference:** Oral

Medieval alimentation habits deduced from cesspits: a comparison of archaeological 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 theseAmbleside 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 alimentation. Rescue excavations conducted by the Institute national de recherches archéologiques preventives (Inrap) in the medieval towns of Sarrebourg 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/Greifswald 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 moe moderate 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, Bruxelles, Belgium (Presenting author)

**Keywords:** 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, archaeobotanical 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 remain, 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 archaeobotanical 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, taxonomical 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**

**Author:** Dr. Deforce, Koen, Royal Belgian Institute of Natural Sciences, Brussels, Belgium (Presenting author)

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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 chervil (Anthriscus cerefolium), beetroot/chard (Beta vulgaris), borago (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:** NA Malmberg, Gustav, Uppsala University, Visby, Sweden (Presenting author)

**Keywords:** Medieval Visby, Social Economic, Zoaearcheology

**Presentation Preference:** Oral

Faunal remains may give important clues to subsistence strategies, utilisation of meat and 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 an 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 vastation 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 house 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.
Unmasking millet from a multi-proxy approach

An extensive palaeobotanical sampling program was carried out at the Early Medieval village of Gózquez (central Spain, AD 525-750). It is one of the most comprehensive collections of botanical remains so far analysed for this kind of geographic and chronological context. 8800 items from 34 positive samples were retrieved. Hulled barley and free-threshing wheats were the dominant species. Hulled barley and rice were present in minor proportion, and Avena only appeared sporadically. In this setting, any trace of millet production and consumption seemed to be completely absent.

Other chemical 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 the carpological record, starch analysis of the grinding surfaces of some rotary milling stones were performed as an alternative proxy. Those revealed abundant starch grains of Panicum or Setaria 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, uneven 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.

Meals on Wings: Multi-strand investigation of avian contributions to diet and nutrition

Today, birds, and especially the chicken, provide huge quantities of food products – both as meat and eggs. However the archaeological investigations of avian contributions to diet have often been limited in extent and application. Eggs form an important part of avian-human interactions both today and in the past. However, eggs are one of the more challenging avian dietary areas to address due to the fragility of eggshell in acidic soil conditions, the need for rigorous retrieval processes, and the resources needed to identify archaeological eggshell from species. Eggs can be sourced from wild and domestic birds, but due to the creation of extended laying times in several domesticates, egg acquisition is frequently biased towards poultry. Ducks, geese and other birds can all be kept for their eggs, but the chicken plays perhaps the most important role. As such, this work focuses on chickens but is contextualised within the wider body of archaeovarin evidence. Such examination allows fuller understanding of past avian-human relationships in the context of diet, economy, society, and (particularly for wild birds) the environmental and seasonal aspects of their relationship. This paper investigates egg use in the past by combining zooarchaeological and scientific analysis of physical eggshell remains from archaeological sites with evidence from documentary sources and material culture. Identification of eggshell via the new technique of ZvMS (Zoocarchaeology by Mass Spectrometry) and exploration of developmental stage via SEM (Scanning Electron Microscope) can be used to examine husbandry practices, fowling, and resource use in the past by informing on meat and egg production.

Determining the hatching profile of archaeological eggs can indicate whether these were being utilised to produce live animals or as a direct egg food source. As such new methods of analysing eggshell material are allowing unprecedented insights into these areas of food choice and nutrition. Documentary sources, where available, are valuable for aiding these studies and include letters and orders (e.g. the Vindolanda tablet), and agricultural guides detailing husbandry and egg gathering practices (e.g. Columela’s Res rustica). Using case studies from Roman and Medieval Britain this paper demonstrates how multidisciplinary integration of eggshell analysis with other lines of evidence can offer new insights into avian contributions to diet and food selection. These case studies are then situated within the extended application of this methodology to a wider European dataset (including material from France, Portugal, Turkey, Romania and Estonia) to explore the challenges and benefits of applying these approaches across a wide geographic and temporal area, and on material from a diverse body of archaeological sites which range from Neolithic sites to Post-Medieval monasteries.
the current city centre is extremely diverse (including glazed and unglazed earthenware, metal, glass, coins) especially within the material culture (i.e. wooden remains, burial relics, amphora for transport). This indicates that Chalcis was an important distribution centre with contacts in Venice and Constantinople. This makes the research interesting not only by creating a dietary image of Byzantine Greece, but also to see whether intercultural changes in diet have taken place between the Late Byzantines and the Venetians. From its prominent geographical location, Chalcis, with its well analysed stratigraphy and vast quantity and quality of faunal material, it offers the unique possibility to fill the absence of knowledge surrounding the food supply of the Byzantine period in Greece.

This paper is in progress and I will present my first results and problems during this conference.

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)
Co-author(s): Moesfeld, Jacob, Museum of Copenhagen, 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. DMA 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 thearchitectural, 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. Perego, 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, Medicago minima, Cichorium intybus, Osmorhiza anthriscus, Plantago sativa, Silene oleracea, Verbascum thapsus) prefer 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 MBA 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 diffusion of rotation systems.
Fishing may have had a substantial role among many agrarian societies, specific social groups, at special occasions (feasting) and during times of distress (famine). In addition, cultural constraints, behavioural interactions, and social norms might have regulated fishing and the consumption of aquatic resources. Exploitation technologies might express group identity, and provide insights into contacts and communication between different fishing societies. Still, aquatic resources and procurement technologies are often poorly visible in the archaeological record. Therefore, knowledge about proportion and importance of fish in prehistoric diet is often still quite uncertain. Fishing tackle, either passive gear like nets, basket traps and weirs or active gear such as hooks, line-sinkers, spears, leisters and tridents are relatively simple constructions, which change little over time and are widely distributed. In other cases equipment is made from prestigious material (e.g. bronze fish hooks), and large amounts of building materials are required (e.g. for fish weirs). This session aims to deepen current knowledge within the framework of local, supra-regional, and diachronic development and application of active and passive fishing technologies in the harvesting of aquatic resources as well as other linked activities. In locations where direct evidence of the utilisation of fish is insufficient (e.g., because of the poor preservation of fish remains and fishing-related artifacts), various forms of indirect evidence are employed. Settlement patterns, site location, fishing technology, and resource specialisation may be seen as forms of indirect evidence of the utilisation of fish as a food source either for immediate or delayed consumption, or as a source of raw materials. Therefore, apart from the studies utilising archaeological fishing-related materials, we would also like to encourage researchers contributing studies applying analogous data, from the viewpoint of, e.g., ethnography, anthropology, and ethnohistory to help build the frames of reference and further our understanding about fishing as a phenomenon and its dynamics in the long term.
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: diachronous studies, eel fishing, human diet, regional and chronological development of fishing

Presentation Preference - Oral

Fishing constitutes a significant source of nutritional elements 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 mysterious 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 law 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 fishermens of historic times built on the coast and out into the sea. They were used to catch the shoals 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, catch rates, and size and landscape in relation to the corresponding historic prehistoric structures. According to a Danish adage, it’s hard to catch an eel by its tail. This paper presents diachronous 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, contributed 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. Klooß, Stefanie, Archäologisches Landesamt Schleswig-Holstein, Schleswig, Germany (Presenting author)

Keywords: Baltic Sea, fishing, Mesolithic

Presentation Preference - Oral

A common fishing tool of Final Mesolithic (Ertebøle) 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 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 this spear. Although very similar iron tools are known from 19-20. century from the Baltic Sea region historic development of this fishing gear has large gaps in the archaeological sources.

The production method of Ertebøle and Early Neolithic leister prongs could be reconstructed with the help of several unfinished tools that show characteristic cutting marks at the tips and the shafts. The tips of the finished fishing gear can either be elongated and pointed, or short and rounded. These differences are most likely due to their respective use on muddy or hard undergrounds. Moreover, traces of usage such as cracks, splitting, and roughening at the tips are frequently documented. The examination of wooden leister prongs shows that special wood types were preferred. These particularly include the woods of fruit trees (Malusidae) and red dogwood (Cornus sanguinea), as well as the flexible and common hazel (Corylus avellana). A few other types were used very rarely. The proportions of material used show regional and chronological differences, as certainenn result of witch resources were available.

Spear fishing is one of the practiced fishing methods during Final Mesolithic and Early Neolithic in the Baltic Sea region. Very high find density of wooden leister prongs at specialised coastal hunting and fishing camp sites shows the intensive use of spears 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) - Klooß, Stefanie, Archäologisches Landesamt Schleswig-Holstein, Schleswig, Germany

Keywords: Mesolithic, wooden tools

Presentation Preference - Oral

The Stone Age site Sise is situated in the valley of the River Ulava on the Kursze Peninsula in western Latvia. Next to the site is the former river mouth, where during the transgressive phases of the Ancylus Lake and Littorina Sea it entered a large bay. In the subsequent regressive 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 inverbank in 2012 has brought to light wooden objects from stratified context as well: part of an eel trap and a tool handle with preserved resin showing imprints of a binding material, which are dated to c. 6800-6600 BC. The wooden leister prong from Sise 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/roboats, bark/skin canoes (studied by clay sculpture), wooden paddles (samples preserved in peat bog site 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, 3200-1000 cal BC

Author - Kejutė, Paveikslė, Vilnius university, Faculty of history, Vilnius, Lithuania (Presenting author)

Co-author(s) - Pikeliauskas, Gytis, Lithuanian Institute of History, Vilnius, Lithuania

Keywords: tree species, wooden tools

Presentation Preference - Oral

Šventoji Subneolithic – Bronze age (4000-500 BC 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 (2006-2010), new sites located in abandoned Bronze age (2000-500 BC) river channels and containing rich cultural layers with a wide range of artifacts and wooden fishing structures were added to the welter 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
TH1-20 Abstract 09
Subneolithic fishing in the southeastern Baltic in the light of recent research at Šventoji 43
Author: Gaidiškauskas, Lukas, Vilnius University, Vilnius, Lithuania (Presenting author)
Co-author(s): Dr. Piličiauskas, Gytis, Lithuanian Institute of History, Vilnius, Lithuania
Keywords: Šventoji, fishing, Subneolithic

The prehistoric complex of Šventoji in SE Baltic is well known for its multiple archaeological sites, which range in time span 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 bear 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 in the lagoonal lake during the spring spawn.

TH1-20 Abstract 10
Backing up the frail evidence of the utilisation of Atlantic salmon in Mid-Holocene Finland
Author: Koivisto, Satu, University of Helsinki / National Board of Antiquities, Espoo, Finland (Presenting author)
Co-author(s): - Koivisto, Satu, University of Helsinki / National Board of Antiquities, Espoo, Finland
Keywords: ethnography, prehistoric fishing, salmon

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 northwest coastal river economy far into the 20th century. Consequently, the prehistoric origin of salmon fishing in the area is being perceived as a self-evident fact, even though the direct osteological and artifactual evidence confirming this is scarce. The settlement pattern, site locations and technological level achieved in fishing among the Mid-Holocene (c. 3500–3000 cal BC) populations of coastal northern Ostrobothnia suggest focusing on mass-harvesting facilities, utilising the regular migratory patterns of these species, and investing in storing techniques. Application of ethnographic, historic and anthropological data collected among the Atlantic (Salmo) and Pacific (Oncorhynchus) 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 fishing.

TH1-20 Abstract 11
How much is the Fish? Roman Fishing on the Swiss Plateau
Author: Koch, Pirmin, University of Zürich/Kantonarchäologie St. Gallen, Zürich (Presenting author)
Co-author(s): - Koch, Pirmin, University of Zürich/Kantonarchäologie St. Gallen, Zürich
Keywords: archaeology, Roman fishing, Switzerland

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 ANTOQUITY: A FIRST APPROACH”, University of Cadiz 2007). All sources teach us about techniques and fish consumption as well as fish processing and manufacture the famous garum. Ancient authors (cf. Oppian’s Halleutica) 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. Windisch- Vindelicum, Besançon- Châtillons, Bibersaal/CH, Netherland/CH, Kempersen/CH etc.). The Roman poet Ausonsius 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 paper will deal with the various methods how the fish was caught. 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, vici, 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)
Keywords: economy, ethnographic study, Fishing

The Steinhuder Meer is a lake of 30 sq. km northeast 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 the 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 village of 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 Torfkähne, is still used today. To gain the necessary raw material for the nets flax 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 as 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 (Angelkähne) which derived from Havel region and new 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, Torfkähne 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 the context 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 although 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 Fürstenzelt of the Hallstatt Period, the Coppice of the Late Bronze Age 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 the 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.

TH1-20 Abstract 13
Pre-Columbian fish traps as source of livelihood for low income coastal people in Latin America
Author: Dr. Andre Carlo, Colónese, University of York, York, United Kingdom (Presenting author)
Co-author(s): - Ramírez, Milena, Fisheries and Food Institute, Santos, Brazil
Keywords: Pre-Columbian, fish traps, coastal communities

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 ANTOQUITY: 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. Oppian’s Halleutica) 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.

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Interpreting the Archaeological Record

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

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 SP2

Author: Dobrovol'skaya, Maria, Institute of Archaeology, Moscow, Russian Federation (Presenting author)
Co-author(s): Makarov, Nikolai, Institute of Archaeology Russian Academy of Sciences, Moscow, Russian Federation
Co-author(s): Kurila, Laurynas, Lithuanian Institute of History, Vilnius, Lithuania

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 deposits. 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, religiouso-architectural spaces, and natural landscape.
  • The completeness of the cremated remains.
  • The number of individuals in the grave, and their age and sex characteristics.
  • The presence of cremated animal bones.
  • The forms of placement of the cremated bones in the grave (urn, pit, surface, etc.).

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.

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 up above the burned horse, were practiced in the region of Sambia and Natangia almost unchanged from the 9/8th 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 Aljaik-3, Khomy and Kl. 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...
Interpreting the Archaeological Record

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It is evident that cremations in Shekshovo were performed in the X-th c, with the culmination in its second half. Inhumations were introduced after the conversion to Christianity. Field investigations in Shekshovo produced evidence of coexistence of cremations and inhumations after conversion to Christianity.

Keywords: cremation, interdisciplinar research, Merovingian cemetery

Presentation Preference - Oral

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 funeral practices in the Scheldt 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 deposition 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 Brundangräber 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 and type of goods. The analyses of anthropological and other dendrochronological characteristics observed in the charcoal fragments is expected to provide additional information on former wood use for fuel. Additionally for the study of the charcoal from Broechem, attention will be paid to possible differences in fuel selection between the different types of cremation graves.

Presentation Preference - Oral

Funeral cremation of the Middle Oka region from the Great Migration Period to the Viking Age

Author - Dr. Synvyatko, Alexander, Municipal budget organization “Kolomna archaeological center”, Kolomna, Russian Federation (Presenting author)

Keywords: cremation, The Great Migration period, Viking Age

Presentation Preference - Oral

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 Moscow region were unknown until the last years. Systematic studies of these cemeteries have been done over the past 15 years only. All known burials are opened in the Middle and Upper Oka river, from Kolomna to Borodkovo, (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 XII 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 complicate the cultural attribution of the graves. For finds are both Slavic and Finish jewelry and buckles can be present in the burials together. Melted beads, melted objects from the bronze and silver chain mail parts, sylagm and buckles go from different European, Byzantine, Syrian and other centers. Glass beads and silver ornaments are as well as jewelry from the different parts of Kazan Khanate characteristic 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 somatoplasms.

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.

**TH1-21 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’, decontextualized approaches, cemeteries

Presentation Preference - Oral

“Lodges of dead” – is the special type of burial sites which was typical for the Mologa-Sheksna interface and other parts of the Russian North and central region of the European Russia. This name comes from the special wooden structures (small houses - lodges) with materials of the funeral cremations as well as ash, pieces of carbon, fragments of bronze, 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-Sheksna interface (western part of the Vologda district) were excavated by A.N. Bashchinskii (1) during 80-90 years of XX c. The author did not formulate the clear opinion about the ethnoarchaeological 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, Kurenvanikh 3, Kurevvanikh 2 were used in this research. Materials were examined with the focus on the diagnostic features and clear anatomical fragments were recorded. The remains were divided into the sex and age of the individuals, and to detect the presence of animals. All clear anatomical fragments were recorded in archaeological plans.

According to the results of our research, every “lodge of dead” includes the remains of about 7-10 individuals (males, females, subadults). The fragmented remains of the treated animal bones were detected as well. 87/86 Sr bone ratio indicates the presence of animals. All clear anatomical 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.

**TH1-21 Abstract 07**

**Medieval cremations of Novgorod Land: Christians or Pagans?**

Author: Sobolev, Vladislav, St-Petersburg State University, St-Petersburg, Russian Federation (Presenting author)

Keywords: Christian burial canons, cremation and inhumation graves, Novgorod Land, Old Russia

Presentation Preference - Oral

The study of funerary monuments of the Novgorod land was started in the middle of the XIX century and continues to this day. In total, about 10,000 different types of burial constructions were excavated. The investigations demonstrated that in the XIX century throughout the Novgorod land cremation prevailed. The adoption of Christianity at the end of the XIX century has become the most important factor in changing the burial rites of medieval population. The first burials according to the new Christian rites (inhumations beneath barrows) have been dated by the middle of the XIX century. Since that time the Christian funerary rites certainly begin to dominate in the Novgorod land. Details of burials and structures could be different, but the transition from cremation to inhumation spread everywhere.

However, a small number of cremated burials in the Old Russian barrows of the XIXth beginning of the XXth 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, Culture of Long mounds, Spoka 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 (tinnes, iron weapon’s heads, coins) are rare in the analysed group and located like in inhumation graves. The subjects typical for female costume have not been found yet. It is important to emphasise that the found things have no trace of a fire.

Mentioned peculiarities give us an opportunity to clearly define which Christian burial canons was disrupted. Probably the cremation was the only possible way to deliver the body to the family cemetery, where the deceased can be buried according to relatives’ 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/will) felt obliged to bring the body to his relatives for burial at home.

**TH1-21 Abstract 08**

**Underwater burial sites of the 14th century: Kernave case**

Author: Dr. Velius, Gintautas, Vilnius University, Vilnius, 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 artefacts from the 14th century were discovered.

Biruals in the water have received various scientific interpretations. The report 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 underwater burial is a long - time tradition or was it only the consequence of important historical events. So, the water burial are not mentioned in the historical, mythological or folkloric sources. Cremation graves in water are also unknown in broader chronological and geographical contexts. So, bearing in mind the longevity characteristic to funeral traditions, the water burial rituals (which were practiced comparably briefly) forces us to look for unconventional causes of this phenomenon. Together with the recently research methodologies do not allow us to state the chronology of this phenomenon.

Based on artifacts typology 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 personalisation 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.

**TH1-21 Abstract 09**

**Urn Cremation in the Southeast Baltic in the late Roman period. Field record sand laboratory study**

Author: Dr. hab. Mastykova, Anna, Institute of Archaeology, Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)

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 Baltics. 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 bioarchaeological approaches. New cemeteries with inhumations and cremations of the Roman period (Sambian-Natagian 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-Pugachov pond - one of the monuments, which was opened recently in the Zelenograd district of Kaliningrad 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 cremation are located in two layers of the urn: at the bottom and in the middle. Objects of iron and iron weapon (ax, spear, uomo and other fragments) tightly put above of each of these two clusters of 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/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 The study was supported by the RFBR, № 16-06-00585.

TH1-21 Abstract 10
“The largest cremation” of the burial ground Schurovo: typical or exclusive?

TH1-21 Abstract 11
Thermal or non thermal alterations on the human bones: the case study from the Gnezdovo (9-11 AD)

TH1-21 Abstract 12
The presence or absence of single and double (collective) burials; The age and sex of the individuals from the burials with weapons; The temperature and time of pyre burning; 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.
TH1-23

MESOLITHIC DWELLING STRUCTURES: FROM METHODOLOGICAL APPROACHES TO ARCHAEOLOGICAL INTERPRETATION

Thursday, 1 September 2016, 09:00-13:00
Faculty of History, Room 331
Author - Cuauca-Solana, David, University of Rennes 1, Rennes, France (Presenting author)
Co-author(s) - Marchand, Géorg, CNRS/University of Rennes 1, Rennes, France
Co-author(s) - Gutierrez-Zugasti, Igo, UTP/University of Cantabria, Santander, Spain

Abstracts

Mesolithic dwelling Space in an interdisciplinary perspective
Author - Res. Associate Grøn, Olle, 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-gatherer dwellings 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.

Early Mesolithic site space in western Norway
Author - Dr. art. Jernæ, Arne Johan, Museum of archaeology, University of Stavanger, Stavanger, Norway (Presenting author)
Keywords: Dwellings, 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 debits. 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 seem to be the remains of activities performed by a single individual. But falses raise 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 debits.
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.

We have been able to distinguish fine deposition sub-units and to identify discrete periods of occupation time. There were different dynamics, activities distribution and management of space in apparently very similar sites. In Túnel-VIII site there were at least ten discrete re-occupations in different seasons, whereas in Lanashuaia only one (maximum two) long occupation period have been registered.
A shell-midden is thus not necessarily a homogeneous block of sediments and the variability inside can be very significant of the economic and social system that produced it. Experimental ethnoarchaeology is a useful tool, providing guidelines for excavating and explaining similar archaeological sites around the world. For example, Mesolithic Atlantic Europe shell-middens have been described as residential or logistical based on their size and thickness, or on the amount of remains and sometimes considered sedentary settlements based in averaged samples. But similar shell-middens may be the result of different strategies of occupation. We need to develop specific methodology, maximize and adequate techniques of excavation in order to reconstruct the social organization behind the processes that formed each shell-midden.

The ethnographic record, including pictures, descriptions of shape, size and the discontinuous but repeated use of circular huts by Yamana people, has allowed us to test a specially developed excavation methodology. We separated and registered least ten discrete re-occupations in different seasons, whereas in Lanashuaia only one (maximum two) long occupation period have been registered.

Mesolithic dwelling Space in an interdisciplinary perspective

TH1-23 Abstract 02

The study of Mesolithic settlements is a key issue to understanding the articulation of a social and economical 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 organisation. One of the most informative aspects is the interpretation 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 works, 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, geospatial archaeology, 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, Albert, Autonomous University of Barcelona, Barcelona, Spain (Presenting author)
Co-author(s) - Estévez, 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 sedentism. 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 hunter-gatherer 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 litoral resources. Thus, in the frame of these projects, we excavated two settlements of the eighteenth and nineteenth centuries Yamana people. Túnel-VIII 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 Yamana 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. Conneller, Chantal, University of Manchester, Manchester, United Kingdom (Presenting author)
Co-author(s) - Birchennal, J., University of Manchester, Manchester, United Kingdom
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Co-author(s) - Little, A., York University, York, United Kingdom
Co-author(s) - Milner, N., York University, York, United Kingdom
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A shell-midden is thus not necessarily a homogeneous block of sediments and the variability inside can be very significant of the economic and social system that produced it. Experimental ethnoarchaeology is a useful tool, providing guidelines for excavating and explaining similar archaeological sites around the world. For example, Mesolithic Atlantic Europe shell-middens have been described as residential or logistical based on their size and thickness, or on the amount of remains and sometimes considered sedentary settlements based in averaged samples. But similar shell-middens may be the result of different strategies of occupation. We need to develop specific methodology, maximize and adequate techniques of excavation in order to reconstruct the social organization behind the processes that formed each shell-midden.

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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 02

Mesolithic dwelling Space in an interdisciplinary perspective

TH1-23 Abstract 03

Early Mesolithic site space in western Norway

TH1-23 Abstract 04

Little house on the shore: Understanding the dryland structures at Star Carr, UK

TH1-23 Abstract 05
Back to Beg-er-Vil: from taphonomy to spatial analysis of a mesolithic dwelling in Atlantic France
Author - Marchand, Gregor, CNRS, Rennes, France (Presenting author)
Keywords: Dwelling, Mesolithic, Spatial Analysis
Presentation Preference - Oral
Firstly excavated by G. Kayser during the 1980s, the Mesolithic site of Beg-er-Vil at Quiberon (Brittany, France) is the object of an extensive excavation since 2012, to anticipate its likely destruction by the erosion. It involves both a shell deposit and its periphery, occupied between ca 6200 and 6000 BC. Numerous archaeological structures (pits, post-holes, fire-places, hut) have been discovered. The sedimentary analyses (sedimentology, soil micromorphology) are linked to chemical analyses (acidity, minerals) to best describe the spatial variations of the archaeological remains. These taphonomic analyses allow us to enter for the first time in the lifestyles of maritime hunter-gatherers, particularly marked by many changes of function of the site during the human occupation.

TH1-23 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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Co-author(s) - Teira, Luis Casar, Universidad de Cantabria, Santander, Spain
Co-author(s) - Uzquiano, Paloma, Universidad Nacional de Educación a Distancia, Madrid, Spain
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Keywords: Asturias, Dwelling structures, Settlement Presentation Preference - Oral
The dearth of direct evidence on the settlement areas and particularly on dwelling structures has traditionally been a serious challenge for the understanding of the Mesolithic of northern Iberia. Recent research is contributing to overcome those difficulties. In 2013 we started a systematic survey of open-air settlements in an area with a high density of caves sites, the region of northern Spain coast where the classic "Asturian" facies is located. It included geomorphological analysis, magnetometry survey, sedimentology cores and archaeological excavations. Among the most outstanding results, an open-air Asturian site was located near the cave of El Alloru (Balmori, Asturias). In this communication, the results of the last field-work season are discussed, particularly focusing on the Mesolithic features. An updated synthesis on this Mesolithic settlement, including micromorphological, archaeobotanical, archaeozoological, lithic raw materials and lithic technology analysis, is also provided.

TH1-23 Abstract 07
Mesolithic shell midden sites from northern Iberia: habitation sites or waste disposal mounds?
Author - Dr. Gutiérrez-Zugasti, Igor, Instituto Internacional de Investigaciones Prehistóricas de Cantabria, Santander, Spain (Presenting author)
Co-author(s) - Cuacena-Solana, David, Instituto Internacional de Investigaciones Prehistóricas de Cantabria, Santander, Spain
Co-author(s) - Gonzalez-Morales, Manuel, Instituto Internacional de Investigaciones Prehistóricas de Cantabria, Santander, Spain
Keywords: Dwelling structures, Settlement, Shell midden 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 Mazacultos 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.

TH1-23 Abstract 08
Microstratigraphic investigations at the Mesolithic shell midden of El Mazo, Asturias, Spain
Author - Duarte, Carlos, Universidad de Cantabria, Santander, Spain (Presenting author)
Co-author(s) - Iriarte, Eneko, Universidad de Burgos, Burgos, Spain
Co-author(s) - Fano, Miguel Angel, Universidad de La Rioja, Logroño, Spain
Co-author(s) - López-Zugasti, Igor, Universidad de Cantabria, Santander, Spain
Co-author(s) - Arauz-Morales, Manuel, Instituto Internacional de Investigaciones Prehistóricas 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 geoarchaeological 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 geoarchaeological point of view, El Mazo is particularly relevant for the existence of several layers rich in marine molluscs embedded in matrix 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 microstructures 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 leaves impronte 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)
Co-author(s) - Carrondo, Joana, Porto, Portugal
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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 40 pits within three Mesolithic phases, from the 8th to the 6th millennia 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 archaeobotanical 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 both biotic and abiotic resources.

TH1-23 Abstract 10
Clues to recognize spatial organization and function of the Mesolithic camps from Polish Lowland

Author - Dr. Osipowicz, Grzegorz, Nicolaus Copernicus University/ Institute of Archaeology, Toruń, Poland (Presenting author)

Keywords: Mesolithic, Poland, Spatial analysis

Presentation Preference - Oral

The presentation will discuss the results of the interdisciplinary and multifaceted studies, which were subjected to three Late Mesolithic camps from the area of central Poland: Sasiczewo 4 and Ludowice 6 (eastern and western habitation). The studies included: soil, geomorphological and hydrological analysis of the sites area, archaeozoological and taphonomical analysis of the bones, palynology, AMS dating and multih共和ided analysis of stone artefacts, including: petrography, technology, retouching and use-wear study of all artefacts. Spatial analysis were carried out using primarily Kernel density and “Ring and Sector” methods, also GIS equipment and software. As a result the data were collected, that allow to recognize the probable original function and spatial organization of the included camps and individual settlement points (residential and economic) discovered in their area. It were observed clear differences here, which were used as a basis for inference about the seasonality, specialization, functional and structural diversity of the analyzed camps and even their possible relationship with only one gender.

TH1-24 Abstract 01
Introduction: studying evidence for weighing through the ages - problems and challenges

Author - Associate Prof. Rahmstorf, Lorenz, University of Copenhagen, Copenhagen S, Denmark (Presenting author)
Co-author(s) - Dobbyński, Aleksander, University of Zurich, Zurich, Switzerland
Co-author(s) - Dzbyński, Aleksander, University of Zurich, Zurich, Switzerland

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)
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: balance weights, Ebla, hoards

Presentation Preference - Oral

We would like to invite all scholars to this workshop who analyse such issues by the study of archaeological remains.
Standard weight systems in ancient near Eastern polities perform as normative tools, in the hands of state administrations. In their most practical meaning, weight standards serve the purpose of allowing the commensuration between goods and value to be quantified against an objective frame of reference, and noted down in administrative records. Weight standards were issued as “norms”, as such they were often ratified through royal edicts and enforced by public officials. But how far do official standards concur in shaping the practical experience, in particular in economic transactions, and ultimately in producing the materiality we observe in the archaeological record?

Is there any regular pattern we may observe in weighed goods, that we can use to infer normatively-induced economic behaviour? In the attempt to answer such questions, this study is set to empirically address the relation between norm and practice in the formation of the archaeological record, in instances of economic behaviour of Near Eastern Bronze Age states. The study of coherent assemblages of balance weights reveals much about official standards, how widely they were acknowledged within a given territory and how far were different official systems reciprocally interconnected. However, from a material perspective, the relation between balance weights and weighed goods remains somewhat obscure. In order to address such a relation, a comparative statistical analysis of two coherent material assemblages will be presented, from the Middle Bronze Age levels at Tell Marthik/Ebla (2000-1660 BC). 1) the assemblage of balance weights found in different buildings (palatial, religious, defensive and domestic) throughout the Old Syrian town and 2) the unpublished silver hoard containing 171 pieces (ingots, rings, chains, scrap metal) found beneath a floor of a dwelling located on the south-eastern slopes of the Acropolis.

The hypothesis to be tested is that the distribution of the weight values of the silver ingots, scrap and fragments – which the hoard is composed of – may reveal substantial analogies with that of the balance weights from the same site. The choice to focus on a silver hoard is dictated by the fact that this metal was, at the time, the medium of exchange and standard of value, and thus the distribution of silver objects is most likely to reflect normatively-induced behaviour.

The two contexts will be analyzed through quantal analysis and frequency distribution, and the results will be compared. The former method stands as a standard in Ancient Eastern and Mediterranean metrology in the study of balance weights, whereas the latter was refined by one of the authors in previous researches on Bronze Age Europe, where the lack of balance weights urges to focus, instead, on weighed metal.

In interpreting our results, we acknowledge that norm and practice are the two sides of a same coin, in that they stand as complementary aspects of real-world economies; therefore, understanding the interplay requires first to tackle each aspect through the appropriate methodology.

**TH1-24 Abstract 04**

**Identifying weights in later Bronze Age Western Europe**

**Author**: Associate Prof. Rahmatof, Lorentz, University of Copenhagen, Copenhagen, Denmark (Presenting author)

**Keywords**: Later Bronze Age, trade, weights

**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. Par 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 in 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 in 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**

**Authors**: Dr. Gorgues, Alexia, University of Bordeaux Montaigne, Poitiers Cédex, France

**Keywords**: Central European, metal production, weight

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**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 protocol is basically an institutional, 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, 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. This works rely mostly in two assumptions. The first one is that weighing has to be understood in 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 “Classical” Mediterranean is considered as part of a westerly 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 analyis 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 sketcharily. 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 routines. 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 strict economic sphere.
Metal ingots as a medium of exchange in the Bronze Age and the Iron Age

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Keywords: medium of exchange, metal ingots, trade

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 Sint-Petersburg culture in Central Europe. Specimens made of bronze are rib-shaped, while gold ones were made of spirals of wire. In the era of the Urnfield complex, longitudinal ingots of bronze and tin appeared. Sometimes they had regularly spaced constrictions 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 were also a 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.

Late Antique and Byzantine weights in the Mediterranean Area. The Glass weights

Author: Tobias, Benedek, Institut für Archäologien, Universität Innsbruck, Innsbruck, Austria (Presenting author)
Keywords: Byzantine, glass weight

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. The study of their glass consists of different colour. Dowhats 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 1300 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.

Roman weights from Aquileia: identification proposals of their ancient users

Author: Graduated Stud. Sutro, Maria, Università degli Studi di Padova, Padova, Italy (Presenting author)
Keywords: Aquileia, Roman weights, Weight's users

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 finds 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 city's economic role in all the north-eastern area of the Empire. Some important questions have emerged: who were these Roman weights' users? Who owned weighting 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 vicinity of the Hafner 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 Cossae 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 founding 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 rule upon the weighting instruments employed in his property or was he an external tenant?}

Neck decoration Scandinavians were of iron, they were not used and the Slavs. Slaves 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 times of crisis. Bones multi-faceted neck rings head marked by 2 things: bracelets on hand, clasps-ribbons. Mass discoveries brooches, buckles during archaeological excavations in the Baltic States are talking about ethnic identification of such 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 larger and the measurement error is small. Weight measurements artifacts necessary. They may correspond to the Nordic, Byzantine, Iranian, Prussian, Danish weight standards stand 350, 440, 190, 250 grams. Alone or in combination. Neck ring in hoards have tangible evidence of large wholesale trading or tax collection.

A new type of weights from Volga Bulgaria

Author: Koval, Vladimir, Institute of archaeology RAS, Moscow, Russian Federation (Presenting author)
Keywords: medieval market, Volga Bulgaria, weights

In 13-14 cc. Volga region of centuries, mysterious objects have been known. They were bronze cylinders of 2 halves on which flat surfaces are placed relief images of a lion (and) a tree with two birds. These cylinders are hollowed 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 city of the Volga capital, were made exactly in Bolgar.
TH1-24 Abstract 11

Analysis of weights and measures from the flat axes mould discovered in Pendia’s Hillfort (Spain)

Author: Dr. Rodríguez del Cueto, Fernando, Universitat 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 Agrippa, amphorae and ceramics of various type and provenance, lamps, wooden beams, fourths of meat and various small objects, including several little lead temples.

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 weight has an inscription too, which mentions in this case the magister navis, the shipmaster, as recently proposed.

The finding of these measuring instruments on the Valle Ponti’s wreck provides an opportunity for some remarks about weighting procedure on Roman maritime and fluvial trade and about official control of scales and weights.

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. Most importantly, we must focus on the deposits and their context, not just consider them as zoological objects but also acknowledge the animal deposits as archeological objects with substantial information about society, people and beliefs.

During the last eight years, a large number of animal finds, both sacred and profane, have been excavated from wetlands in northern Zealand. Especially the ongoing excavations at the site called Sabattonienhave revealed a small bog with numerous sacred animal deposits. Though still preliminary, a vast amount of results seem to be the outcome, which will enable us to interpret both the new finds as well as reinterpret some of the old finds from northern Zealand. So far, the new discoveries can contribute with information about the variation of sacrificed animals, which parts that were sacrificed, the combination with other items, the context in which they were sacrificed and the differences compared to the profane animal deposits etc.

Finally yet importantly, animal deposits contribute to the discussion about the utility of wetlands. Were their sole purpose to be marginal, mystical and sacred places or were they all that and part of the daily profane life? In other words, based on animal deposits, we should take a holistic point of view when it comes to wetlands.

TH1-25 Abstract 02

Bokeren- a bog revisited

Author: Ekund, Susanna, BA, Uppsala, Sweden (Presenting author)
Keywords: Bog body, Ritual practices
Presentation Preference - Oral
Interpreting the Archaeological Record

Archaeological finds of human and animal remains in bogs and wetlands are random and unpredictable causing trouble for both archaeological 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 reconstruct 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 ritual practices spread 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 also 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 Stady 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, Pine, 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 trampled 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, drowning, 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 Rabivere 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
Sacrifice and necropolitics

Author - Associate Prof. Christine, 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, Braidiot 2013).
THE LIFE BIOGRAPHY OF ARTEFACTS AND RITUAL PRACTICE

Thursday, 1 September 2016, 14:00-18:30
Faculty of Philosophy, Room 107

Author: Bye-Jansen, Peter, University of Southampton, Hayling Island, United Kingdom (Presenting author)
Co-author(s): Bye-Jansen, Peter, University of Southampton, Southampton, United Kingdom
Keywords: Neolithic Britain, artefacts, biographies, 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 Hambleton Hill (Dorset) and Windmill Hill (Wilts); 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 may be able to reveal some of the encapsulated narratives of activity in deposits. The project has also sought to develop methods for use-wear analysis, notably the use of high-end digital microscope technology in combination with a conventional microscope.

TH1-26 Abstract 01

Grinding Tools and Circular Enclosures - Ceremonial Behaviour or Common Refuse Management?

Author: Hansen, Mathias, Aarhus University, Aarhus, Denmark (Presenting author)
Co-author(s): Bye-Jansen, Peter, University of Southampton, Southampton, United Kingdom
Keywords: Biographies, grinding tools, prehistoric rituals
Presentation Preference: Regular session

This session will focus on creating biographies of lithic material culture, artefacts, as a means of understanding relationships between artefact and its final deposition. The aim of this session is to look through the vast span of time from the Palaeolithic to the end of the Neolithic, and let researcher’s present examples of conceivable “chains of practices” that culminated in ritualised depositions. From well used and unused, to sharpened and dulled and to burnt and broken all objects undergone multiple stages and “chains of practices” prior to the final deposition.

However, this history of an object is all too rarely taken into account when archaeologists discuss ritualised depositions. As such research has all too often focussed on the deposition as the ritual rather than the deposition as part of a larger ritualised practice that culminated but is not limited to the deposition. In order to rectify this, in this session the presenters will address the narratives of ritualised practices by studying the biography of the objects contained within ritualised depositions. By studying ritual depositions using a biographical approach we may be able to understand better the temporality of the practices that culminated in the deposition including but not limited to the use, treatment, modification, selection and arrangement of artefacts. The ambition is to create a synthesis about life biographies of artefacts from the Stone Age via practices and activities that the material culture reflects.

TH1-26 Abstract 02

Grinding Tools and Circular Enclosures - Ceremonial Behaviour or Common Refuse Management?

Author: Hansen, Mathias, Aarhus University, Aarhus, Denmark (Presenting author)
Co-author(s): Bye-Jansen, Peter, University of Southampton, Southampton, United Kingdom
Keywords: Biographies, grinding tools, prehistoric rituals
Presentation Preference: Regular session

Grinding tools and circular enclosures are often interrelated features from the prehistoric period in Europe. The ambition is to create a synthesis about life biographies of artefacts from the Stone Age via practices and activities that the material culture reflects.

TH1-26 Abstract 03

The ritual use of flint

Author: Prof. Larsson, Lars, Department of Archaeology and Ancient History, Skarvarg, Sweden (Presenting author)
Co-author(s): Hallen, Per-Ola, Uppsala University, Sweden
Keywords: Neolithic, burial, TRB
Presentation Preference: Oral

From the Megalithic period onward, sometimes even up to the Iron Age, lithics are frequently found in funerary contexts. 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 ceremonies. Artefact analyses were divided in two major parts. The first part involved the use of analysis of artefacts from the 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 afterworld), 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.

TH1-26 Abstract 04

The biography of megalithic art at Millin Bay, Northern Ireland

Author: Dr. Robin, Guillame, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)
Co-author(s): Dr. Hensey, Robert, National University of Ireland, Galway, Ireland
Keywords: 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 re-worked 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 Millin Bay in Northern Ireland, dated c. 3600-3300 BC. The site was excavated in the early 1990s, revealing an unusual long oval 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-making 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 Millin Bay. Using photographic techniques and 3D surface reconstruction, 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 Millin Bay stones as ritual artefacts.

We here approach megalithic art not as a spatially and temporarily fixed assemblage of structural stones but as a series of individual artefacts that were moved, transformed, decorated, reworked, sometimes broken, and eventually brought together and reused as structural elements to create the architectural setting of burial tombs.

This paper will consider Millin Bay in its broader context, with reference to wider evidence of reworked 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 is focused on the fact that, in spite of the traditional interpretation of the grave goods as a result of the burial ceremony, they, in fact, had a life of their own before that. The longest chain of events in an object’s life is 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 acidazochis, 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-lived. 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 they deposited into the deceased.

TH1-26 Abstract 09

Function and meaning of stones
from the grave of the Globular Amphora Culture in Wilczycze (Poland)

Author - MA (Mg) Kiermier-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 or/and soil platform on the perimeter of grave pit. In the vicinity there were also useful and beautiful objects, such as arrows, spear heads, knives and other tools. They could have been used to make or repair the stone structures. The function of these objects was not only to be used in daily activities, but also to create the identity of the deceased. In this paper, we will present the results of a new recording and analysis of decorated stones from the grave of the Globular Amphora Culture in Wilczycze (Poland). We will focus on the shape, size, colour and decoration of the stones, as well as their distribution in the grave. We will also discuss the possible function and meaning of these stones, such as symbolic communication in Central European society, and their role in creating the identity of the deceased.
The role of chipped stone artefacts in the Late Neolithic burial practice at Alsónyék (Hungary)

**Author** - Salagyi, Kata, Eötvös Loránd University, Budapest, Hungary (Presenting author)

**Keywords**: Chipped stone tools, Late Neolithic, Lengyel culture

The Late Neolithic Alsónyék-Bgászak site has enormous extension, which reflects in large amount of stone tools (nearly 8000 piece 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 Southeastern 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.

Ornament biographies in amber and antler from the late Neolithic in north-western Norway

**Author** - PhD Henriksen, Marete, Norwegian University of Science and Technology, Trondheim, Norway (Presenting author)

**Keywords**: decorations, biographies, amber, antler, Norway, ornaments, late Neolithic

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 having by 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 social status and identity.

Belonging to 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.

Amber Disc from Daktariške 5 Neolithic Site: Archaeology, Use-Wear, Infrared and Raman Spectroscopy

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By this reason special traseological, infrared and Raman spectroscopy investigation were carried on by the scientists of State science institute. The Traseological analysis was conducted on amber disc from the Daktariškė 5 Neolithic site. During investigations, use-wear and manufacturing traces were detected on the artefact. Analysis showed that during production of the amber disc two different kind isolated event of deposition, instead of the final step 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.

The 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.

Ritual Objects as Offering at the Eneolithic Shrine

**Author** - Kőszénike Szabó, Ewa, Archaeological Museum of Macedonia, Skopje, Macedonia (Presenting author)

**Keywords**: ritual objects, shrine, traces

Presentation Preference - Poster

At Eastern part of Macedonia, near Kozani few years ago the archaeologists discovered an Eneolithic shrine St. Atanas) which is near by the Eneolithic site-village. Both are of the same period, 4th millennia B.C.

The shrine is positioned on a small hill and it communicates visually with the settlement. It was used by the inhabitants from this settlement and probably from another nearby. Throughout the excavations there where found various ceramic dishes, zoomorphic and anthropomorphic figurines, altars (sacriifical items), tools made of stones and bones, as well as many animal bones. Most of them were gifts probably donated by the inhabitants honouring their festivities and beliefs through various rituals.

Majority of the material was discovered in fragments, which leads to the conclusion that the items were being crushed in ritual ceremonies.

It is interesting that around these spaces, no remains of wattle-and-daub were found or traces of supporting poles from the buildings construction. The evidence that there aren’t any mud walls confirms that the site is a shrine, not a village.

Archaeology, Use-Wear, Infrared and Raman Spectroscopy

**Author** - PhD student Jensen, Mathias P.B., Aarhus University, Helsingør, Denmark (Presenting author)

**Keywords**: Archaeology, Mesolithic, ritual

Presentation Preference - Oral

This paper concerns on stone artefacts from the Globular Amphora Culture grave from Wilczyce 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.
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 types of tools, i.e. flint and/or metal implantation.

Also, use-wear analysis showed that above mentioned ornaments were filled with organic pigment, which granted a multicolored brightness for the amber disc.

FTR spectral analysis of dark substance from a pits as well as light red remnants from three scratches of ornamentation was carried out. The material possibly applied for decoration was identified to be a mixture of coniferous tree resin and probably some gum, bees wax and fat, while the red tracaces – aluminum silicate, red ochre and bees wax. The origin of the brown yellow spot on the surface of the artefact was analyzed using both FTR and micro Raman spectroscopy. The presence of coniferous resin and wax was identified. This investigation has proved FTR and micro FT-Raman spectroscopy could be particularly suitable technique for non-damaging analysis of such significant archaeological objects.

THI-26 Abstract 15
Color Symbolism and its Reflection in Prehistory of Latvia
Author - PhD candidate Kokins, Algars, University of Latvia.
Faculty of Geography and Earth Sciences, Riga, Latvia (Presenting author)
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 routes, 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 (C.5, BCE) is closely associated with the usage of raw 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 materialistic and neolithic eastern 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 site 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 km distance near Zvejnieki archaeological site, but the colors are yellowish or brown (gothite). 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).

The presence of ochre color source minerals at near Zvejnieki archaeological site, but the colors are yellowish or brown (gothite). 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).

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.

THI-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 papyrus and ostraca, and preserved by the arid conditions of Egypt and the Near 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 communication of information. Furthermore, this paper reconsiders letters specifically as material gifts and, through reference to the theories of Mauss, Bell, Rochberg-Halton and Csikszentmihalyi, 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, reuniting texts with material form to provide a more rounded view of such sources. It allows focus to shift from elite and prestigious possessions that are at the centre of discussions of value within scholarship on this period. By assessing and evaluating 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 more recently.
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 extended personal network – 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 only removed after their 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 I’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 brooch models consist 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.

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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 in 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 intertwined 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 first 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 men, 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 garnet 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 rip- 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.

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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: Artefacts, Burial, Early medieval

Grave robbery – a practice of reopening recent burials and taking objects from them – was widespread across early medieval Europe, peaking in the seventh century. Affected graves have been recorded in hundreds of cemeteries from eastern Austria to southern Scandinavia. Their disorder and depletion contrast markedly with the carefully laid out and often lavish furnishing burial displays of the period. Many explanations have been put forward for the reopening practice, but common interpretations are that high-value artefacts 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 (reopenedgraves.eu). It shows that only 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’ connectedness with their owners, leading to different capacities for separation from 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 fungibility needs adding to our understanding of artefact worth in this period – in particular its emergence from interactions of human and object life courses.

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TH1-27 Abstract 05
,Cheap’ bone things, games and travel – on the value of gaming-pieces in an early medieval grave
Author: - Zintl, Stephanie, Bayerisches Landesamt für Denkmalpflege, Thierhaupen, Germany (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 ‘laal’ 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 parallel 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 perhaps: horse-riding warriors playing 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 funeraries. 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.

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TH1-27 Abstract 06
,Amulets’ in Anglo-Saxon graves

Author: - Dr. Hills, Catherine, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: Amulets, Anglo-Saxon, Burial
Presentation Preference - Oral

Anglo-Saxon women’s graves of 5th-7th century sometimes include items which have been described and discussed as “amulets”, by Audrey Meaney (1981) and others. These are not functional dress fasteners or ornaments, although they may include broken brooches, belt fittings or horse harnesses. There are also fragments of glass, pieces of Roman glass, but also more exotic items 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 shown by Felder (2014) to be associated with gridle-hangers, and interpreted as indicators 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 vase 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?


Meany, A. 1981 Anglo-Saxon amulets and curving stones British Archaeological Reports 96

THI-27 Abstract 07
Value-added gold: The physical, social, and cultural re-purposing of Scandinavian bracteates
Author - Prof. Wicker, Nancy, University of Mississippi, Oxford, MS, United States of America (Presenting author)
Presentation Preference - Oral
Gold held high status during the Migration Period of the fifth and sixth centuries in northern Europe, as we learn from contemporary and later written sources such as Beowulf. Among the elite articles of personal adornment during this period were the widely distributed Scandinavian-type bracteates, which are one-sided, stamped objects that were provided with suspension loops and worn as pendants. These bracteates may have been markers of prestige to indicate gender, marital status, age, and lineage. The biography of bracteates can be traced from the mining of gold as a raw material, to Late Roman coins and medallions given as military rewards, and then to northern goldsmiths’ workshops where the coinage was melted down and made into bracteates. Thus the gold was transformed from material with economic value in one form (coins) into value in another form as personal ornaments that were distributed by gift exchange and worn by women. The significance and worth of these possessions continued to change as they were 1) given to others (perhaps bequeathed to descendants), 2) purposefully deposited into the ground in burials or hoards (curated and taken out of circulation), 3) melted down and re-purposed into other jewelry (permanently taken out of circulation), or 4) lost - perhaps to be rediscovered later. Subsequently, gold bracteates have been discovered by archaeologists, looters, metal-detectors, farmers, and hikers, and their value is still recognized as we see documented in sales catalogues and in the records of the Portable Antiquities Scheme.

THI-27 Abstract 08
The things with value. An ontological investigation
Author - Van Vliet, Krista, Stockholms Universitet, Värmdö, Sweden (Presenting author)
Presentation Preference - Oral
White ideas about the various and unstable meanings of value and possession as well as their situatedness have gained considerable interest within archaeology, the ontological statuses 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 presumptions and beliefs about the nature of the world equivocal. Inspired by Deleuze, Guattari, and DeLanda, but also by Lucas, Fowler and Normark, I propose to investigate ‘value’ and ‘possession’ 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, brochures, 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.

THI-27 Abstract 09
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

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-contact 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-pressured 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-pressured social constraints.

THI-27 Abstract 10
My worthless precious. Troubles with fluctuating value of Ancient Greek vases
Author - MA Middićć, Wawrzyniec, Jagiellonian University in Kraków, Kraków, Poland (Presenting author)
Keywords: Ancient Greece, Greek painted pottery
Presentation Preference - Oral
Estimating value of the artifact could prove to be a difficult endeavor even if items come from societies with abundance of coinage systems like ancient Greece. This is true specially for manufactured goods, and specially for Greek painted pottery. The peculiar combination of different stages of consumption of the object, added trade value, and the low cost of raw materials, all this factors are adding up to constantly refine scholarly debate which now runs for over thirty years. Depending on their calculation researchers estimate value of a standard piece of Greek painted ware from being almost completely worthless value of metal vessels to being a prestigious item and luxurious commodity, to present views of just two extreme ends of the discourse. Furthermore, given the fact that Greek vases could be found all over Mediterranean their value would change accordingly. Indeed, their trade value is also being assessed with conclusions varying from one which see vases as being almost completely worthless value of metal vessels to being a prestigious item and luxurious commodity, to present views of just two extreme ends of the discourse. 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 obscures proper understanding and placing of object within Greek culture, but it also changes the grounds for interpreting the iconographical massage 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.

THI-27 Abstract 11
Materializing worth and value in archaeological beads
Author - Dr. Miller, Holly, University of Nottingham, Nottingham, United Kingdom (Presenting author)
Co-author(s) - Dr. Baysal, Emima, 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 eocritic meaning in material culture, there are categories of artifacts that are still under-studied and under-theorised 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 impart their meaning, yet through recognizing only the visual impact of these items in archaeological interpretation, this is what we seemly 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 often not based on aesthetic consideration. The artifacts highlighted are thought to have been relatively mundane objects, manufactured on readily available materials and were not particularly visually arresting, yet their value and
TH1-27 Abstract 12
More luxury for common people than we thought before:
Asian items in medieval and later Europe
Author - Dr. Jeute, Garson 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 collector's items in the lordly treasures and cabinets of wonder. However the archaeological research of the last decades in the whole of Europe added numbers of finds in different social environments. My contribution to the congress introduces these items 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. Thenby 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. Peter, 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 assembly has been interpreted using the same methods, which reveals close links between the imperial control of mint 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 centred 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 esoteric specialised craft linked 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 esoteric 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 relation to other objects all worked as important ingredients in the act of producing powerful possessions.

Keywords: Craft organisation, Late Bronze Age, Prestige goods
Presentation Preference - Oral

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Keywords: Craft organisation, Late Bronze Age, Prestige goods
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 craftmanship, 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 lower monetary cost of glassware meant that members of lower social circles might fill their homes with objects of luxury.

Unlike more durable forms of material culture circulated 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.

Keywords: Glass, 15th-18th century glass, Eastern Adriatic
Presentation Preference - Oral

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 textiles 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.
A stitch in time: Use and reuse of funerary textiles in pre-Modern northern Finland

Author - PhD Student Rui, Erik, SUNY at Buffalo, Buffalo, NY, United States of America (Presenting author)

Keywords:secondary use, textiles, Value

Presentation Preference - Oral

Between the 13th and 19th centuries in northern Finland a number of individuals were buried beneath church floors. As a result of the unique micromorphology beneath these church floors, many of these burials have naturally mummified. This paper addresses this phenomenon by examining the contexts at the churches of Haukipudas and Hailuoto as well as the cemetery at Oulu Cathedral. The unique preservation context offers the opportunity to explore less durable items including clothing, textiles, and other decorative elements. This includes specially constructed “false” robes, socks, gloves, caps. Children’s and some women’s burials also include specially-crafted flower wreaths and crowns.

This paper examines the lifecycle of these textiles, including their material and cultural value, use, reuse, interment and eventual excavation. This sample includes materials crafted from silk, wool, and bast fibers. While some items indicate local craftmanship, others were obvious imports to the region. Additionally, some pieces suggest professional craft specialization through the presence of luxurious lace and gold thread decorations. Each of these aspects of construction, material use and craft specialization impact the items' cultural and material values. The items included within these burials are further classified into two categories: (1) items intentionally crafted for inclusion in the burial, often recycled from larger textiles and (2) items worn and used by the individual during their lifetime before interment with the deceased. This paper explores not only the initial value of textiles, but also ways that their use and re-use alters their cultural significance and value within society.

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)

Keywords:bioarchaeology, pottery

Presentation Preference - Oral

The Eneolithic site of Sultana-Malu Rosu (Romania) is well known in the overall framework of the Gumelnita-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 shards 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 fragmenation 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 each stage of their existence.

This work was performed through the Partnerships in Priority Areas Program - PN II, developed with the support of MEN - UEFISCDI, contract number PN-II-PT-PCCA-2013-4-2392.

The transvaluation of pottery manufactures in the Basque Country along the Middle Ages

Author - Dr. Escricho-Ruiz, Beguria, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain (Presenting author)

Keywords:secondary use, textiles, Value

Presentation Preference - Oral

The patterns of domestic pottery consumption progressively changed over the Middle Ages in the Basque Country. Although some productionce periods 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 ceramic record of the 15th Century is quite different from any periods in common. One of the implications of this process is the change of value of the productions prevailing in the light of the impuion of new products, generating a progressive latent transvaluation in the ceramic record. Thus, the new also constantly detemined 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 reorientation, we will analyse the importance hence 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.

Interpreting Clay Objects in Neolithic West Asia: Reconsidering “tokens” as early accounting tools

Author - Dr. Barrios-Chapman, Lucy, Bilzen Ecevit University, Zonguldak, Turkey (Presenting author)

Keywords:Neolithic, Token/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.150-3.50cm. 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 evidenced 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 cultural and material value. The items included within these burials are further classified into two categories: (1) items intentionally crafted for inclusion in the burial, often recycled from larger textiles and (2) items worn and used by the individual during their lifetime before interment with the deceased. This paper explores not only the initial value of textiles, but also ways that their use and re-use alters their cultural significance and value within society.

A biographical approach of the pottery from Sultana-Malu Rosu

Interpreting the Archaeological Record
Beads, Bells & Baubles: The indigenous Caribbean (re)valuation of Spanish trade goods (c. 1492–1550)

Author - Keethen, Floris, Leiden University, Leiden, Netherlands (Presenting author)
Keywords: Caribbean, early colonial encounters, value systems
Presentation Preference - Oral

This paper juxtaposes archaeological and ethnohistorical sources to explore the early colonial indigenous Caribbean use and valuation of European-introduced goods acquired through systems of barter and gift-giving. Historical accounts written by European chronicles describe the indigenous eagerness to obtain novel Spanish goods as well as the pace with which such articles were absorbed into indigenous networks. The cross-cultural exchange of exotic objects affected the convergence, transformation, and recreation of indigenous and European material culture repertoires and value systems. In contrast to the historical accounts, which have always been an invaluable resource for studying the material dynamics of this encounter, archaeological evidence of the abovementioned processes has often been understudied. In this paper, I will discuss early European-introduced materials with archaeological interpretation of these processes will also be addressed.
The Isle of Man is a small island of just 580 square kilometres, yet it boasts the remains of about 200 medieval chapels (in Manx Gaelik, ‘Keeils’). In the 1930s Carl Marstrander, the leading Celtic scholar of his day, visited the island to study its many Celtic cultural and linguistic facets.

Marstrander was intrigued by the widespread distribution of early medieval burial grounds and chapels, which predate the establishment of a parish system on the island during the 12th century. He proposed and published a highly-influential thesis that the distribution of these chapels was associated with a pre-existing land division system which functioned throughout the island. Several theories have since been advanced which have suggested alternative explanations for the distribution of these chapels, and have been based, for instance, on concepts of peripheral or central location. It is worth taking stock of these, and of Marstrander’s work, in the light of recent discoveries and new dating evidence for some chapel sites, not all of which were known at the time of earlier surveys.

Together, the development of GIS and the resulting ability to investigate and characterise historic landscapes, offer an exciting opportunity to study the location and distribution of these chapels, particularly in relation to routes through the landscape. As a result, it is becoming possible to propose some new ideas about their location and about the nature of the medieval religious landscape of the Isle of Man.

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THI-28 Abstract 03
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 placed very far away and isolated from settlement too but not isolated. In addition to identifying different types of church, 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 Tryggvesson in 995 to the creation of an urban diocesan centre, part of the newly created archdiocese of Nidaros, in 1152/3.

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THI-28 Abstract 04
Chapels, Church sites and Settlement in Medieval Faroe Islands
Author - Arge, Simon 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 churches - maybe even remains representing the early Christianisation process. But because of the lack of church archeological 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.

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THI-28 Abstract 05
Novel topographical surveys and analysis of ecclesiastical sites in the Faroe Islands
Author - Michelsen, Helgi Dal, Faroese National Museum, Høvsk, 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 bannah (Faroese for chapel). The lack of historical and archeological 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 archeological work and to create a basis of comparable archeological 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 Georadar. The collected data are analysed, visualised and compared in an ArcGIS environment. This paper will present the preliminary results of the project.

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THI-28 Abstract 06
The geography of a cemetery – the early Christian cemeteries of Skagafljóður, North Iceland
Author - Zoega, Gudny, Skagafljóður Heritage Museum, Sauðarkrokur, Iceland (Presenting author)
Keywords: burial customs, cemeteries, churches
Presentation Preference - Oral

In the last decade early Christian churches and cemeteries in the region of Skagafljóður, North Iceland, have been the object of extensive archaeological research. A thorough regional survey has suggested the possibility of at least 120 farms with early churches/cemeteries. Of those, 15 have been further examined and four have been extensively excavated. The research indicates that these cemeteries come into being around the date of the official conversion to Christianity in AD999/1000 and that their majority was discontinued just before or after AD1104. A small number ultimately evolved into parish or communal cemeteries and in some instances churches retained their function and boundary walls were rebuilt after the cemeteries were no longer being used for burial. In their outward appearance these cemeteries seem to have been remarkably similar in size and form suggesting that from the outset, they were being managed and structured according to a particular set of laws or customs. Burial customs that have been considered an 11th-12th century development, for instance sex segregation, also seem to have been in place right from the beginning of the 11th century. These cemeteries are adding a new dimension to our understanding of the early ecclesiastical landscape in Iceland and how and when important changes may have occurred. In this paper I will explore the differences and similarities that can be found in the layout and organisation of these cemeteries and how they compare with contemporary funerary data from outside Iceland.

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THI-28 Abstract 07
Hofstadir in Myvatnsvellir. An early Icelandic religious landscape
Author - Dr. Gudmundur Hilmar Hafsteinsson, Institute of Archaeology, Reyjavik, Iceland (Presenting author)
Keywords: church, Iceland, religion
Presentation Preference - Oral

In 2015 the excavation of the early Christian church and cemetery at Hofstadir in Myvatnsvellir, northern Iceland, was completed. The site which dates from the mid 10th to the early 12th century was typical for the early Christian cemeteries of the period in Iceland, several phases of a central church surrounded by typically Christian graves, inhumations oriented west-east, all without gravegoods.

What is noteworthy however is that only 100m away from the church and cemetery are the remains of a substantial Viking age feasting hall (excavated between 1995-2002). The hall, which has clear pagan symbols, not in the least that its exterior was decorated with at least 23 cattle skulls, was in use for a relatively short period, constructed in the late 10th century, and abandoned by the mid 11th century.

The Christian church and the pagan feasting hall at Hofstadir were therefore contemporary for a while. This brings a new perspective to the discussion of early religion in Iceland, where much of the focus has been on attempting to identify a conversion process thorough the archaeology, in particular burial archaeology. The story suggested by Hofstadir is quite different, where there seems to be a period of coexistence of these contrasting religions.

In this presentation the results of the two excavations at Hofstadir will be discussed, and placed within the context of the archaeology of early religion in Iceland in particular, and the North Atlantic in general.
Ongoing excavations of the site of the medieval Carmelite friary of Tuilium in Perth, Scotland in advance of its redevelopment have located at least 300 human burials in the friary church. The earliest group of these burials are consistently buried with wooden staffs, which are apparently not functional objects but symbolic and two of the other burials were found to be wearing leather shoes. The earliest group of these burials are consistently buried with wooden staffs, which are apparently not functional objects but symbolic and two of the other burials were found to be wearing leather shoes. Located at least 300 human burials in the friary church. The earliest group of these burials are consistently buried with wooden staffs, which are apparently not functional objects but symbolic and two of the other burials were found to be wearing leather shoes.
TH1-29 Abstract 02

Reconstructing the Past

Author: BA Gerrit Jago, Schip, 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 museums can experience what the meaning and importance of these objects was for their original creators and users. Spread throughout Europe, there are about 300 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 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 sources 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. Visitors 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.

TH1-29 Abstract 03

Turves and trusses: reconstructing an early medieval building tradition in the northern Netherlands

Author: M.A. Postma, Daniel, Groningen Institute of Archaeology, Leeuwarden, 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 or even a more sustainable modern lifestyle is borne out by the fact that many have been built in open air museums or open (freely accessible) landscape settings. In professional archae- ological 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 buildings but to learn more about the Roman past, the ancient building technologies and modern conservation methods and will serve the purpose being educational, generally informative or academic.

Keywords:
- Archaeological Reconstructions
- Community Engagement, Outreach

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 Belize, 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.

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)

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 2013 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 partition walls reflecting the building methods of Roman times in the lower Rhine area. The roof was covered with replicates 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 original Roman 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 term-long performance of the building materials and construction techniques from the Roman period.
The "Art'y" Way - Dutch Approach to the Presentation of Archaeological Heritage

Author - Dr. Kochen, Marc, MARC heritage consultants, Bemmelen, 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 conservation and reconstruction, and a marked tendency 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 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 archaeological 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 inspired 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 archaeological values or in the development of a place? Whose interest is being done right and to what extent? How much authenticity may be lost? - have to be discussed at the beginning of a project.

Illustrating 8,000 years of environmental change and human impact in the Areuse River Delta

Author - Lic. phil. I Kraese, Jeanette, Office du Patrimoine et de l'archéologie du canton de Neuchâtel, Hauterive, Switzerland (Presenting author)

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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. 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 impression pertaining to these data, or absence of information. Finally, the composite drawing techniques used for the creation of the illustrations will be explained.
TH1-29 Abstract 12
From archaeology to the restoration: the reconstruction of tile stoves in the New Jerusalem

Author - Glaunova, Olga, Institute of Archaeology of RAS, Moscow, Russian Federation (Presenting author)
Keywords: 17th century, New Jerusalem Monastery, the reconstruction of tile stoves
Presentation Preference - Poster

Workshops of the New Jerusalem Monastery are deservedly considered as one of the main sources of Russian production of the tile. During the excavations of recent years it was discovered a huge number (over 50,000) of previously unknown stove tiles. The tile workshops, kilns, stocks of finished products and remains of standing ovens were excavated. A lot of stove tiles were found near the base of these ovens. Patriarch Nikon laid the foundations of a tile business in Russia. He invited artists from different regions and from other countries. Among ovens of the 17th century, we see the ovens, the roots of which can be found in Northern Europe, Italy, different regions of Belarus, in the Trinity-Sergius Lavra, Moscow. Later New Jerusalem craftsmen formed their own original style with special local appearance of tiles. At the beginning of the 18th century Peter I sent two Swedish prisoners for the organization of the tile production in the New Jerusalem. They, apparently, were the authors of tiles with symbolic scenes. Of particular interest is the oven, lined with tiles with heraldic church and state subject.

All of the above have created unique conditions for the reconstruction of the tile decoration of the New Jerusalem ovens of 17th – the beginning of the 18th centuries. Archeologists and restorers implemented 16 projects. All ovens were reconstructed on the historical foundations during the restoration of the monastery buildings. Reconstructed ovens allow to present real interiors of 17th – the beginning of the 18th centuries in detail.

TH1-29 Abstract 11
Reconstructing the Form of Late Neolithic Rondels

Author - Dr. Klára Jarcovská, Institute of Archaeology CAS, Prague, Praha, Czech Republic (Presenting author)
Co-author(s) - Vavrečka, Petr, Institute of Archaeology CAS, Prague, Praha, Czech Republic
Keywords: Enclosures, Neolithic, Virtual reality
Presentation Preference - Poster

The poster will present features of a circular ground plan, so called rondels, the function of which is assumed to be socio-ritual that appears in the Central European area in the first half of 5th millennium BC. Nowadays, we can only record the subterranean parts – i.e. one to four ditches, and one to three inner palisade trenches. Based on an intensive research that has been going on for almost 40 years, the ideas of the original form of rondels including wooden construction parts have changed in some aspects. Most common view is that a rondel is a solid palisade enclosure further enclosed by ditches. There are two, three or four entrances to the centre of the rondel.

Some researchers believe that from the centre of the rondel it was possible to observe the movement of the Sun, the Moon etc. during special occasions e.g. summer and winter solstice. However, is this prevailing opinion right? What would rondels with several ditches look like if there were parallel mounds or ramparts between them? Is there a possibility that there might have been buildings or other structures in the middle of the rondels? What would rondels look like if they had a roof above the central area? The poster will present some original alternatives of rondel virtual reconstructions based on archaeological excavations.

TH1-29 Abstract 10
As Planned, as Built, as Found: Reconciling Written and Field Records at Ksar es-Seghir (Morocco)

Author - Elbi, 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
Presentation Preference - Oral

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), Nario Antigo 799). 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 - 1540) 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 Abü Ya’qūb Yūsuf to Abü al-‘asan ‘Alī”, in Stéphane Pradines, ed., Architecture militaire du littoral, de la conquête Arabé 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): 1-95 (Portugal and its Empire, 1129-1580: A Volume of Papers in Honour of Francis Dutre 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 data resulting from the post-2010 resumption of work at the site under the auspices of CHAM / Escola de Arquitetura da Universidade do Minho and of the Direction du Patrimoine Culturel (Morocco). In the final stage, the project then proceeded to engage critically with various interpretive traps, 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.
TH1-30 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 resources 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 economical 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 Zamostje 2 (Russia)

Author - Toulouït, 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 held an essential place in the everyday life of these societies (Lozovskaia and Lozovskaia, 2003). Past typological studies have long stressed the importance of such productions (Lozovski, 1996, 1999; Zinin, 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) debitage at Zamostje 2 offers the opportunity to do so (Lozovski et al., 2013; Lozovskaia et al., 2014). Throughout this period, communities mainly hunted elk (Czax, 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 suggest 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 technological and economical shifts around 6500 cal. B.C which in turn illustrate some conceivable social evolutions at this time.

TH1-30 Abstract 03

Inserts from early Mesolithic bone projectile heads and daggers in Central Russia

Author - Dr. Zhitlin, Mikhail, Institute of Archaeology RAS, Moscow, Russian Federation (Presenting author)

Keywords: Use-wear, flint inserts, bone, projectile tips, dagger

Presentation Preference - Oral

Pre-boreal and early Boreal post-bog sites in the Volga-Oka interfluve produced a number of slotted bone arrowheads, javelin heads and daggers. Some of them preserved flint inserts in situ in slots fixed with glue. From typological point of view the majority of such productions were found during peat digging in the 1920's with no associated Mesolithic finds and had only been typologically dated to the Late Mesolithic. As such the only dagger with possible anthropomorphic figures. Before this analysis, very little was known about this dagger. It had been found near the village of Zamostje 2 and was kept in the collection of the Institute of Archaeology RAS in Moscow. Insert analyses contribute to our session.

TH1-30 Abstract 04

The biography of an Estonian Mesolithic slotted bone dagger

Author - PhD student Jensen, Mathias P.B., Aarhus University, Hejlsberg, Denmark (Presenting author)

Co-author(s) - Jónína, Tórno, the Estonian Literary Museum, Tartu, Estonia

Co-author(s) - Bye-Jensen, Peter, University of Southampton, Southampton, United Kingdom

Co-author(s) - Manninen, Mikael, University of Oslo, Oslo, Norway

Co-author(s) - Riede, Felix, Aarhus University, Hejlsberg, Denmark

Keywords: Biography, Mesolithic, Slotted bone dagger

Presentation Preference - Oral

Slotted bone tools are a common feature of the Mesolithic in Northern Europe. However these objects, like many osseous tools, are almost exclusively found in wetlands and therefore often have little or no contextual information, which poses significant issues when attempting to study and understand these objects. Therefore all too often they languish under researched in museum collections. In this paper we present the results of a multi-methodological analysis of the pre- and post-depositional life history of the Ubi dagger, an Early Mesolithic ornamented slotted bone dagger from southern Estonia. This dagger is unique in Europe as the only dagger with possible anthropomorphic figures. Before this analysis, very little was known about this dagger. It had been found during peat digging in the 1920's with no associated Mesolithic finds and had only been typologically dated to the Mesolithic. By using a combination of different scientific methods the dagger went from an isolated, undealt, and unique object to a tool with a complex life history extending more than 9000 years.
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): Meiklejohn, Les, 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 northern European Lowlands. The abundance of finds and good organic preservation characterize the site, which is located north of Lake Schwerin in eastern Germany. Among German scholars, Hohen Viecheln is ranked alongside Bedburg-Könighoven, Frascati, Vnukovo, Sumerup, and Star Carr, but internationally it usually is not accorded this significance. This relative obscurity seems even more surprising, given that the 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 site's place in the European archaeological chronology. By this it will be possible to adequately position the site within the Mesolithic and add valuable chronological and technological information to the understanding of 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 some 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 dabbage 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 osseous 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 gives 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 Northeastern Europe with neighboring regions, in particular with the Maglemosian techno-complex, well known for its abundant bone industry.

TH1-30 Abstract 07
The use of osseous raw material of Vlakno cave (Croatia)

Author: Radovic, Sinisa, Croatian Academy of Sciences and Arts, Zagreb, Croatia (Presenting author)
Co-author(s): Vitezovic, Selena, Institute of Archaeology, Belgrade, Serbia

Keywords: bone working, experimental archaeology, taphonomy
Presentation Preference: Poster

The use of osseous raw material of Vlakno cave is located on Dugi 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 corresponding 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 harpoons being 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 metalurgy. 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. Related research-findings were published in more details for the sites in Romania. This paper will focus on the Mesolithic and Neolithic sites from Serbia (Kula, Veleuca, Kripidla, etc.). Technological and typological data will be discussed: raw material selection, manufacturing techniques, etc. Antlers were the dominant raw material used for osseous industries and their importance continues into the Neolithic period. Bone artefacts are the most abundant finds in most of the Starčevo sites bones prevailed. Typological repertoire included heavy duty and small craft tools, rarely other types of artefacts. Certain techno-types introduced in the Neolithic sites are of Near-Eastern origin, in particular spatha-spoons from cattle metapodia. Manufacturing debris is not abundant and the question is whether this is related to taphonomy, excavation and recovery techniques, or specific activities carried out at some of the sites. Overall importance of analyses of the osseous industries and comparative approach of different technologies will be discussed.

TH1-30 Abstract 09
Post-depositional alterations on the bone surfaces – experiments with different agents of abrasion

Author: P. Ortowaska, Justyna, Nicolaou 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 kinds 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: Galiauskas, 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 laggonal 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 analogues 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 bone tools in North America. It is the single- and double-scribe compass graver. It is hypothesized that by replicating the harpoon using similar stone tools and then compare it to the production of the same artefacts using metal tools.
"BARBARIANS" OF EASTERN EUROPE IN THE SYSTEM OF CROSS-CULTURAL INTERACTIONS

TH1-31

Friday, 2 September 2016, 09:00-16:00
Faculty of Philosophy, Room 214p
Author - Rodinikova, Vlasta, Institute of archaeology of Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)
Co-author(s) - Dr. Khomiakova, Olga, IA RAS, Moscow, Russian Federation

Keywords: Eastern European enamel style
Presentation Preference - Oral

Abstract

Lecture reviewed a problem of Baltic impact in elaboration of eastern European enamel style in Dnepr region. It can be considered by the analysis of stylistics 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 Dnepr: 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 profiled» elements are applied in production of fibulae of type I by G. Kozurzhina and T-shaped crossbow fibulae. In A. Obolinski’s and R. Terzilovskij’s view their origin is connected with forms of Almgen 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 similar narrow-width formed combs. Drinking horns were furnished with strong profiled endings.

Openwork elements in decoration of enamel V-shaped fibulae, elements of pectoral ornaments, chains of drinking horns, lunulae pendants from Central Dnepr are inspired by similar ornamental motifs close to opus interstiacum style. Closest analogues of these elements with geometrical motifs find in contact zones of Baltic lands, in artifacts dated to the beginning and the mid-third century. Artifacts supplied with openwork ornamentation and strong profiled elements find sustained conjunctions in dress both in Dnepr region and Baltic lands.

In decoration of enamel artifacts from Dnepr jewelry technique with imitation of granulation and filigree has been used. Combs of drinking horns are ornamented by engraved geometric motifs, 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 Dnieper left bank. Perhaps, in a modified form, this tradition has been extended to 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, in a modified form, this tradition has been extended to 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, in a modified form, this tradition has been extended to 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, in a modified form, this tradition has been extended to 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, in a modified form, this tradition has been extended to 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, in a modified form, this tradition has been extended to 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, in a modified form, this tradition has been extended to 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, in a modified form, this tradition has been extended to 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, in a modified form, this tradition has been extended to 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, in a modified form, this tradition has been extended to 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, in a modified form, this tradition has been extended to 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, in a modified form, this tradition has been extended to 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, in a modified form, this tradition has been extended to 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, in a modified form, this tradition has been extended to 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, in a modified form, this tradition has been extended to 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, in a modified form, this tradition has been extended to 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.
in the Dnieper-Donets forest-steppe during Late Roman Time

In glass beakers and others will be discussed as evidences for the exchange between the “barbarians” and the ancient cities of the rites, the geographical position and structure of the settlements. Furthermore imported objects from the sites like amphorae, were involved. The interactions between these groups are considered on the base of recent investigations in this area. Special Presentation Preference

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, Manychshik Peninsula
Presentation Preference - Oral
A few stone constructions were investigated at the territory of Manychshik Peninsula (Republic of Kazakhstan) in 2014 – 2015. The space inside of stone fence contained the traces of varying ritual ceremonies: crushed crockery, vessels, embedded into the earth, and calcareous alters. In addition, the one small pit contained the bridle 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 Urar. 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. Komar. 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 Shchedrova, 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
• Uncontained spread of extortionate works 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 immediately 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 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

TH1-31 Abstract 06
Glass vessels of the Chernyakhov culture – technology and origin

Author - Likhter, 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 alloweds 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 05
Cultural and economic exchange in the Dnieper-Donets forest-steppe during Late Roman Time

Author - Dr. Schultze, Erdmute, DAI, Eurasia Department, Berlin, Germany (Presenting author)
Co-author(s) - Lubiechow, 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 payed 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 beakers and others will be discussed as evidences for the exchange between the “barbarians” and the ancient cities of the Black Sea coast.

THIInterpreting the Archaeological Record

TH1Interpreting the Archaeological Record

Dnieper region. Particularly the find from Zhukin is dated to the middle/second half of the II - the middle of the III c. AD whilst the “diadem” from Sukhonosivka is probably related to the Hun time not excluding the beginning of the V c. AD.

The paper was prepared under the support of the Russian Foundation for Humanities, project № 14-01-00269.

THI-31 Abstract 04
East European champlévè techniques: production technology and possible origin

Author - Rumiantseva, 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 A.D. From this area they spread rapidly over a wide territory, reaching the Crimea and the Caucasus at 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-Wrblicka and T. Stawarska. The technological investigation of enamelled objects of the Byriansk hoard aims to develop this line of inquiry. The hoard discovered in the Byriansk 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 champlévè 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 colour by 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 difference of 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 ports beyond the ilmes.

The funding for this project was provided by Russian Foundation of Humanities, № 14-01-00269a.
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 the 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 (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 cannot be correlated with “Araxes” 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?

Further development of the existing fine chronology of one of the most characteristic find categories – fibulae, remains an important

KW: - Oral

Abstract

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 Imenkovo 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 Imenkovo culture is related either to the leaving of population from the region at the end of the 8th c. – 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 9th-10th centuries (Sahni Matveieva, Yuri Serymly).

As a result of the recent research, it became possible to determine at least two stages of the Imenkovo 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 heraldic-style belt-bands, Sassanid coins, several furniture and costume details.

The hillforts ‘Ashna-Panda’ and ‘Sholm’ in the Middle Sura region are related to the ‘final’ stage of the Imenkovo culture. The both 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 Imenkovo cultural complex with ‘eastern’ 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 same sites confirm the conclusion that the ‘eastern’ elements in the culture of this region.

The hillforts ‘Ashna-Panda’ and ‘Sholm’ in the Middle Sura region are related to the ‘final’ stage of the Imenkovo culture. The both of the sites are of the second half of the 7th c. (the beginning of the 8th c. is also possible). These sites have a significant difference in ceramic and artefacts styles, therefore, the Imenkovo population was inhomogeneous at the ‘final’ stage.

The materials of the late Imenkovo 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 Imenkovo culture. The specific regional types of furniture and costume details and differences in ceramic complex appeared in the 6-7 centuries bear an evidence of this.

What is the role of the “treasures of artisans”, containing serial things, scrap and ingots?

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The cessation of existence of Imenkovo sites in the different regions was taken place in different periods, possibly, due to different reasons. In the majority of regions with Imenkovo culture remains, the upper boundary does not exceed the first half of the 8th c. However, in the eastern part of the region the upper boundary does not exceed the first half of the 7th c. (Evgeniy Kazakov) or to the slow dissolution in the culture in the early Volga Bulgarian culture in the 9th-10th centuries (Sahni Matveieva, Yuri Serymly).

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The presentation is going to discuss results of our research, in which we explored the possibility that we can draw conclusions about the formation of a cultural group indirectly from information on a certain set of archaeological material or also define possible dates of their settlement. It shall present a possible interpretation of events in the 6th century in the western Pannonia (i.e. north-eastern Slovenia) and propose a new hypothesis on dating the early Slavic settlement in the afore-mentioned region.

The general consensus among scholars is that the early Slavs did not settle in the western areas of the Pannonian Plain prior to the departure of the Lombards into Italy, possibly after 568, but probably only around 580 or later. The historical interpretations in question were proposed mainly on the basis of written sources, since the material evidence for this area was absent.

The situation with the lack of material evidence changed at the end of the 20th century, when extensive excavations on the route of the motorway network were undertaken in north-eastern Slovenia. A whole series of archaeological sites located south of Murska Sobota revealed the previously little-known early Slavic local settlements.

The coins not only provide a diverse and deep-ranging picture of how such elites saw and expressed there identity, both with respect 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.

TH1-31 Abstract 16
A Barbarian, meaning who?
Author - Dr. Narlic, Krysztof, 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 diktat, the late antiquity community was forced to appreciate the ethnicity of other populations, which led to reinterpretation of meanings and to working out a new model of mutual relations. This change resulted in taking over certain cultural behaviours and was reflected in the material culture. All that, at least in the Danube area took place in the shadow of newly-organized system of fortifications, which can be considered a characteristic feature of the late-antiquity warfare. The war itself, on the other hand, was the factor which divided particular barbarian populations, which made them create permanent state organisms.

The paper includes deliberations concerning changes in perception of the Barbarians by the Romans in late antiquity and their mutual relations, exchange in cultural models and war as a factor shaping contemporary populations.

TH1-31 Abstract 17
Burials with weaponry of the upper Dnieper version of the Zarubintsy culture
Author - Voronina, Liudmila, The State Hermitage Museum, St. Petersburg, Russian Federation (Presenting author)
Keywords: upper Dnieper, weaponry, Zarubintsy culture
One of the specifics of the upper Dnieper version of the Zarubintsy 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 Yuriev in 1 out of 19 (5.3%). On the burial ground Gorozhkov spearheads have been found in six investigatet burials out of 32. All the heads of iron, socketed, with a leaf-like feather, and bear traces of having been fired. In the outside of the socket of one of the heads of the Gorozhkov burial ground (burial No.9) there are prints of fabric preserved. In Gorozhkov the heads lay in different parts of the burial pit parallel to it. In most cases, the burials with weapons, apart from modelled bows, contained horseshoe-like iron filiules of syngytes type and (or) iron knives with hunches based. What is more, the knives always lay with the point directed to the side opposite to that of the spearhead. A unique element for the funeral rites of the Zarubintsy culture is an iron spearhead stuck almost vertically into the bottom of the burial pit with the socket facing upward (burial No.13 of the Gorozhkov burial ground). The custom of driving weaponry or labor implements through the remains of the burial person placed in an urn or a pit is widely distributed territorially and chronologically. It is noted in the Przorwsk and Jastorf cultures of Poland and Germany where it sporadically occurs in the late La Tene and Roman times. Similar cases are known also in the late Celtic burials of the Danube zone. The vertical piercing (shining) of a spearhead into a burial pit had apparently some ritual or magical significance. This custom is interpreted variably. On the one hand, there is a rich mythology existing about spears that pierce the vault of heaven and therewith give humans access to the sky. On the other hand, the weapons were driven into the remains of the buried man...
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 Zardubin 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 Goroshkiv.

On the basis of the finds of various versions of fibulae of the middle and late La Tène scheme, the burials with weaponry of the upper Dnieper version of the Zaran'kiv culture are dated to the 2nd—1st centuries BC.

In general, the burial Goroshkiv can be characterized as a monument left by a militarized group of people at the turn of our era.

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TH1-31 Abstract 18
Geoinformation methods in dealing with East European barbarian charnelveil enamels

Author - Radysush, Oleg, Institute archeology of RAS, Moscow, Russian Federation (Presenting author)

Keywords: Charnelveil enamels, Geoinformation methods

Presentation Preference - Poster

In the last decade the objects made with charnelveil enamels have attracted the attention of many researchers once again. Increased volume of incoming information from different regions of East Europe has expanded significantly the current understanding of the spread of this type of objects, its connection with different cultures and its history.

The source corpus by G.F. Korzukhina (1978) reflected the situation of the early 1970s. About 450 objects divided into 10 categories (Brooches, Bracelets, lunula-pendants, Chains, Plate items, Neck-rings, Charms, Linings, Rings, etc.) were taken into account in this corpus. In the Middle Dnieper region 173 of 184 findings came from “casual” finds on the surface excavation and from private collections of the locals. Only 11 items were found during excavations. In the second part of the book devoted to the surrounding regions, the situation is slightly different: 192 items were found in the excavations, 74 were related to the “casual” finds. Totally 69 places with the finds in the Dnieper region were recorded. The author of the source corpus identified three regions where things with enamels spread: Middle Dnieper, Baltic and Volga-Oka regions.

In addition to the G.F. Korzukhina's corpus new one was prepared by R.V. Terpilovsky and A.M. Oblomsky (2007). It included 142 findings mostly from the Middle Dnieper region.

Thus, even on the example of existing source corpus it is obvious that a significant part of the findings is not related to the surface excavations. 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 mostly 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 finding findings is carried out on 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 et al.) continues. New approaches in work with undocumented finds allow including them in statistical survey. The first results of such work allow eliminating the G.F. Korzukhina’s hypothesis about three areas of distribution of objects with enamels. The newest mapping fills existing gaps in the Upper Dnieper region, on the left bank of the Dnieper, in the Neman region. The amount of finds in the Middle Don region has increased significantly. Many things from the right bank of the Dnieper and Western Ukraine became known. New categories of things unknown among a set of categories in Korzukhina’s book were allocated. Number of items in previously small categories of things significantly increased. Information from full database allows beginning the work on allocation regional and interregional series of things, based on statistically valid samples of items.

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TH1-31 Abstract 19
Neck-rings of the ‘emanned style’ in the South Eastern Baltic Area and in the Dnieper–Oka region

Author - Voroniatov, Sergey, State Hermitage Museum, Saint-Petersburg, Russian Federation (Presenting author)

Keywords: Dnieper–Oka region, South Eastern Baltic Area, East European enamelled ornaments, Torques neck-rings

Presentation Preference - Poster

Amongst different types of East European enamelled ornaments, the neck-rings (torques) made of three twisted wires and with rings shaped ends, are a conservative stuff category. In the South Eastern Baltic Area, these are known from stray finds (Taurage) and from burial complexes (Mažionys, Verbla). In the Dnieper–Oka region, such neck-rings originate from hoards (Moškohny, Mühligò’ye, Glažnevò, Usalkò). Amongst the neck-rings of the Mažionys burial ground, there is a specimen cut in two—what could serve as a piece of evidence of ‘killing’ the stuff. In three hoards from the Dnieper–Oka region, cut-neck-rings are known, too. The latter could indicate the sacrifical or votive character of the hoards of enamelled ornaments.

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TH1-31 Abstract 20
Cross-cultural interactions in the light of wheel-made pottery from the cemeteries in Ulów (Poland)

Author - Dr. Nieszabowska-Wawrzkiewicz, Barbara, Institute of Archaeology, Maria Curie- Skłodowska University in Lublin, Lublin, Poland (Presenting author)

Keywords: the Wielbark Culture cemeteries, Ulów, SE Poland, wheel-made pottery

Presentation Preference - Poster

In the vicinity of Ulów (Middle Roztocze, SE Poland) the complex of multicultural archaeological sites was found. Among them two bi-ritual cemeteries (site 3 and 7) originating from the late Roman Period and the early Migration Period were discovered. On the map of archaeological cultures, Ulów is located in the settlement zone F of the Wielbark Culture. Therefore, the features typical of this culture dominate over the cemeteries discovered in Ulów. However, no fewer is the number of features of funeral rite, location of the site, as well as grave goods possessing parallels in other cultural units from the European Barbaricum (e.g. Małomroczy Group, Chernyakhov Culture). It is known that the Wielbark Culture has a small number of wheel-made pottery. Moreover, it has not yet been proved that the population of this culture produced such a ware (apart from one “episode” from Wieliszew). According to many archaeologists, wheel-made potteries from the Wielbark Culture sites are in most cases imported from the Chernyakhov or Sántana de Mureg Cultures. In the light of this fact, surprising is the extraordinary number of wheel-made pottery and its fragment discovered in Ulów. In site no. 7, they comprise more than a half of ceramic ware from the Roman and Migration Periods. In this case, it can not be ruled out local production of at least part of the wheel-made pottery beginning at the phase Cib-C2 and connecting the ornamentation of hand-made Wielbark Culture pottery with the technology and morphology of wheel-made pottery characteristic for the Chernyakhov or Sántana de Mureg Cultures.

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TH1-31 Abstract 21
The heyday and decline of settlement of the Przeworsk Culture in the Lublin Region, eastern Poland

Author - Cyran, Marta, Muzeum Lubelskie w Lublinie, Lublin, Poland (Presenting author)

Keywords: interdisciplinary studies, Przeworsk Culture, settlement reconstruction

Presentation Preference - Poster

The disappearance of cultures stemming from the tradition of the Roman Period at the territory of Central and Eastern European Barbaricum emerges as a diverse process in time and space. For the most part of this territory, among others also for the territory of Poland, the existing literature records a “sudden and dramatic” fall in the number of sites associated with the cultures at the end of the 4th and at the beginning of the 5th centuries. Such view of the cultural and settlement evolution is presented in the last synthesis of the prehistory of the Polish territory, written some years ago, as well as in more recent fragmentary studies.

The last years of the 20th and the first decade of the 21st century brought a number of significant discoveries for the archaeology of the Roman Period in the Lublin region (east of Poland), which brought numerous new materials, sometimes leading to crucial redefinition of the established views.

The state of the research allows us to distinguish in this part of Barbaricum not only settlements connected with the Wielbark culture but also the final phase of the Przeworsk culture which transpires from recent excavation carried out at a settlement in Nieszawa Kolonia, site 5, Opolje Lubelskie district.

This site is the largest archaeologically explored settlement of the Przeworsk Culture in the Lublin Region with relics of dwelling constructions. The dating of the majority of artefacts and features uncovered in Nieszawa Kolonia can be placed within the phases B2 and B2+C1-C2a of the Roman Period. One can however also mention a whole set of metal and ceramic artefacts pointing the functioning of this Visulta river bank settlement in the late Roman Period and early Migration Period, that is, at the time of phase C3 (or still the final stages of phase C2) and phase D1, which puts the problem of the decline of settlement of the Przeworsk Culture in the Lublin Region in a new light.

It seems to be possible that its history is part and parcel of the changes which occurred at the territory of the Barbaricum and Roman provinces in connection with the Hun invasion in 375 AD. We witness then a return of some settlers of northern provenances to former settlements, that is a movement of groups of people through the Carpathian passes from the southern and south-eastern direction.

The interdisciplinary studies carried out in Nieszawa Kolonia systemically fulfilled the still up-to-date postulates of the internationalization of studies over settlements of the Przeworsk Culture.
TH1-31 Abstract 22

The preparatory stage of pottery technology among the Russian forest-steppe cultures in IV-VII AD

Author - Nikitina, Anna, Samara State Technical University, Samara, Russian Federation (Presenting author)
Keywords: ancient pottery, East European Plain, Migration period
Presentation Preference - Poster

The time of the Migration period in the area the Eastern-Europe forest-steppe is associated with the spread the "couth-molded" flat-bottomed non-design ceramics. At this time in the pottery traditions abolished advanced technology associated with Scythian elements and imitations of Roman ceramics, as well as leaving the specifics of Iron Age sedentary cultures. The Migration period pottery is simpler and largely unified, despite the fact that the complex of findings, social and economic characteristics of different cultural groups are different.

Consideration area includes series of archaeological cultures: Prague-Korchak, Penkovo, Chernyakhov (in part), later Kiev and Kolochin, Mochochino, culture of Volga Finns, Imenkovo. Studying of Eastern-Europe forest-steppe sedentary cultures ceramics as a single phenomenon has not been conducted, but there are a some works in separately. The main part of the special researches about ceramics are works devoted to the vessels shapes typology, based on the method of ceramics processing, which had introduced into scientific circulation by IP Rusanova and VF Gening in 1973. These typologies had arose from the mid-1980s and still are working. These include typology of AM Oblomsky, OS Rumyansteva, AM Vorontsov, VV Grishak. Besides them there are typologies based on the features, defined as type-forming by the researchers themselves (for ex. the functional features of vessels, features of profiling and others) - typologies of BV Magomedov, O. Petrusaskas GJ Matveeva, GA Massalitina. Thus researchers attention focused mainly on the vessels shapes. At the same time, about the pottery technology facts is bit. The first step in this direction has been made by AA Bobrinsky. He studied in detail the pottery of the Chernyakhov culture, in particular the selecting and procuring the raw materials, blending the pottery pastes, features of build, the study of pottery circles, the organization of the pottery industry. In addition, technical-and-technological analysis conducted by NP Salugina of the Imenkovo 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-Europe 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 fresh fracture sherds using stereoscopic microscope MS-1. Definition components of raw and paste composition was carried out by collaboration with a models collection, developed on the basis of Samara expedition to the experimental study of ancient pottery.

The research was identified the several traditions to varying degrees dominant in different territories. However, the general of most traditions are the selection skills pots 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 Imenkovo culture
(on the materials from the Tetushskoe II settlement, Middle Volga)

Author - PhD Stolyarova, Elatserina, Institute of Archaeology RAS, Moscow, Russian Federation (Presenting author)
Keywords: glass beads, Imenkovo culture, Middle Volga region, imports, the Middle East
Presentation Preference - Poster

Tetushskoe II settlement is situated on the northeastern outskirts of the modern town of Tetushi (Tetushi district, Republic of Tatarstan). 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 site of Upper Kama region, which is the closest territory to the Tetushskoe II settlement, such beads only appear from the 6th century A.D.

TH1-31 Abstract 24

'Burakovo horseman': burial, hoard or imaginary assemblage?
(concerning the status of the complex)

Author - Dr. Bugrov, Dmitry, Institute of Archaeology named after A.Kh.Khalkiev, Tatarstan Academy of Science, Kazan, Russian Federation (Presenting author)
Keywords: early medieval archaeology, hoard, Middle Volga region
Presentation Preference - Oral

Every archaeological culture contains a site that becomes 'an archaeological talk of the town' in a positive or negative way. Komintern 2 burial ground became such type of site for the Middle Volga region sites of the 1st millennium AD. The site was heavily damaged by abrasion and excavations (1984-2003) were irregular and limited. Reports on Komintern 2 excavations were partly published (Kazakov, 1998; 2005), the historiographical tradition, mainly controversial has managed to developed in such difficult circumstances. Situation becomes more complicated due to existence of another complex, 'Komintern hoard' (also known as 'Komintern burial mound', 'Burakovo burial ground' or 'Burakovo horseman') that was similarly named and have close location to Komintern 2 burial ground. The 'hoard' has controversial historiography developed around it too. This work aims to find origins and define status of the 'hoard' and its relations to the burial ground.

According to the first publication (Stolyarov, 1995) the 'hoard' originated from the burial ground (nearby Burakovo) that was destroyed by water reservoir. Later publication (Mukhametshina, 1999) as well as documents of Bolgar Museum-Reserve argues that the artefacts were found by the resident of Burakovo, P. Levagin, in 1983 in Beganchik island (located in the place of eroded burial ground), 1 km far from Komintern. The first localization was inaccurate, as there is 5 kilometre distance between Burakovo and bank of the reservoir. The second is also inaccurate (as the island located to the west from Komintern and no burial mounds were found there earlier), however it may be more trustworthy. Attribution of all the artefacts to one complex is a random interpretation of P. Levagin, who had not give details neither about the place nor about the composition of the hoard.

The composition of the 'hoard' is chronologically and stylistically heterogeneous. The majority of the artefacts are dated from the end of the 6th - 7th centuries. A silver fibula dated the 5th century, a two-edged sword probably from Azelino culture burial ground of the 3-4th centuries are beyond of this chronological frameworks. The iron stirrup and probably two silver belt plates are of the 8th century. Nevertheless, elements and imitation of Roman ceramics, as well as leaving the specifics of Iron Age sedentary cultures. The Migration period pottery is simpler and largely unified, despite the fact that the complex of findings, social and economic characteristics of different cultural groups are different.
IRON MAKING TECHNIQUES AND SOCIAL CHANGE IN THE MEDIEVAL AND EARLY MODERN EUROPE

FRIDAY, 2 SEPTEMBER 2016, 14:00-16:00
Facility of Philology, Room SFS

Author - Haggrén, Oskar, University of Helsinki, Helsinki, Finland
Co-author(s) - Magnusson, Gert, Jernkontoret, Stockholm, Sweden

Keywords: Iron production, social organization, skills, life course, techniques, furnace, 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 organizations. Collecting bog or lake one could 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 when introducing new techniques skilled expertise 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 notaries or monasteries.

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 any 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.

TH1-32 Abstract 02
The Iron and the Smartphone: ‘expensive’ technologies at the verge of the millennium
Author - Larreina-García, David, UCL Institute of Archaeology, London, United Kingdom (Presenting author)
Co-author(s) - Quirós-Castillo, Juan 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 centres became closely linked to political, military or religious powers (Hinton 2005) mainly focused on providing to elites since ‘iron objects were expensive items’ (Jaritz 1995) not affordable for most of the populations. Archaeological evidences contribute to this supposed scarcity of metals within the peasantry since agricultural implementations 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 reveals that these are very acceptable quality items made of low carbon steel by piling, employing occasionally sophisticated techniques such as sand-blasting and even the complex pattern-welding technique as far as only seen in the decoration of high status weaponry (Peirce 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 its utilizations, and offers a tentative reconstruction of interplay between iron models of production and peasant communities during EMA in the Basque Country area.

References cited:

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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

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 its utilizations, and offers a tentative reconstruction of interplay between iron models of production and peasant communities during EMA in the Basque Country area.

References cited:
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 Saaremaa in Estonia and in the land that later became the county of Småland. Here there was what has to be described as a mining area of lake and bog ore with over 100 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, Gdansk, Kuressaaar and other towns around the Baltic.

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 Calmare 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.

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 Öllösa bruk and the cannon foundries of Grythyttan and Brämh-Eksby, 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 context. 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 furnaces 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.
THI-33

THI-33 Abstract 01

The Avellino Event: investigating the migration resulting from the Bronze Age eruption of Vesuvius

Author - Dr. Van Leusen, Martijn, University of Groningen, Groningen, Netherlands (Presenting author)
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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 becape 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 pondered 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 Lazia, the region immediately to the north of Campania. Long-standing Dutch geochronological research in this region 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, two more ash layers that will function as chronostratigraphic markers for identification of an immigrant population. Using a combination of archaeological, anthropological and palaeo-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 2018, 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.

THI-33 Abstract 02

Phenomena of migration on Chalcidice

Author - Disk, Olivia, University of Basel, Basel, Switzerland (Presenting author)

Keywords: Chalcidice, colonisation, local identities

Presentation Preference - Oral

The Chalcidice, a peninsula in Northern Greece, forms since early times a transit area and can be interpreted as the endpoint of migrations. While it was called by the Greeks of the south “The peninsula in Thrace”, the toponym “Chalcidice”, which is used from the 2nd century AD onwards for the whole peninsula, was related before only to the area of the settlement of the Chalcidians. The origin of the name is controversial; from chalcos (copper), from the city Chalkis on Euboea or a Greek tribe which settled in the area during the migrations of the 2nd millennium (Hdt. 7.115). Beside the Chalcidians settled numerous populations on the mainland and the three prongs Pallene, Sithon and Ate. The return of the heroes of the Trojan War which reflect the movement of tribes is displayed in the mythical founding of the Chalcidian cities Aineas by Aeaeus and Solone by Proteus. The rich resources from the area (timber, fertile land, mineral deposits) are central factors for the intensive colonisation in 8th/7th century BC. Settlers from Euboia, Andros, Corinith founded various apoikiai on the Chalcidice which shaped the region during the 8th/7th century BC. Cultural changes are connected through the history of the Chalcidice with the annexation to the Macedonian kingdom (349/48 BC) and when the Chalcidice became part of the Roman province of Macedonia (168 BC).

Based on this ethno-complex the social dynamics of the microcosm of the Chalcidian peninsula should be investigated. The presentation provides on the base of literary, epigraphical, numismatic and archaeological sources an overview of the methodical instruments which can be used to analyse the impact of new settlers on the local populations in this specific area. The aim is to analyse with a focus on the religious context the patterns of migration.
TH1-33 Abstract 05
Bone functional adaptation in the femur: a quantitative analysis in historical populations

Author - Dr. Simonit, Francesco. Montalcino, 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 about 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 clyndroids 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 cylindroids. Furthermore, the geometry of the lower limbs 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 load 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. Schneeweis, 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 another important research topic. This period of intense investigations and acute debates came to a certain end at the turn of the millennium, when some of the most famous and groundbreaking works were published. Since the first decade of the 2000’s the extent of Slavic archaeology in Germany is decreasing, as measured by academic research in this field. Contemporary directions in archaeology are often focusing on more theoretical approaches and provide new perspectives on well-known research issues, while rescue excavations keep on being the main source for providing new data. Nevertheless, Slavic archaeology was the topic of academic research programmes in the last decade, too.
How were clustered settlements really? A case study on the Gatalhöyük West Mound

Author - Prof. Bahri, Peter F, University at Buffalo, Buffalo NY, United States of America (Presenting author)
Co-author(s) - Regasch, Jana, Flinders University of South Australia, Adelaide, Australia
Keywords: Architecture, Chalcolithic, Neolithic

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 Gatalhöyük 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 Gatalhöyük experienced fundamental changes in it 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 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, Gdańsk, Poland
Co-author(s) - Polczyński, Łukasz, University of Gdańsk, Gdańsk, Poland (Presenting author)
Keywords: built environment, community organisation, spatial organisation

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 an indicator of close social relations (e.g. kinship) between them.
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 systematic excavations performed mostly on the mounds. Recently new post-disciplinary research made in Bulgaria (e.g. Podpolitsa) and Romania (e.g. Pietrel, Sutane) 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.

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TH1-34 Abstract 08

Experience, organisation and identity within the nucleated broch villages of Northern Scotland

Author - Gal, Emily, University of St Andrews, St Andrews, United Kingdom (Presenting author)

Keywords: Brochs, Iron Age, Scotland

Presentation Preference - Oral

This paper will explore the Iron Age nucleated ‘broch-villages’ of northern Scotland and their significance within the wider settled landscape. Brochs are a well-recognised drystone domestic structure in later prehistoric northern Scotland, with distributions extending across mainland Scotland and the Northern and Western Isles. Interestingly, the brochs of Orkney, Caithness and Shetland are often directly associated with nucleated ‘villages’ consisting of a number of smaller structures, within an enclosing boundary. These structures took a variety of forms, in a radial or non-radial arrangement around the broch, with entrances often facing inwards. Archaeological evidence suggests that they were primarily domestic in nature, although some sites have revealed evidence for the housing of livestock, metalworking, and other craft activities. Most were equipped with standardised furnishings including hearths and stone-lined tanks.

The spatial organisation and purpose of these villages with the monumental broch as their focal point is investigated with reference to archaeological evidence and theoretical approaches, resulting in a deeper understanding of social action and organisation in the Iron Age Settlement. Beginning with a comparison of contemporary regional settlement types, prescribed movement around the nucleated settlements will then be explored (e.g. Foster 1998), as well as social relations and interaction in these architecturally-crowded settlements. Through the consideration of a number of relevant case studies it is suggested that over time a social and functional trend towards restriction, control, dependence and isolation may have developed. Additionally, it is proposed that such settlement dynamics represent later prehistoric regional power structures which would develop into the historic period. A number of relevant case studies spanning northern and Atlantic Scotland will be discussed, namely from Caithness, Orkney and Shetland.

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TH1-34 Abstract 09

Kernave Town in 13th-14th Centuries: Social and Cultural Pattern of Community

Author - Dr. Vęlius, 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 christianised 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 historical kernel, Kernave is unique, because the town was shaped by the pagan community. Furthermore, interdisciplinary research allows the re-construction of the socio-economic model of medieval Kernave. The most important archaeological objects of that period in Kernave are defensive system of five hill-forts, the upper and lower towns, and inhumation 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 smaller hill-forts, which have a defensive 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 furthermost 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 how 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 Baltic and Scandinavian traditions. It may be that two different Hanseatic lores (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.

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TH1-34 Abstract 10

Uncovering Medieval Urban Planning: the case of Oslo and Magnus Lagabøt

Author - Oldham, Mark, Norwegian Institute for Cultural Heritage Research, Oslo, Norway (Presenting author)

Keywords: Medieval, Oslo, Planning

Presentation Preference - Oral

Oslo is currently undergoing an urban transformation, with new city districts and transport infrastructure being constructed. One such project, the new Follo Line railway, has provided archaeologists at the Norwegian Institute for Cultural Heritage Research the opportunity to excavate a large part of the medieval city. This paper will take inspiration from the current new wave of city planning to examine Norway’s first planning law, Magnus Lagabøt by-laws, in the light of the ongoing archaeological excavations. Issued in 1276, Magnus Lagabøt by-laws regulated both the use of space and behavioural practices, aiming to exercise control over both citizenship and population. Here, we aim to investigate the extent to which the various articles in this piece of legislation can be identified in the archaeological record. Can ‘good citizens’ be recognised, or is there evidence for a gap between de jure and de facto practices? This paper will hence also critically examine the relationship between the written record and the archaeological record, as well as consider how top-down planning instructions are negotiated, amended and, perhaps, subverted locally.

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TH1-34 Abstract 11

Emergent Complexity and Neolithc Settlement Nucleation on the Great Hungarian Plain

Author - Gyucha, Attila, University at Buffalo, Buffalo, United States of America (Presenting author)

Co-author(s) - Yerkes, Richard W., The Field Museum, Chicago, United States of America

Keywords: Great Hungarian Plain, Neolithic, nucleation

Presentation Preference - Oral

The development of new social, economic, and political configurations frequently result in fundamental changes in settlement networks and settlement organization. In stark contrast to the previous period, the Late Neolithic archaeological record of the eastern Carpathian Basin indicates a settlement distribution of spatially discrete polities with multi-tiered settlement hierarchies surrounding therefore unprecedented, sizable centers in the region.

In this paper, we focus on tell and large Late Neolithic settlements on the Great Hungarian Plain and in the adjacent regions in order to demonstrate how the spatial analysis of built landscapes at various scales can aid our understanding of prehistoric socio-political organization.

The remarkable increase in social and economic complexity during the later Neolithic brought about novel social mechanisms and institutions to assure community integrity in these large demographic, economic and political centers. We argue that considerable differences in their layout reflect a high degree of variability and resilience within similar egalitarian societies. The paper also addresses whether nucleation processes generated by exogenous causal agents resulted in a significant increase in social and economic complexity, or whether increasing social and economic complexity led to population nucleation.

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TH1-34 Abstract 12
Nucleated settlements in the Eneolithic of the south-eastern Poland?

Author - Dr. Nowak, Marek, Institute of Archaeology, Jagiellonian University, Kraków, Poland (Presenting author)
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Co-author(s) - Kuszyński, Rafał, Centre for Prehistory, Jagiellonian University, Kraków, Poland
Co-author(s) - Dr. Nowak, Marek, Institute of Anthropology, Jagiellonian University, Kraków, Poland

Our goal is to examine the settlement networks in this longer period in the central, southwestern and southeastern part of Poland.

In recent years, in the area of Lower Silesia in Poland, several structures dated to the Hallstatt period, called chieftain's farmsteads were found. They were settlements composed of several buildings arranged around an empty square enclosed by a palisade or a ditch. The number of discovered sites suggests that this was a commonly used form of rural space organization. The comparative analysis showed that these settlements were characterized by repeating structure and layout. A metronome analysis was also undertaken. It was found that a repeating length measurement unit, which was approximately 0.785 m, was applied for both the layout of individual buildings as well as for the arrangement of the whole farmstead area. It was also noted for the layout of the buildings revealing modules were used: a square with side of 4 x 4 units long and a rectangle with sides of 4 x 3 units long. Meanwhile, for determination of the farmstead size only square modules with side of 12 x 12 units were used. Similar rules of spatial organization have also been used in the construction of ornaments on pottery and objects of everyday use, the different being that a triangle was the dominant figure. In both cases modularity was the basic paradigm of the style. It can be assumed that this resulted from the concentration of the population in one central point of the settlement area, this time of the mezio-region scale. The presentation has the objective of clarifying what kind of economic processes and social structures conditioned the emergence of big, nucleated settlements in south-eastern Poland. Some interpretative problems associated with such settlements will also be examined, e.g. questions of "visibility" of houses within them and their relationship to the monumental, sepulchral structures of the TRB. For this purpose, a series of complementary analysis were performed including: 1) the internal arrangement of anthropogenic structures within big settlements, 2) the internal dynamics of their development, 3) the location of such sites in terms of environmental conditions, 4) their potential activity zones, 5) the degree of human interference in the environment around them, and 6) the relationship between them and 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 civilisation 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 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, Brøgel, Denmark (Presenting author)

Keywords: Early Roman Iron Age, farmsteads, nucleated settlements

Presentation Preference: Oral

During the Danelaw Late Pre-Roman Iron Age in parts of western and southern Jutland there was a shift from the dispersed to a more nucleated settlement structure. This is best illustrated by a handful of villages that were encircled 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 were 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 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.

TH1-34 Abstract 18

What does settlement layout tell about the community?

Author: PhD Yalman, Emin, 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. At 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.
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 place. In the result of my paper, I will indicate the most important economic and social changes that took place in Catalhöyük. 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.

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**TH1-34 Abstract 22**

**Comparative Study of Settlement Systems in the Bronze Age and the Medieval Age**

**Author:** Dr. Pusztián Fisch, Kára University of Miskolc, Miskolc, Hungary (Presenting author)

**Co-author(s):** Pusztián, Tanya, Herman Dóti 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).

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**TH1-34 Abstract 23**

**An exemplification of the socio-political make-up of the Late Bronze Age polities from Hungary**

**Author:** Dr. Pusztainé Fischl, Klara University of Miskolc, Miskolc, Hungary (Presenting author)

**Co-author(s):** Pusztai, Tamás, Herman Dóti 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 Banat, 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 refuge 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 millennium BC, in the Late Bronze Age. In my poster I will summarise the results of the research focusing on one of these fortifications, Makó-Rákosztószár 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.

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**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)

**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, Leaden and Stannary 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

Some remarks about the role of environment and society in building technology

Keywords: earthen architecture, wattle and daub, cob, mudbrick, plaster, technology, household, dwelling, Neolithic.

Presentation Preference - Regular session

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 used for multiple functions: as cob or mudbrick to realize upstairs load bearing masonry, as daub to cover wooden walls, as plaster for walls or constructed floors and to 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.

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Some remarks about the role of environment and society in building technology

The residential function of the structure 1 is still not sure, mainly for the small size of the spaces (2 rooms, sized only 2x3 m). The most surprising result concerned the very large quantities of firewood needed to burn the house completely. The Nebelivka 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.

The Neolithic of “Ca’ Nova di Minerbio” (Bologna – Italy)

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The Aftermath of Mud Houses: Degradation and archaeological site formation

A major interest in archaeological research of recent archaeological mud structures since the Neolithic is associated understanding and reconstructing human activity which took place within archaeological mud structures. Yet, rarely archaeologists encounter mud structures 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 out with various microscopic laboratory-based analyses. The paper supplies guidelines to the identification of mud construction materials, 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.

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The Neolithic settlement identified at “Ca’ Nova di Minerbio” (B.D.) in 2015, whose excavation has not yet finished, can be dated in a Copper Age phase, during which there was a massive presence of the so-called ceramic “c squat”. The archaeological excavation shows how different construction techniques have been used to realise the identified structures: a wooden planning supported by vertical poles and completed with daub was employed to build the walls; earthen materials were used to shape floors and several fire structures as well.

We present here the rectangular “structure 1” (2 meters wide and over 6 meters long), formed of at least two closed spaces, and built with earthen materials. The employed technique is probably similar to cob, coupled with a wooden load bearing framework. The residential function of the structure 1 is still not sure, mainly for the small size of the spaces (2 rooms, sized only 2x3 m).

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 and degraded earthen materials.
Interpreting the Archaeological Record

TH1-35 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):** D’Azza, Valentina, Dipartimento di Scienze dell’Antichità, Roma, Italy

**Keywords:** Bronze Age, cooking platform, plaster

**Presentation Preference:** Oral

The Bronze Age site of Oratino – La Roccia 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 and petrographic analyses on the sections 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.

TH1-35 Abstract 06

**Technical evolution of adobe building materials and work specialisation at Ra’s al-Hadd HD-6 (Oman)**

**Author:** Dr. Azzar, Valentina, UMR 7041 ArScArn - Vepmo, Nantes 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 Haiti 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 buildings, such differences show the evolution of architecture and organization of space we analysed the variables that influence them over time. Hence, to unravel the social structure of the group we considered the architecture and the use of space as a single set that evolves in a horizontal (in space) and vertical (in time) way.

Our analysis is thus both structural, because it focuses on the architecture, the construction techniques and the facilities, and material, because it considers the function and location of the vegetal, animal and mineral finds that help to clarify the household subsistence economy. The interdisciplinary approach in recovering data follows the methodology of Salvatore Maria Puglisi, who started the Italian Expedition in Eastern Anatolia in 1961: alternative points of view and different theoretical approaches, using data coming from disciplines other than archeology, in this case architecture, ethnography and archaeometry.

TH1-35 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):** Bizen-Jaglin, Catherine, CeRAA, Saint-Malo, France

**Keywords:** Copper Age, dwellings destroying or burning, Oumlim's culture

**Presentation Preference:** Poster

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 build, the form, the inner space structuring, were seen like being representative of social and ideological strategies.
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 Borduani, both tells in S-E Romania, provided important information concerning the Copper Age lifestyle, more precisely the history of the Gumeinya 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 Gumeinya culture in Vth mil. BC.

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 (Guthier, 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 (Garrons, 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 (Villeveille, 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 Vayrasque site (La Bastide-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 (Foulier, 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 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 and varied stakeholders and needs.

Keywords: Conservation, Sustainable development, Rural landscapes

TH2-01 Abstract 03
Managing rural landscapes in southern England - two case studies

Author - Dr. Chadburn, Amanda, Historic England, Bristol, United Kingdom (Presenting author)
Keywords: Management, Partnership, Rural
Presentation Preference - Oral

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 and varied stakeholders and needs.

TH2-01 Abstract 04
Integrated Cultural Landscape Planning at Ancient Corinth, Greece

Author - Prof. Wright, James, American School of Classical Studies, Athens, Greece (Presenting author)
Co-author(s) - PhD Kissas, Konstantinos, Ministry of Culture, Inspectorate of Antiquities of the Corinthia, Ancient Corinth, Greece
Co-author(s) - Associates Papayannis, Thymio, Thymio Papayannis, Athens, Greece
Co-author(s) - PhD Sanders, Guy, American School of Classical Studies, Athens, Greece
Keywords: Cultural Resource Management, Heritage, Landscape
Presentation Preference - Oral

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 Lechaion, the ancient city 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 uncultivated nature zone of the slopes of the great fortified citadel of Acrocorint. These remains contain 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.

Keywords: Cultural landscapes, Heritage, Landscape management

TH2-02
HERITAGE CRIME: DEFINITION, DEVELOPMENT AND DUTY-BASED ETHICS

Saturday, 3 September 2016, 09:00-11:00
Faculty of History, Room 329
Author - Prof. Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom (Presenting author)
Co-author(s) - Ferguson, Natasha, National Museum of Scotland, Edinburgh, United Kingdom
Keywords: Heritage Crime, Heritage Protection, Interdisciplinarity
Presentation Preference - Regular session

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. On the other hand, it is clear that the term is still very broad in its definitions, and used in a variety of contexts with which not all observers agree – sometimes revealing quite varied ethical and ontological standpoints. The risk of conflating ‘heritage crime’ with a relatively narrow range of activities, such as the looting of archaeological sites, whilst ignoring other crimes that may also usefully be referred to as ‘heritage crime’ also continues to be an issue.

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 matter to different communities.


TH2-02 Abstract 01
Who commits ‘heritage crimes’?

Archaeology, the law, and civil rights in Austria

Author - Prof. Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom (Presenting author)
Keywords: Austria, Civil rights, Heritage crime
Presentation Preference - Oral

Archaeologists frequently accuse others (that is, non-professionals) of committing ‘heritage crimes’. But is it 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’; and whether it is truly those who archaeologists normally suspect, or whether the worst serial offenders are to be found much closer to home.

TH2-02 Abstract 02
Heritage crime and archeo-mafia: a case study from Italy

Author - Garnano, Andrea, University of Catania, San Giovanni la punta, CT, Italy (Presenting author)
Keywords: Archeo-mafia, Heritage crime, South Italy
Presentation Preference - Oral

“Heritage Crime” is a term used in the anglo-saxon world to define a wide range of criminal activities, from vandalism to illegal export of cultural objects, so strictly related with the cultural heritage issue. For his great effect, this topical subject has begun to appear often on newspapers and it is attracting always more frequently academic (in particular criminological and archeological) attention. As has been already stated elsewhere, the range and frequency of crimes can vary “dramatically across countries,

TH2-02 Abstract 03
Archaeology, the law, and civil rights in Scotland

Author - Prof. Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom (Presenting author)
Keywords: Scotland, Civil rights, Heritage crime
Presentation Preference - Oral

Scotland is not just a country with a long and complex history, it is also a country in which a great number of archaeological resources are located. This makes it a key player in the field of heritage crime. In this paper we will examine the legal framework in Scotland, and the way in which it is enforced. We will also look at the role of the police, and the way in which they work with other agencies to prevent and investigate heritage crime.

TH2-02 Abstract 04
Archaeology, the law, and civil rights in Germany

Author - Prof. Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom (Presenting author)
Keywords: Germany, Civil rights, Heritage crime
Presentation Preference - Oral

Germany is a country with a long and complex history, and a great number of archaeological resources. This makes it a key player in the field of heritage crime. In this paper we will examine the legal framework in Germany, and the way in which it is enforced. We will also look at the role of the police, and the way in which they work with other agencies to prevent and investigate heritage crime.

TH2-02 Abstract 05
Archaeology, the law, and civil rights in France

Author - Prof. Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom (Presenting author)
Keywords: France, Civil rights, Heritage crime
Presentation Preference - Oral

France is a country with a long and complex history, and a great number of archaeological resources. This makes it a key player in the field of heritage crime. In this paper we will examine the legal framework in France, and the way in which it is enforced. We will also look at the role of the police, and the way in which they work with other agencies to prevent and investigate heritage crime.

TH2-02 Abstract 06
Archaeology, the law, and civil rights in Italy

Author - Prof. Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom (Presenting author)
Keywords: Italy, Civil rights, Heritage crime
Presentation Preference - Oral

Italy is a country with a long and complex history, and a great number of archaeological resources. This makes it a key player in the field of heritage crime. In this paper we will examine the legal framework in Italy, and the way in which it is enforced. We will also look at the role of the police, and the way in which they work with other agencies to prevent and investigate heritage crime.

TH2-02 Abstract 07
Archaeology, the law, and civil rights in the UK

Author - Prof. Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom (Presenting author)
Keywords: UK, Civil rights, Heritage crime
Presentation Preference - Oral

The UK is a country with a long and complex history, and a great number of archaeological resources. This makes it a key player in the field of heritage crime. In this paper we will examine the legal framework in the UK, and the way in which it is enforced. We will also look at the role of the police, and the way in which they work with other agencies to prevent and investigate heritage crime.
Managing the archaeological heritage

Managing the archaeological heritage

Ana, Universidad Complutense de Madrid, Madrid, Spain (Presenting author)

Museum security. Furthermore, ethical considerations such as the ICOM Code of Ethics guidelines on discussing security issues often specific conservation requirements (for example for many archaeological specimens and samples) are all pertinent to potential threats, often working with less-than-ideal resources and budgets. There is also a developing scholarly literature around museum institutions as sites of crime and catastrophe. Museum security professionals are seriously challenged to respond to such from museums, embezzlement by museum staff, and even, regrettably, acts of terror, have drawn attention to the vulnerability of the archaeological record, as well as sites of public education and dissemination. In addition to their intangible value, many 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 lost artifacts at risk, crimes against cultural heritage, looting of archaeological sites. So, considered this peculiar situation, the Italian word “archeo-mafia” has been created in order to explain the connection between the market in driving looting, arguing instead that much behaviour is driven by 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.

Good Intentions and Bad Practice; conflicting values in heritage protection

Campbell, Stuart, National Museums Scotland, Edinburgh, United Kingdom (Presenting author)

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. It will examine 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.

Museum Security: How big a threat is crime?

Thomas, Suzie, University of Helsinki, Helsinki, Finland (Presenting author)

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 from museums, embellished by museum staff, and even, regrettably, acts of terror, have drawn attention to the vulnerability of museum institutions as sites of crime and catastrophe. Museum security professionals are seriously challenged to respond to such potential threats, often working with less-than-ideal resources and budgets. There is also a developing scholarly literature around heritage crime in the context of museums (e.g. Benson and Fouc'hé 2014, Hardy, S. A. 2015 ‘Is looting-to-order “just a myth”? Open-source analysis of theft-to-order of cultural property’, Cogent Social Sciences 1:1. 1087110 http://dx.doi.org/10.1504/23311886.2015.1087110). Yet threats from crime - perhaps the most visible in terms of media attention - are only one category of security issue that museum professionals must be aware of. Personal security, safety threats from accidental damage, risk of fire or natural disaster, digital security, and often specific conservation requirements (for example for many archaeological specimens and samples) are all pertinent to museum security. Furthermore, ethical considerations such as the ICOM Code of Ethics guidelines on discussing security issues potentially pose a barrier to researchers trying to understand and analyse museum security in this paper I 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.

Greater awareness as prevention measure against illegal turnover of archaeological artifacts

Koiris, Latvian Academy of Culture, Riga, Latvia (Presenting author)

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 pures) 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. byers 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.

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**TH2-03**

**TELLING STORIES: ARCHAEOLOGICAL MUSEUMS, HERITAGE AND RESEARCH CENTRES: ACHIEVEMENTS AND FUTURE PROSPECTS**

Saturday, 3 September 2016, 14:00-18:30

**Faculty of Philosophy, Room 107**

**Author** - Hall, Mark, Western Isles Council, Scotland, United Kingdom

**Co-author(s)** - Linsas, Jette, Moesgaard Museum, Denmark

**Keywords** - heritage, interpretation, museum

**Presentation Preference** - Regular session

Recent years have seen a swathe of new museums and heritage centres opening and exploring aspects of Europe’s past through a rich diversity of both sites and finds. These include, most recently, the Moesgaard Museum, Aarhus, Denmark and before that, for example, the LWL Museum for Archaeology, Herne, Germany; ARCHÉA, Archéologie en Pays de France, nr. Paris; Lōdoise Museum, Sweden (now 50 years old); South Tyrol Museum of Archaeology, Bolzano, Italy; the Museum of Innocence, Istanbul, Turkey; Creswell Crags Museum & Visitor Centre, Nottinghamshire, UK and the Shetland Museum, Lerwick, UK. For this session we want to encourage a Europe-wide response that will bring together a cross-section of these projects, both opened and closed and those still at the planning stage, to facilitate a sharing of success and failures. We also want to consider how the future might look for this critical practice that creates a space where science, curator and citizen engagement interact. We want to explore scale, diversity, purpose, financing, community engagement, local vs. tourism and archaeological value through a combination of papers, some of them case studies and some of them thematic.

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**TH2-03 Abstract 01**

**ICOMOS’ Charter on Interpretation of Cultural Heritage Sites: The Global Strategic Approach**

**Author** - Hodges, Sue, ICOMOS ICIP, Port Melbourne, Australia (Presenting author)

**Co-author** - Deufel, Bonnyrigg, United Kingdom

**Keywords** - Cultural Heritage, ICOMOS ICIP, Interpretation

**Presentation Preference** - Oral

ICOMOS’ Scientific Committee on Interpretation and Presentation of Cultural Heritage Sites (ICIP) is responsible for the review and promotion of the ICOMOS charter of the same name, adopted by the General Assembly of ICOMOS in 2008. Interpretation is defined as all activities intended to heighten public awareness and enhance understanding of cultural heritage sites, including publications, online content, and on-site installations such as panels and immersive multi-media experiences. As such, interpretation plays a key role in facilitating people’s engagement with heritage and telling diverse heritage stories in an attractive, informative manner. However, public and private decision-makers around the globe have varying degrees of awareness of interpretation as professional heritage practice, and there are varying professional standards in different countries too. The aim of ICIP is therefore to define and promote the basic objectives and principles of interpretation and to be a global advocate for professional interpretation of cultural heritage sites.

At the end of 2015, having appointed a new board of officers, ICIP began a strategic review of the Charter and the committee’s main activities. This session will discuss the charter in the context of this review and wider developments within the fields of interpretation and heritage more broadly. In particular, the session will contextualise the principles and objectives of the charter for interpretation, and consider recent challenges to what has been described as a Western approach to heritage management and their implications for the Charter and the discipline of interpretation.

The session will outline the strategic priorities established by ICIP for the next three years on the basis of the review, and introduce participants to the activities that have been planned in response. A specific consideration of the session will be the global application of interpretive principles to meet local requirements. The purpose of the session is to familiarise participants with the ICOMOS Charter for the Interpretation and Presentation of Cultural Heritage Sites and the discourse of interpretation, and to highlight where ICIP’s work may link in with participants’ own professional practice and organisations.
Managing the archaeological heritage
and museums.

Medieval culture with future generations. In the mean time, it is a project that is changing the role of archaeological excavations.

Corinth aims to communicate these interactions among peoples through time and share the legacy of Ancient Greek, Roman and Medieval culture. There have been successes and failures in the process of creating educational outreach as it 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.

Interpreting Frankish skeletal material, and taking a digital field trip.

The purpose of the outreach effort is twofold: to create communication between archaologists 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 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.

Over the last 120 years, research at Corinth Excavations in Ancient Corinth, Greece, conducted by the American School of Classical Studies at Athens (ASCUSA), has produced a wealth of academic publications. Part of the mission of the ASCUSA, however, in addition 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 Epidauros healing inscriptions.

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.

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Managing the archaeological heritage and the strategies to connect it back to its community

Open up again: a local museum by the lake

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 archaeological heritage. In the same manner, the archaeological museum in the last decades of the 18th and early 19th 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 catalyzed 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—all in distinctive 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.

Curating the Villanovian Museum of Antiquities

In this presentation, I seek to historicize the curating of the Villanovian 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 occasions academic and/or professional conferences held in Tsarist Russia; the 9th was held in Vilnius in 1933.

In the 1840s, when archaeology was first beginning to blossom, beginning as more of a vocation than a science, Count Eutachi Tyszkiewicz and his brother Konstantin moved from simply collecting Italian art to excavating approximately 200 barrows around their native Loginka, in present-day Belorussia. The Russian word for what we call “artefacts” then was simply 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 more than 10,000 people 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 Moscow’s Rumanseva 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.H. Muraev, who would receive an honorific “Vilenski” added to his surname in recognition of the favor with which he instigated the de-Polonization of the Northwestern Region (Lithuania and Belaruse) organized a commission for the inspection of the objects on display in the Museum of Antiquities. The clash between Tyszkiewicz and the Commission, and the subsequent congress, illustrate the use of archaeological artifacts to dispute an identity during the Age of Empire.

The Euphronios Krater: from the illegal Art Market to the Rebirth of a Museum

A forty years long journey allowed the return to the place of origin of an admirable work, which has reinvigorated the fortunes of a museum and of a local community. The Euphronios Sarpedon krater, purchased by the Metropolitan Museum of Art for the substantial price of one million dollars in 1971 after adversative vicissitudes that led the artwork from Cerveteri to Zurich and then to New York. A legal controversy invested the MET and more recently it restored the ownership of the krater to Italy in 2006, together with twenty other artworks that had been illegally exported from Italy. Thekrater is a red-figure calyx krater dated back to the VI BC, which was illegally excavated in the 1970s in the area of Cerveteri (Italy). The latter was one of the city-states in the Etruscan League, where in the VII-VI BC the population was around 35,000 people. The city is pretty well known thanks to the number of Etruscan necropoleis deployed along its boundaries. Nowadays the most famous tourist attraction in the area is the Banditaccia necropolis, declared UNESCO World Heritage Site in 2004.

In the past centuries, many works were dug out from the necropolis and then quite easily sold on the international art market: what actually happened to the Etruscan krater, purchased by the Metropolitan Museum of Art for the substantial price of one million dollars in 1971 after adversative vicissitudes that led the artwork from Cerveteri to Zurich and then to New York. A legal controversy invested the MET and more recently it restored the ownership of the krater to Italy in 2006, together with twenty other objects that had been illegally exported from Italy. The krater is an admirable work of art, which is now admired by the same terracotta painter that demonstrates the way he was used to work and the different taste and technique in a period of twenty-thirty years. In 2008 the Etruscan works were displayed in the temporary exhibition Hosto: Recovered Masterpieces at the National Museum of Villa Giulia in Rome and they were supposed to enter the permanent collection.

The location of the krater and the krater in Cerveteri is the result of collaboration between the City of Cerveteri, the Southern Lazio and Etruscan Superintendence and the Lazio Region. On the tenth anniversary of the UNESCO recognition of the Etruscan necropoli of Banditaccia (2014), the krater has been transferred for a month at the Centre National Museum, and thanks to a significant increase in visitors, the exhibition has been extended until December of that year. On December 18th 2014, to close the decade of celebrations, the Superintendence accepted the request of the City of exposing the krater also close to the krater. The following month the arrival of the krater in Cerveteri the museum has welcomed more than 10,000 visitors (more than it does in a year) and, thanks to the intervention of Dario Franceschini, Minister of Cultural Heritage, who identified the “Cerveteri case” as a good practice in his idea of dispersed museum at the centre of cultural heritage reform, it was decided to permanently transfer the two masterpieces in the collections.

This paper aims to underline how the cooperation between local and national institutions may represent a policy to pursue in the perspective of a local community cultural identity and rebirth.
Community archaeology as empowerment for a struggling society

Author: Grah Danielson, Benjamin, Picea kulturarv, Fors, Sweden (Presenting author)

Keywords: Community archaeology, Empowerment, Heritage as heritage

Presentation Preference: Oral

In 2013 "Dagens samhälle", a magazine for decision makers in the public sector wrote: "The trend is hopeless. 19 Swedish municipalities have shrunk every year for two decades. Twelve of them may have died out before the turn of the century. In 2010, Ljusnarsberg and Strömsund will be the first in line for the precipice, if the population continues to decline at the same rate as now." Imagine seeing 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 wasn't asked at all when national media called out the message. And the inhabitants in the other small municipalities in the former so proud mining district 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 23 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 fflymann once lived. But both are examples of how heritage and archaeology can be used to revive 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 inflow 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. Depetration of all possible sorts can, to this day, be noted in the area where jobs are sparse, where most entrepreneurs get swallowed up by larger companies and where culture is seen as an irrelevant luxury, no longer enjoyed even by the wealthiest.

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.

This research related to the project “TH2: Managing the archaeological heritage” is an example of how archaeologists employed by the Archaeological museum in Zagreb helped reanimate culture-related activities in the community which, just like the team of experts, realized that this site is a jewel in the region, and that this region is an archaeological jewel in the entire country. We will focus on the many months of work conducted by about locals and about 20 archaeologists, and the impact the latter made by 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 the archaeologists blended into the local community by supporting the local art and music scene, and by participating in public events such as bean cooking contests.

Finally, we will highlight the fact that, if experts take time to raise awareness about cultural heritage in the local community and support the existing tourist offer, cultural tourism can be reanimated, or even created, to the mutual benefit of experts in the field and local tourists, thereby creating conditions for promoting and presenting research to the public, as well as for presenting the local heritage to archaeologists, ultimately leading to more research and prosperity on a plethora of levels. In the case of JASA, the ongoing communication resulted in a project conducted by both archaeologists and local stakeholders - the first archaeological exhibition ever held in Bell Manastir, a concise cross-section of the knowledge procured in the excavations, and a milestone from which we can move forward into future collaboration.

This roundtable aims to discuss how to deal with this phenomenon of non-professional archaeologies. Discussants are asked to consider several (or all) of the following questions:

• What is the normal process for dealing with public finds in their country, in policy and practice?
• How do professional archaeologists use public finds in research and heritage management? What are the legal, practical and ethical obstacles in doing so? What criteria determine whether a public find is acceptable and useful in professional practice?
• What role do public finds play in archaeological communication? How are they represented towards wider audiences, in professional discourse, in the press and in other media? Are they legal, ethical, practical limitations to the use of public finds in museums?
• To what extent can the public participate in professional trajectories of research, management and communication? Is amateur archaeology discouraged, limited to certain stages of the process, or even prohibited? How well is it accepted by and integrated in professional archaeology? What historical, legal, societal and other factors have an impact on this involvement?
• Is there a need/better international coordination, given the mobility of both artefacts and people (e.g. metal detectorists)? Can we come to a common ground for policy and ethics?

Promoting and valuing community archaeology research in England

Author: Miles, Daniel, Historic England, Swindon, United Kingdom (Presenting author)

Keywords: Community group. Research. valuing

Presentation Preference: Oral

England has a long tradition of non-professional archaeological investigation, in particular through membership of local or country archaeological societies. The earliest county societies were founded in the mid-19th century and many still are actively investigating and researching their local archaeology. This research is often driven by local and personal interests, with the results disseminated within the group and through their own publications. This is a very different picture to the professional sector, which is still guided by academic interests and the requirements of the planning system – to evaluate the potential of archaeological resources and to mitigate against their loss. Professional research is coordinated and managed through different research resources, including Historic Environment Records and Research Frameworks, which provide the evidence base and research focus within which investigations can be framed. These have been developed collaboratively by partnerships of commercial, local authority and academic archaeologists, with one main group of researchers, the community and volunteer groups missing. It could be said therefore that in England we accept, support and even promote archaeological investigation by the voluntary sector, but place less value on the outcomes and results of their work – i.e. not enough to include their work in our heritage management systems or invite them to be actively involved in the development of our research frameworks.

My contribution to the round table discussion will be to look into and discuss the issues in more detail with particular reference to a recent project, funded by Historic England (the UK government’s adviser on heritage in England), which aims to address this issue by examining and evaluating the value or potential research value of volunteer investigations for enhancing Historic Environment Records and Research Frameworks. The project included a national survey of heritage voluntary organisations and examined examples of community group research outputs. It has provided us with a clear indication of the
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. Wessman, 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 they want to redeem the find to their collections or not.

Even though there have been reports in the media of "nighthawking" 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.

The Espoo City Museum is one of the most important and the best-attended museums in Finland, with over 250,000 visitors every year. It is the largest modern museum in Finland, hosting a wide range of exhibitions and events. The museum is dedicated to the study of local history and culture, and its collections cover a wide range of topics, including archaeology, art, and modern history.

As professional archaeologists we need to communicate better with the public and the media. A lot of media reports still focus only on the value of the finds and not on the cultural historical significance. A good example of this is a medieval gold ring found by a detectorist in Espoo in autumn 2013. After recovery it received international media coverage, resulting in a debate over redemption fees. Many finders also report their finds to the media themselves. Thus the archaeological community needs to be more involved with the media and take more responsibility.

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 - Niukknen, Marianna, National Board of Antiquities, Helsinki, Finland (Presenting author)

Co-author(s) - Kallinen, 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 archeology

Author - Liniewicz, Sławomir, 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 research 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 XVI century. But they had a little connection with scientific approach and they explain the influence of the ideas of the Renaissance era to the magnum. The main way of replenishment of these collections was redemption 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 XVII-XX 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 19th century and as a 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. Simultaneous the private collections continue to exist.

The WK2 the additional source of accumulation of archaeological artifacts became school museums. Today, the school museum 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, Prifysgol 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 stricter 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 looking 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.
Thus, to ensure that as much archaeological information as possible is preserved or recovered and recorded properly by its finders, another solution must be found. Allowing for more public participation in archaeology in Austria and Germany might be one way to achieve this goal.

TH2-04 Abstract 07
Ignored and forgotten: avocational archaeologists and the lithic assemblages from fieldwalking

Author - Dr. Wright, Dene, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Keywords: Avocational archaeologists, fieldwalking, lithic assemblages
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 to 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 ascent of this activity in South Lanarkshire. Hugh McFadzean (1979-2008) 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, Kilmarnock, 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 inquiry will be highlighted.

TH2-04 Abstract 08
Social Network vk.com and Archaeology: Sight from the East Europe

Author - Tkach, Evgeniia, Institute for the History of Material Culture RAS, Saint Petersburg, Russian Federation (Presenting author)
Keywords: public, social media
Presentation Preference - Poster

The purpose of this paper is to introduce to archaeologists the social network vk.com, which is wide 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-professionalists and to involve more people in science. In my poster I want to present some examples of these communities.

TH2-06 Abstract 01
The road to a working party is paved with good intentions

Author - Dr. Waugh, Karen, Vestigia BV Archeologie & Cultuurhistorie, Amersfoort, Netherlands (Presenting author)
Co-author(s) - Dr. Hey, Gill, Oxford Archaeology, Oxford, United Kingdom
Presentation Preference - Oral

A draft proposal for setting up a working party to examine specific EIA issues was published in TEA 46. Following on from there, we would like to introduce the Round Table by presenting the progress made so far in defining aims and objectives for the working party. More importantly, the introduction should provide a structure for discussion and debate within the Round Table. It is hoped that the session will lead to a general consensus on a work programme that we can submit to the EAA Board for approval.

TH2-06 Abstract 02
The EIA Directive and Archaeology: the example of England

Author - Thomas, Roger, Historic England, Swindon, United Kingdom (Presenting author)
Keywords: EIA Directive, England, law
Presentation Preference - Oral

The EIA Directive on Environmental Impact Assessment is a Europe-wide instrument, but it is given effect through the legal systems of individual member states. Implementation ‘on the ground’ is then affected by the organisational arrangements and professional approaches in each country. This paper will examine how the EIA Directive has been ‘transposed’ into English law, how it is implemented in practice in England, and how this has affected the professional practice of archaeology there. 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, focussing 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 it any favours. 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 HIAs 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 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 DCOP application or a Hybrid Bill. Although these types of planning applications and regulations fall outside of the Environmental Impact Directive, they 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 DCOP 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 Bors, Corina Ioana, National History Museum of Romania, Bucharest, Romania (Presenting author)

Keywords: archaeological 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.

TH2-06 Abstract 06
Paving the way for an Environmental Impact Assessment Working Party

Author - Dr. Hey, Gill, Oxford Archaeology, Oxford, United Kingdom (Presenting author)

Co-author(s) - Dr. Waugh, Karen, Vestigia BV, Archaeologie & Cultuurhistorie, Amersfoort, Netherlands

Presentation Preference - Oral

My contribution will summarise the discussions that have taken place during the round table and how these have moved us forward with our aims in setting up the EIA Working Party. In addition to the formally submitted papers for this round table, we have oral or written contributions promised on the link between the FARO Convention and EIAs from Adrian Olivier, and on the situation in Switzerland and Turkey. We also have participants from Ireland, Finland, the Netherlands, the UK and France. We will conclude by drawing up a programme for the next steps that the Working Party will take.
25 YEARS LATER: CHANGES AND CONJUNCTURES IN PREVENTIVE (DEVELOPMENT LED) ARCHAEOLOGY IN FORMER ‘EASTERN’ EUROPE

TH2-07

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) - Horvat, Milan, VIA MAGNA Ltd., Vrščak, Slovakia

Presentation Preference - Oral

Until 1990 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 performance of their duties. These funds were normally coming from taxes, and therefore budgeted. 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 ‘reaction’ 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 former saw all elements of public life subject to control and planning (not only in ideological terms but in terms of pronounced atavism 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 1990 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 (in e.g. former Yugoslavia or in the USSR) soon developed quite different systems which ranged from very ‘liberal’ to very ‘authoritarian’. 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 attitude associated 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 – who, 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 INRAP in France) securing better control? And, what are, in the end of the day, the benefits for heritage, and benefits for actors, and public?
preparation of building and development projects. In the structure of private sector in the Czech archaeology we find large and small companies, nonprofit organizations exclusively. The companies are purely archaeological and also joining other professional activities (for example environmental research, building history). Irreplaceable is a role of private enterprises in improving the quality of standards, especially in the case of development-led archaeological projects (final reports). Gray zone without a clearer anchoring represent service companies without expertise stuff, which are working for public and government institutions.

After 25 years in the Czech Republic still completely absent the existence of temporary conditions for private sector activity in archaeology. Preventive archaeology in the Czech Republic so far been rather limited.

TH2-07 Abstract 04
Archaeological Heritage in Lithuania after 1990s: 
Defining, Protecting, Interpreting

Author - Dr. Poškienė, Justina, Vilius University, Faculty of History, Vilius, 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 inventing 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 making relevant information on restrictions of land use available 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 thus reorientation of management perspective from “archaeological object” towards its “user” is still needed to be developed.

TH2-07 Abstract 05
Implementation of La Valletta convention: 
the Croatian perspective

Author - PhD Sirovica, 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 participant in planning of spatial and infrastructural development. But the changes did not include 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 preliminary condition 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 archaeological 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 - Brlić, Danijela, Zavod za varstvo kulturne dediščine Slovenije, Celje & Maribor, Slovenia
Co-author(s) - Kaiser Cafnik, Mihela, Zavod za varstvo kulturne dediščine Slovenije, Celje & Maribor, Slovenia

Presentation Preference - Oral

The role and significance of the Commission for archaeological research (CAR) in the system of preventive archaeology in Slovenia (Danijela Brlić & Mihela Kaiser Cafnik, Institut for Protection of Cultural Heritage of Slovenia).

CAR, through previously existent in different forms and structure, was re-established in 2009 as a counselling body of the Minister of Culture, who is according to the Cultural Heritage ACT (2008) responsible for issuing the legal permits for any physical intervention into objects designated as cultural heritage. To CAR (numbering 7 experts from conservation, museum and academic fields in archaeology), according to the Regulations on Archaeological research, all requests for reasearches (preventive, academic or other) are obligatory addressed and reviewed from a number of pointviews (reasons for research, competency of research team, correspondency with conservation plans and recommendations, other legal and financial aspects). After review, CAR issues recommendations to the Minister for signing the permits. Since its establishment in 2009, CAR is maintaining a data base of more than 1500 reviewed research projects proposals. This data base is excellent source for following the actual developments and trends, especially in preventive archaeology (more than 95% of proposals fall into this category) in Slovenia. These trends will be presented in this paper.

TH2-07 Abstract 07
Perspectives of development-led archaeology in Serbia

Author - Rajkovaca, 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 Valletta 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 17th 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 - Petricic, 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 WW2, in the context of former socialist 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 institutionally centralized and "rationalized" 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 - Hadižhasanović, Jesenko, 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 fragmented territorial and administrative organization: One organization on state level, two on lower, entity level, as well as one on level of Brčko 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.
- Due to 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 museums on institutional level have barely sufficient financing for basic operation.
- Inadequate (outdated) infrastructure: lack of trained people, equipment, unflexed 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 sponsorships in former state of Yugoslavia, have lost most of funding necessary to function properly.

**TH2-07 Abstract 10**

**Practice of Archaeological Heritage Management in the Motorway Constructing Programme in Poland**

Author - Prof. Dr hab. Raszpeci, 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, however the choice was, as a matter of fact, the only criterion of evaluation.

The mentioned change admittedly 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.
TH2-07 Abstract 14
The settlement of Krahes: From a chance find to an archaeological protected site
Author - MA Poç, Enina, Archaeological Service Agency, Tirana, Albania
Co-author(s) - Klepli, Zguro, Archaeological Service Agency, Tirana, Albania, (Presenting author)
Co-author(s) - Mesini, Marjan, Archaeological Service Agency, Tirana, Albania
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Co-author(s) - Zoto, Rudina, Archaeological Service Agency, Tirana, Albania
Co-author(s) - Gja, 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, 2013 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 as the prerogatives of the law anticipate. 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 Krahes is situated in the district of Tepeleina (Albania). Two graves were discovered occasionally during agricultural works by a farmer who informed the local authorities (Regional Division of National Culture, Gjirokaste).

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 Gjirokaste) conducted a survey around the area measuring approximately 3.5 hectares. A high intensity of finds (tiles, bricks, pottery shreds and some rubble walls) was encountered on surface. Taking into serious consideration this potential, the MCA agreed to give to the 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 2 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 Krahes: Hellenistic, Roman and Late Antiquity.

TH2-07 Abstract 15
CONPRA (Contributing to the Preventive Archaeology: Innovativeness, Development and Presentation)
Author - Prof. Novaković, Predrag, University of Ljubljana, Faculty of Arts, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Zachar, Jan, Via magna s.r.o., Vršovci, Slovakia
Co-author(s) - Tasić, Nenad, University of Belgrade, Belgrade, Serbia
Co-author(s) - Gu, Lukši, TerraVerita s.r.o., Prague, Czech Republic
Keywords: development-led research, non-invasive archaeology, Preventive archaeology
Presentation Preference - Poster

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 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. Non-invasive archaeology, in two recent decades, greatly benefitted from the development of ICT and other digital technologies. These technologies (combined with new concepts of preventive archaeology) had major impact on economy in archaeological heritage sector, providing a set of new and highly efficient tools for facing the scientific and business challenges.

Moreover, not only that ICT and other digital technologies provided cost-efficient tools, they also boosted development of new kinds or archaeological research and manipulation with large data sets.

Four partners from Slovakia, Czech republic, Slovenia and Serbia (2 SMEs: VIA MAGNA s.r.o. TerraVerita, and 2 Departments of Archaeology from the universities of Ljubljana and Belgrade) joined in the project CONPRA (Industry-Academia Partnerships and Pathways; FP7-PEOPLE-2012-IAPP) with the principal aim of developing and disseminating recent concepts, methods and technologies adapted to the conditions of development driven archaeological research (3D scanning and computer modelling of architecture, sites and objects, aerial reconnaissance, manipulation with large data sets and virtualization of heritage). Until very recently, all these techniques were greatly lacking in every days practice of preventive archaeology, or there were limited to the academic research. Poster will present the results and case studies of the CONPRA project.
TH2-09
MANAGEMENT OF ARCHAEOLOGICAL SITES IN TURKEY: PROSPECTS AND FUTURE
Friday, 2 September 2016, 14:00-16:00
Facility of History, Room 217
Author - Bouissou-Kahn, Didier, METU/Đtu/Yerelim Arkeolojik Alanı Bilimleri Dali, University College London, London, Unfed Kingdom (Presenting author)
Co-author(s) - Prof. Eryoz, Deniz Burcu, METU/Đtu/Yerelim Arkeolojik Alanı Bilimleri Dali, 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 • Participation 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 site 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, Apesos, 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 - Asst. Prof. Dr. Aktüre, Zeynep, İzmir Institute of Technology, İzmir, 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 unparalleled 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-settling location 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 basins. Devoid of later settlement, Ani currently stands as an exemplary relic historic city of the medieval period that consists 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 1998. 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 monuments subject to urgent measures, instead of an independent research programme. The Ministry also initiated a site management plan for Ani, through a participatory process that was pioneering in Turkey when it first started by two capacity building workshops in 2009 and 2010. Priorities in the plan include visitor management and 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 acquired 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 Universitàdi Roma, Rome, Italy (Presenting author)
Keywords: Elaiussa Sebaste, safeguarding, valorisation
Presentation Preference - Oral
During the archaeological research that has been carried out 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 realized 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 bonds 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 Kizkalesi) was started during the 2015 campaign with bush clearing and careful cleaning carried out by the Mersin and Erdemli Beykoz. The results that have been obtained so far are very promising for the pursuing of the program to extend the visitor’s itineraries and valorisation.
The 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 dominating 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’s cultural heritage and economic growth.

TH2-09 Abstract 03
Protecting and communicating Arslantepe: work in progress to save and narrate an early state centre
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Co-author(s) - Tuna, Ayşun, İnönü Üniversitesi, Malatya, Turkey
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 1961 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
TH2-09 Abstract 04

Multiple layers and multiple players: management practices and archaeological conservation in Turkey

Author - Öz, B. Nilgün, Istanbul, Turkey (Presenting author)

Keywords: archaeological conservation, collaboration and inter-disciplinarity, management

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 drivers 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 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-funded projects at several sites across the country including Afşin Tepe, Kültepe, and Kaman-Kalehöyük among others.

TH2-10 Abstract 01

Management of large archaeological projects in a competitive environment: the French case

Author - Dr. Depaepe, Pascal, INRAP, Amiens, France (Presenting author)

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Keywords: Major Development Projects, Preventive Archaeology, Public/Commercial Archaeology

In 2001, following the ratification of the Malta Convention (1995), France adopted a legislative system, entrusting the realization of archaeological evaluations and excavations to public service bodies. However, following a political change in 2003, excavations were opened up to private companies and even though after several years of implementation the system now seems fully established, it is still challenging. One of the specialties of developer funded archaeology in France is its involvement in major development projects: motorways, railways, canals, industrial estates, etc., which raises questions on how archaeologists handle these major archaeological projects in a competitive environment, the organization put in place, how results are disseminated to the scientific community and what type of cultural enhancement is presented to the general public?

These issues will be addressed via two large archaeological projects: the high-speed rail line between Tours and Bordeaux and the Canal Seine-Nord Europe. Methodological proposals will also be presented.
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 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 over a 2500 year time span, from the middle Bronze Age to the Doomsey Survey. The project database currently holds over 900,000 records relating to archaeological fieldwork in England: the vast majority of these records have been generated since 1990. It quickly became apparent that the English Landscapes project was not just documenting the behaviours of people in the distant past but also the more immediate and recent past: the nature of our data is clearly structured by modern archaeological practice. Our data shows that there are currently over 2400 unique archaeological organisations in England that have been involved in archaeological fieldwork since 1990. Although they range from commercial development-led companies, academic university departments to charity groups and volunteer organisations, the vast majority of these fieldwork investigations occur as part of the development and planning framework, within the context of a commercial system. The nature of proposed development, from aggregate extraction quarry sites, major road and rail infrastructure schemes and large scale housing development sites to smaller urban infilling and localised development schemes, clearly shapes both the design of the associated archaeological investigation and the resultant data. Archaeological fieldwork can range from massive landscape scale studies to constrained ‘keyhole’ investigation schemes and can be undertaken by large national companies or small ‘sole trader’ individuals. Examining how English archaeology has changed since 1990 and the advent of PPG 16 provides interesting insights into modern day archaeological practice and the relationship between legislation and the quality and quantity of archaeological data that has been produced.

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.

Archaeology and the Medieval Towns of Norway - before and after 1990

Author: Johansen, Lise-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. 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 are 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 nondestructive 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?

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

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.

Changing concept of large-scale excavations in the Czech Republic

Author: Dr. Šumberová Institute of Archaeology of CAS, Prague, v.v.i., Kutsni Hora, Czech Republic

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Keywords: large-scale excavation, NeoUthic

Presentation Preference: Oral

This paper will explore the changing concept of large-scale excavations in the Czech Republic. Since the fall of the communist regime in 1989, the Czech Republic has undergone significant changes in its political, social and economic structures. These changes have had a profound impact on the way archaeological excavations are conducted and the way in which their results are interpreted and presented. In particular, the concept of large-scale excavations has evolved over time, reflecting these broader societal changes.

Since the 1990s, the Czech Republic has witnessed a significant increase in the number and scale of archaeological excavations, driven by the rapid urbanisation and infrastructural development that characterised the post-socialist period. These large-scale excavations have been influenced by a range of factors, including the need to preserve cultural heritage, the demands of the construction industry, and the influence of EU legislation. As a result, archaeologists have had to adapt their methods and approaches to accommodate the scale and scope of these projects.

The changing concept of large-scale excavations is evident in a number of ways. Firstly, there has been a shift towards more collaborative and interdisciplinary approaches, with archaeologists working in close consultation with other experts such as historians, geologists, and landscape architects. Secondly, there has been an increased emphasis on the public engagement and communication aspects of large-scale excavations, with archaeologists striving to make their findings accessible and relevant to a wider audience. This has involved the use of innovative and creative methods, such as digital visualisation and interactive multimedia installations.

In conclusion, the changing concept of large-scale excavations in the Czech Republic reflects broader societal changes and the need for archaeologists to adapt their practices to the demands of the 21st century.
TH2-10 Abstract 07
Modern technologies in Polish Archaeology – A Case Study of Central Masovia 2009 – 2014
Author - MA Wiśniewski, Mariusz, Wojewódzki Urząd Ochrony Zabytków w Warszawie, Warszawa, Poland
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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 as a base for this 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 works, as well as an important background is created by the EU funds inspired boom in infrastructural investments, that will most likely 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 basis of art. 31.3 of Polish Monument Care and Protection Act by Masovian Voivodship Heritage Office for the period of 4 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 further discussion and an attempt to present the condition of Polish Archaeology in its certain aspect.
that the preventive archaeological excavations are obligatory on the sites where construction works are planned. The investors are ready to fund archaeological works. But how does the Law operate? It obviously operates through an archaeologist. 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 archaeologists training. About 10 state and commercial organizations dealing with the preservation of the archaeological heritage work in the Tver Region nowadays. To summarise, there are two components of the archaeological heritage protection system in Tver Region. Department on State Protection of the Cultural Heritage and archaeological 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. Archaeological works were also carried out during the construction of the new roads, oil and gas pipelines. Historically, there 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 archaeological heritage as well as the importance of improving the scientific relevance of the preventive archaeological works.

TH2-10 Abstract 12

Moscow Monasteries: new stage of the archaeological investigations (2003–2015)

Author - Beliaev, Leonid, Institute of Archaeology of RAS, Moscow, Russian Federation
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Keywords: Late Middle Ages, Early Modern times, Moscow monasteries, new investigations
Presentation Preference - Oral

Archaeological investigations of the Zachatievsky Alekseevsky monastery (Datschenka) that were started in 2003 laid the foundation for the new stage in the monasteries investigations which at the present time is recognized as one of the most important stages in the archaeology of the Late Middle Ages and Early Modern times in Russia. Until the last third of the 20th century monasteries of the Moscow period haven’t been investigated by the archaeological methods, the understanding of its structural peculiarities as archaeological objects haven’t been developed. Monasteries were regarded as too “late” objects.

In the late 1970s, the architects-restorers have teamed up with movement for monuments protection. The first large excavations in the monasteries were held in 1980s. For two decades (mid 1970’s – mid 1990’s) three key monuments of Moscow monastic archaeology – the Bogoyavlensky, Danilov and High-Petrovsky monasteries have been investigated and become standard objects. The monasteries of the Moscow Russia were understood as a new type of monuments.

In the beginning of the XXI century the situation has changed cardinaly. At the moment archaeology is capable of solving large variety of problems first of all thanks to the development of the fundamental scientific research. Detailed examples of such works are provided by the investigations in Zachatievsky Alekseevsky, Sretensky, Novospassky, Novodevichy and Donskoy monasteries in Moscow and in the Troitse-Sergyeva Lavra and New Jerusalem monasteries (near Moscow).

The report will present the main results that have been achieved for the last 12 years works, in comparison with the investigations of the 1980s and 1990s.

TH2-11 Abstract 01

Growing Living Landscapes

Author - Dr. MacGregor, Gavin, NorthRidge Heritage, Glasgow, United Kingdom (Presenting author)
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 Alvarez, 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 focused 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 Paleolitico 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 efforts deployed by peasant communities in taking advantage of the soil potentialities have 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 assumed 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) establish 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 refilled, while the experience and efforts made by local communities are muted. This way, peasant families become subtext 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. Secondly, I think we (archaeologists) should reconstruct the official speeches made by public institutions on the management and promotion of tourisms 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 strengthen the role of Archaeology as a valuable Social Science for rethinking the future of rural Europe.

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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 aprioristic ‘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 this heritage. 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 multiproxy 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 landscape, agro-silvo-pastoral landscapes and local products.

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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 (SMEs), wildlife organisations and research) understand, experience and shape cultural landscapes. The work will focus on the cultural landscapes of Liguria and Asturias in Spain.

In both countries the landscapes have been re-naturalised by the state and regional-level governments in the management of European landscapes. Thus these ideas are sufficiently considered by state and regional-level governments in the management of European landscapes?

This project recognises that agricultural heritage is only 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.

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TH2-11 Abstract 05

Living Archaeological Sites in Modern World: Discussions on Ancient Rural Heritage in Turkey

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Keywords: archaeology, landscape, 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. Water irrigation and transport systems, agricultural terraces to control topography, rock-cut workshop edifices for olive oil production and viticulture 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.

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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

In Southern Europe, the study of rural landscapes has been firstly linked to the traditional conservation of heritage and landscapes. In the last decade, however, new field of heritage and landscape policies have emerged, which is known as “landscape policies” and “living landscapes”. This paper aims at providing a first step to understand the new landscape policies which are encouraging communities to become active agents in the management and promotion of their rural landscapes. In the first place, the paper will discuss theoretical frame of landscape policies and the role of archaeology in these debates. The second part of the paper will present first results of a case studies project in Southern Europe: “Resituating Europe’s first towns” (REFIT). The project, financed by the European Union, is a cooperation of Durham University (UK), Bibracte EPPC (France) and Universidad Complutense de Madrid (Spain). It aims to contribute to a better understanding of the relationship between archaeological heritage and landscape policies in Southern Europe, and at a more general scale, Europe. In order to do so, the project focuses on the Last Towns (c. 175-50BC) and the first Roman towns of Gaul, Italy and Southern Europe."
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 dynamics 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

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Keywords: Cultural Landscapes, Madrid, Tourism

The Community of Madrid (this is the name of the administrative region of Madrid) is one of the main tourist regions in Spain, with the historical center of Madrid and the region's cultural heritage. The Madrid region, 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 presumes that the landscape as such constitutes a tourist attraction. This interest is based on a collection of different uses and traditions that are part of the cultural heritage. The current landscape has been shaped by different aspects, existing since Neolithic, Roman, Medieval and Modern times.

The implementation of a territorial management policy and its convergence with promotion and valorization strategies.

TH2-11 Abstract 08

Through Rural Living Landscapes to Ethnoarchaeological Reflections of Salt in Eastern Romania

Author - PhD Student Agnătulescu, Mihaela, 'Alexandru Ioan Cuza' University of Iasi, Iasi, Romania (Presenting author)
Keywords: rural immaterial heritage, Salt-scapes, traditional practices

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. Oriental and Latin and non-Latin names have an etymological origin. There is a cultural heritage that is protected by several international and European conventions 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, protection 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 experiences 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 aims to address all these theoretical and methodological issues, using a case-study from the Western Alps: Val di Sella Brignola, an upland valley (>1600 m asl) in the Cuneo province (Italy). The local landscapes were shaped by the use of pastoral structures: dry-stone pastoral cabins (selle) and cellars for cheese-maturing (selle). Most of these selle and salt are still exploited by local herders. They were recorded via remote-sensing, fieldwork survey and historical maps. Archaeological excavations within the gias di Sella Brignola suggested that this pastoral landscape dated back at least to the 16th century. Interviews with the local herder provided information on its function and use and the historical and ethnographic importance of the gias di Sella Brignola, and the interest shown by policy-makers, members of local committees 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 huts 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

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 necropoli. This pirate-logic excavations and recovery of materials went on until the middle of ’900, 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 protection of Archaeological Heritage: the modern story of Palestrina.

Conclusion: the need to adapt the urban plan to the context of the archaeological heritage in order to protect and valorize the city of Palestrina; the importance of the archaeological and historical heritage of the city of Palestrina in the modern era.
TH2-11 Abstract 11

The Landscape of Via Appia Antica: From a panorama of ruins to an Archaeological Park

Author - Dr. Habib Dubbini, Racheta, University of Rome ‘Sapienza’, Rome, Italy (Presenting author)
Co-author(s) - Curcio, Mariateresa, 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, doubtlessly 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 memories, 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 immovable, 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 Napoleonic 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 managers policy and tools analyzing 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” past and culture with institutions and policymakers are 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 plan will be proposed that could promote cultural growth, initiating 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 's-Hertogenbosch in 1629 has been an important moment in the war between catholic Spain and the Dutch Republic and the arise of the Netherlands. 's-Hertogenbosch was the main Spanish base and a well-fortified city protected by an experienced Spanish garrison and by formidable French defensiveness. The army led by Frederick Henry, Prince of Orange, erected a line of 40km around the town. The fortified city contained many citadels, 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 historical significance the siege is very well documented in several historical reports and also paintings and drawings. Even the situation and location of the defence and forefront lines were measured and documented.

The municipal archaeologists have marked the defence and forefront lines on the archaeological characterization maps. The local historic societies try to secure the possible remains in the landscape by study and field research.

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 carried out to exchange the knowledge of the moment. The location of the lines was visible on the topographical map 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 contracts for the new park. The archaeological characterization maps of the site were resulting in a broader understanding of 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, initiating a proper debate between archaeology and communities, supporting territorial planning and envisaging new forms of development and democracy, all indispensable elements that can finally transform a landscape of ruins into a living landscape.

TH2-11 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 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," (ibid). These HLF funded schemes are designed to make a "major difference to landscapes and communities for the long term." (ibid) to landscapes and communities for the long term“ (ibid). 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. Heritage Lottery Fund 2016, Landscape Partnerships. Available from: https://www.hlf.org.uk/looking-funding/our-grant-programmes/landscape-partnerships. [15 February 2016].

TH2-11 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 buried city of Wroxeter at Wroxeter, in the English Midlands, is a challenging site to interpret and present to the public. Its principal focus is the ruins of the town bath, but this is just one visible building within an urban site covering 75ha. 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 unappreciable 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, 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 biodiversity corridor between 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 to visit the public for general 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.

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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 affect 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 its agrarian systems: one of the most homogenous expressions of the interaction between man and territory: 1) mountain landscapes of Sierra del Segura (Albacete) and Sierra de Aitana (Alicante), 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 Héllin (Alicante), the Valle del Vinalopó (Alicante) and Vega baja del Segura (Alicante), characterized by exploited agricultural environments without interruption from antiquity to the present day, but with different strategies (Romans 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.

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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 not indigenous nor stranger, rather a cultural mélange generated by the meeting between the two parts, 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. Prehistorical sites in Sicily (e.g. Pantalica, Cassibile, Thapsace, 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 plans 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.
Exploring children-elderly interactions in LBA Aegean

Author: Dr. Gallou, Chrysanthi, The University of Nottingham, Nottingham, United Kingdom (Presenting author)

Keywords: childhood, elderly, aging, Prehistoric, Aegean

Presentation Preference - Oral

Scholarship on age and gender in prehistoric Aegean has taken an adult-centric approach [with focus mostly placed on young to early-adult age men and women], and, as a result, trivializes significant age groups - infants/children and the elderly – have been widely neglected. However, lacking a strong insight into attitudes towards these two age groups, archaeologists do not really harbour a concept of the whole span of life in the Greek-speaking and the non-Greek speaking societies that developed in the Aegean region during the 2nd millennium BC. Making children and the elderly visible in the archaeological record, examining interconnections of different stages in the human life cycle of the past are challenging.

Rather than giving up on the human biological material, the situation requires a broader dialog about the application of analytical and interpretative models and/or techniques of an analogous or experimental nature in order to better explain and understand the archaeological evidence of human remains. An invitation is put forward for the establishment of a working group focusing on relationships between the young and the old in past societies.
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. The infant burials and adult burials represent different groups of people from different social backgrounds. The cemeteries differ in that they are all inclusive, i.e. include members 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 interred infants and relatively large number of ‘older’ individuals. The archaeological 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 and material culture 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. If so, perhaps the correspondence between age identity of the young and the old represent a Viking Age cyclic view of life?

**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 presents and disseminates at a rural heritage museum. By comparing and contrasting the medieval bioarchaeological material and the historical/architectural 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 09**

**Infants and elders: a bioarchaeological investigation of a Reform Church in Hungarian Transylvania**

Author - Dr. Bethard, Jonathan, Boston University, Boston, United States of America (Presenting author)

Co-author(s) - Osterholtz, Anna, Mississippi State University, Starkville, United States of America

Co-author(s) - Nyárdy, Zsolt, Haaz Rezso Muzuem, Szekelyudvarhely, Romania

Co-author(s) - Gonciar, Andre, University at Buffalo, Buffalo, United States of America

Keywords: bioarchaeology, Reform Church, Transylvania

Presentation Preference: Oral

Bioarchaeologists have added a great deal to what is known about past peoples from numerous time periods and geographical periods. Recent contributions to the field have pushed scholarship in exciting new directions thanks to theoretical and methodological frameworks which include both the youngest and oldest members of society. Bioarchaeologists are now exploring questions related to both infants and the invisible elderly; however, few archaeological contests present scenarios where both cohorts have been recovered together. Indeed, few scholars have addressed questions related to the interactions of people who lived at the extremes of the human lifespan, as these contexts seem to have alluded bioarchaeologists until now. In this talk, a unique mortuary context from an excavation at a Reform Church in Hungarian Transylvania will be discussed. In 2007 archaeologists participating in a salvage excavation recovered remains of 70 individuals buried beneath the floor of a Reform Church in the community of Tiszaszentgyörgy, Transylvania, Romania. The majority of these interments date to the 17th century and do not appear to have survived long after birth. In addition to the neonatal individuals, the remains of an elderly female individual were recovered from the same stratigraphic context. In this talk, the relationship between these individuals will be explored and tied to a growing body of literature investigating the archaeology of the Reformation.
Detecting the elderly - Exploring age using Transition Analysis

Author - Maaranen, Nina, Helsinki, Finland (Presenting author)
Co-author(s) - Buckberry, Jo, University of Bradford, Bradford, Bradford, United Kingdom

Keywords: Adult age-at-death estimation, Life history, Transition Analysis

Presentation Preference - Poster

Adopt-a-Monument - Making heritage relevant to everyday lives

Author - Richardson, Philip, Archaeology Scotland, Musselburgh, United Kingdom (Presenting author)
Co-author(s) - Jones, Cara, Archaeology Scotland, Musselburgh, United Kingdom

Keywords: Adopt-a-Monument, Diverse audiences, Social impact

Presentation Preference - Oral

Adopt-a-Monument Scotland’s Adopt-a-Monument scheme (2011 – 2017) supports community heritage groups to take a lead in recording, conserving and promoting their local heritage. This current phase has a clear remit from the start to develop non-traditional heritage audiences, that is, those audiences who felt unconnected and unattached to their local heritage, sometimes through choice, sometimes through circumstances beyond their control. Adopt-a-Monument has sought to challenge these misconceptions by devising and providing accessible engagement opportunities which are relevant and immediate to everyday lives. We have worked with diverse audiences – from those who are transiently housed to those who have suffered from domestic abuse with very positive results.

These projects are designed to put the people and participants first, and appear to have had a meaningful impact on the participants who have taken part. Yet projects such as this still produce meaningful archaeological results. This presentation will outline a series of case studies from this work and ask how we could expand this approach in the future.
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.

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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)
Co-author(s) - Langlitz, Meredith, Archaeological Institute of America, Boston, United States of America

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 subject fields 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 archaeology 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 Belgium, 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.

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TH2-14 Abstract 04

The "archaeological path" in the interdisciplinary research in Polish Jurassic Highland

Author - MA Majerek, Magdalena, Nicolaus Copernicus University Toruń Poland, Toruń, Poland (Presenting author)
Co-author(s) - PhD Lawrowicz, Olgerd, University of Lodz, Lodz, Poland

Keywords: archaeological XXX-XX century, 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 input to multi-level cognition: the history, cultural reality, social climate, local family memory, the heritage of generations, and contemporary identity of the inhabitants of the northern part of the Polish Jurassic Highland, i.e. in the area of five communes: Janów, Leleń, Mstów, Olsztyn, Przyrów. The project adopts an interdisciplinary perspective which is characteristic of 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, and available publications. For them, the source of knowledge about the past and the present is primarily oral 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 reconnaissance 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 electrofacts 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.

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TH2-14 Abstract 05

Role of archaeology in rise and fall of local tourist industry. A warning example from Finland

Author - Laukumis, Vesa, The National Board of Antiquities, Helsinki, Finland (Presenting author)
Co-author(s) - 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, exhibitions, 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 acclaimed 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 un solvesed.

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.

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TH2-14 Abstract 06

My Home Ground - past and present

Author - Høy, Madsen, Lene, Museum Skanderborg, Skanderborg, Denmark (Presenting author)
Co-author(s) - Dissing, Nina Bangbo, Municipality of Skanderborg, Skanderborg, Denmark

Co-author(s) - Purup, Marianne, Visit Skanderborg, Ry, Denmark

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. Specialists 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.

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TH2-14 Abstract 07

Giving is having! Everybody is winning!

Author - Archeologist Lesel, Krietta, Pirkanmaa Provincial museum, Tampere, Finland (Presenting author)
Co-author(s) - Moilanen, Ulla, Pirkanmaa Provincial museum, Tampere, Finland
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Keywords: cooperation, local people, openness

Presentation Preference - Oral


The Archaeological museum in Zagreb possesses a certain amount of finds acquired in this way and which have a 'questionable' origin, and, as the parent institution, it works on entire collections which were subsequently seized from the same collectors which could, only a few years back, make legal trade with the Museum and were legally protected by the aforementioned notary confirmation on family heritage.

What can museums do to prevent illicit trading, archaeological excavations and trafficking?

It is understandable that archaeological museums cannot change the legislation, but their social role is to point out legislative flaws, and I feel that they should individually label collectors outside the law, sellers and malicious metal detector users by highlighting finds obtained in this way in permanent exhibitions and publications, just like they highlight well-intentioned donors. But this is only a cosmetic touch up.

It is understandable that archaeological museums cannot change the legislation, but their social role is to point out legislative flaws, and I feel that they should individually label collectors outside the law, sellers and malicious metal detector users by highlighting finds obtained in this way in permanent exhibitions and publications, just like they highlight well-intentioned donors. But this is only a cosmetic touch up.
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. It seems that the combination of constant development of social awareness with the sharp and well-defined legislature is the closest we can get to the ultimate annihilation of misusing archaeological heritage.

The formation of a universal national (or wider) acquisition policy in archaeological museums is the first preventive step. The museum should be a public body only for art, but encourages sale of archaeological finds and secret and non-expert excavations which result in individual decontextualized finds acquired/received by the museums with public funds.

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 publication 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
I illicit trafficking of archaeological heritage in Croatian post-war and transitional context
Author - Curator Drnić, 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 Sciscia 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 21st 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 few confiscated collections and filed criminal charges.

TH2-16 Abstract 03
Can local people preserve cultural heritage?
Author - Munawar, 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 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, but it has to be 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 stigmatized 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?

Much of the WWII material in the Netherlands (and abroad) is collected with metal detectors, used both by professional archaeologists and amateur metal detectorists. Without an archaeological methodology underpinning the use of the device, a metal detector can lead to the incorrect assessment of a site’s archaeological potential and even damage the site.

Groups of metal detectorists and other enthusiastic amateurs have often tried to research conflicted sites as responsibly and ethically as possible, but in previous decades the work has remained fragmented and was not always reliable. There is also a strong suspicion by professional archaeologists that films and television series such as Saving Private Ryan (1998) and Band of Brothers (2001), as well as significant anniversaries can intensify the problem.

However, archaeologists and metal detectorists are working increasingly together. In some cases, metal detectors can give direction to an official archaeological excavation. Still, many metal detectorists are able to locate and identify WWII artefacts much more quickly and effectively than most Dutch archaeologists.

The ultimate question that is asked is this: are metal detectorists potentially an ally or an enemy of conflict archaeology? Is their activity always destructive, or can their interest and enthusiasm be harnessed to work with professional archaeologists, to the benefit of both sides?
Climate Change and Heritage

Managing the archaeological heritage

Thursday, 1 September 2016, 14:00-18:30
Faculty of Philology, Room A2

Author - Biehl, Peter F, University at Buffalo, Buffalo, United States of America
Co-author(s) - Curtis, Caitlin, SUNY Buffalo, Buffalo, United States of America
Co-author(s) - Vindrup Martens, Vibeke, Norwegian Institute for Cultural Heritage Research, Oslo, Norway
Co-author(s) - Karss, Eva, EARTH Integrated Archaeology BV, Amsterdam, Netherlands
Co-author(s) - Dalen, Elin, Riksantikvaren/Directorate for Cultural Heritage, Oslo, Norway
Co-author(s) - Johansen, Kristine, Riksantikvaren/Directorate for Cultural Heritage, Oslo, Norway

Presentation Preference - Regular session

Current climate change poses a severe threat to the preservation of archaeological heritage. Heritages' sites are vulnerable to changing conditions, such as increased rainfall, rising sea levels, and changes in temperature. This presentation will discuss the impact of climate change on archaeological sites and how to manage these threats.

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 manage respond to these threats? In order to prepare adequate mitigation schemes, it is necessary to first know exactly what state it is in, 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.

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TH2-17 Abstract 03
Climate Change and its Impact on Cultural Heritage

Author - Dalen, Elin, Riksantikvaren/Directorate for Cultural Heritage, Oslo, Norway (Presenting author)
Co-author(s) - Johansen, Kristine, Riksantikvaren/Directorate for Cultural Heritage, Oslo, Norway

Keywords: Climate change, hydroelectricity plants, Skjerka 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 and 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 to 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 Skjerka 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.

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TH2-17 Abstract 04
A Climate Change Impact and Risk Assessment for the Historic Environment Scotland Estate

Author - Dr. Davies, Mairi, Historic Environment Scotland, Edinburgh, United Kingdom (Presenting author)
Co-author(s) - Tracey, Emily, British Geological Survey, Edinburgh, United Kingdom

Keywords: Adaptation, Climate Change, Conservation

Presentation Preference - Oral

As a large public body, Historic Environment Scotland (HES) has duties under Part 4 of the Climate Change (Scotland) Act 2009 that require it to contribute to climate change mitigation and adaptation, and to act sustainably. Ministers have identified HES as a ‘Major Player’ because it has a larger influence/impact on climate change than other public bodies. A Climate Change Action Plan for Historic Scotland 2013-2017 sets out how HES will fulfil its duties under the Act. The UK Climate Change Risk Assessment 2012 identified a range of risks and opportunities that climate change may present. Many of these have the potential to impact on the historic environment. HES is key to the delivery of Climate Ready Scotland: Scottish Climate Change Adaptation Programme, which includes the following:

- quantifying heritage assets affected by climate change using GIS
- developing a methodology for assessing climate change risk to historic sites
- creating a risk register for the ‘Properties in Care’ that are managed by HES (to assist with management planning and resource allocation).

In response, HES has undertaken a research project in partnership with the British Geological Survey (BGS) that sets out to identify the threats associated with climate change such as slope instability and flooding that have the potential to impact on the HES Estate. The results are assisting HES in preparing a risk register for the properties across the HES Estate and in shaping and prioritising on-going conservation and maintenance programmes. The project will also inform the development of a methodology for the broader historic environment.
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 SCARP 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 has classified nearly 1,000 sites as requiring attention.

Following prioritisation, SCARP 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, SCARP 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 see methodologies employed to mitigate the sites threats 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 modelling 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 is 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 Darwent Valley Mills UNESCO World Heritage Site and supported by Historic England and Derbyshire County Council. This has assisted in the development of tools to help characterise the geodriverial 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. Heleen, Michael, Statistical Research, Inc., Haymarket, United Kingdom (Presenting author)
Co-author(s): - Atschei, Jeffrey, Statistical Research, Inc., Tucson, United States of America

Keywords: archaeological modeling, climate change, heritage management

Presentation Preference: Oral

Globally, 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, Clywd-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 ‘Aforrda’ 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)
Co-author(s): - De Moor, Jos, EARTH Integrated Archaeology B.V., Amersfoort, Netherlands
- Kars, Henk, VU University Amsterdam, Amsterdam, Netherlands

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.
Moreover, for the coming decades the expansion of the infra structure, for example the directive of renewable energy (see abstract in session Abstract nr. TH2-12), confronts and challenges us how to deal with the known and still unknown climatic impacts on cultural heritage.

In this presentation we will discuss known parameters of climate change and the possible impact on the cultural heritage in the Netherlands, such as more and heavier rainfall, alternating with periods of drought, temperature rise and a predicted sea level rise. Expected consequences of climate change are higher groundwater levels in general, but also very strong changes in water levels between drier and wetter periods. A temperature rise will give longer warm periods, which in turn will prolong the growing season and lengthen the decomposition process of organic material in the soil. Sea level rise can have effect on the salinity of the groundwater, which will result in a more rapid degradation of some of the archaeological data.

Both sea level and intensifying peak flows of rivers, require precautions to be taken in the Netherlands. Therefore, the national Flood control program foresees a reinforcement of 700 km of levees within the presence of the Part of several long levee systems in the Netherlands contain historic dike remnants. In addition, long the rivers, the shores are being made ‘natural’ again to let the water flow over land to prevent uncontrolled flooding.

These engineering projects give us possibilities to study not only the adaption of man to changing environmental conditions through time, but they also give us a possibility to create different strategies for cultural heritage to be preserved for the future, in relation to expected climate changes. In the presentation some examples will be presented.

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**TH2-17 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 heritage. One of the consequences of the implementation of the Renewable Energy Directive gives an even larger pressure and a challenge for the culture 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 subsoil spatial planning policy vision called STRONG. This emphasize 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/will be explored? 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?

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**TH2-17 Abstract 11**

**Iced heritage. First World War heritage in frozen contexts in the Alps**

**Author** - Dr. Nicolaus, 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 to 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 cultural emergency. The melting of ice is bringing to 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 cultural emergency. The melting of ice is bringing to 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 cultural emergency. The melting of ice is bringing to light evidence of the human presence at high altitudes from prehistory to contemporary times (First World War structures and bodies).

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 artifacts and uncover the whole context of the site of Punta Linke, characterised by the presence of a two-cableway. All original structures freed from ice and the material found there, have been relocated. In summer 2015 more than 2170 people visited the site during 55 days of opening.

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**TH2-17 Abstract 12**

**An integrated approach to sustainability: eco-cultural heritage practice at Aktopráklık, Turkey**

**Author** - Curtis, Catlin, 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 Akşam, Bursa, Turkey, the local context of Neolithic-Chalcolithic Aktopráklık Höyük. With the 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 architectural sustainability, environmental sustainability, and community sustainability.

When discussing what was most valued locally, many noted that Uluabat Gölü 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 birdwatching population. However, Uluabat Gölü was also the initial site of industrial development in town over 30 years ago, with the first factories to open settling on the lake edge. These factories depleted waste in the lake, and with time, 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 note the untapped potential of the lakeshore in Akşam for attracting tourists, especially considering the existing tourist attraction of Gölyazı island just a few kilometers away at the center of the lake. Indeed, as Uluabat lake is a valuable resource for local sustainability, it is possible that the lake could also 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 benefit 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.

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**TH2-17 Abstract 13**

**Local Heritage Societies Adapting to Climate Change**

**Author** - Archaeologist Grahn Daniellson, Benjamin, Picea kulturvar, Fors, Sweden (Presenting author)

**Keywords:** climate change adaption, Dalstrand, Local heritage societies

**Presentation Preference - Poster**

During the autumn 2015, SMHI – Swedish Meteorological and Hydrological Institute, published new climate Scenario Reports for all counties in Sweden. As one of the county archaeologist at the County Administrative Board in Dalarna I was involved in a project about climate change, crisis and cultural heritage, and I suddenly realised how climate change will impact my everyday life.

In Dalarna, the County Administrative Board, started to inventory the cultural values that could suffer most, and create action plans, and communicate them to the emergency services. As a part of the course Integrated Conservation at Gothenburg University I would like to explore what was happening in other parts of Sweden. The authorities was probably on the track all over the country, but how about the local heritage societies? In this poster I present the results of a survey about climate change and adaptation among local heritage societies in Dalarna, in the western part of Sweden.
PREVENTIVE ARCHAEOLOGY, SCIENTIFIC RESEARCH AND ECONOMIC DEVELOPMENT

Saturday, 3 September 2016, 09:00-10:30
Faculty of Philosophy, Room 214

Authors: Damoulakis, Jean-Paul, Université de Paris I Sorbonne, Arles, France (Presenting author)
Coauthor(s): Guermandi, Maria-Pia, Istituto Beni Culturali - Regione Emilia Romagna, Bologna, Italy

Presentation Preference: Regular session

It is 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 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. Demoulakis, Jean-Paul, University of Paris I, Paris, France (Presenting author)

Keywords: commercial competition, Preventive archaeology, scientific research

Presentation Preference: Oral

While the 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 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” Anglosphere countries, and especially the USA, the State has never been completely legitimate. This view was further reinforced in the nineteen-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 conception 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, Development-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 this 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: Allen, 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 interest 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 (or 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 archives? 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 with other 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 evidence 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 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

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Keywords: development-led archaeology, Heritage management, Scandinavian models

Presentation Preference: Oral

In the late 1980s the term “cultural heritage management” was coined, and it became one of the most used terms within the heritage management field. In the 1990s several European countries introduced the concept of cultural heritage management, with France being a pioneer in the sector. In the 2010s, cultural heritage management has become more and more important in all European countries. In this study, the author has analysed the trends in cultural heritage management in the 2010s in Scandinavian countries, with a focus on Denmark, Norway, and Sweden. The author has found that the trends in cultural heritage management in the 2010s have been characterised by a greater emphasis on community involvement, and a greater focus on the economic value of cultural heritage. The author has also found that the trends in cultural heritage management in the 2010s have been characterised by a greater focus on the preservation of cultural heritage, and a greater focus on the promotion of cultural heritage.
Since the 1990s the Scandinavian countries have in various ways tried to adjust cultural heritage management and development-oriented archaeology according to the national political thinking on the one hand and Pan-European legislation on the other. Sweden is probably the one in Scandinavia where the most radical, modernist reforms have been implemented. The success of these reforms however has 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 impact on the development of archaeological research and excavations in progress».

The common goal is to realize a spatial data catalogue dedicated to archaeology (preventive and not), open and shared, useful on one hand for the land development and, on the other hand, for the archaeological research and documentation. Archaeological spatial data then would become the central element towards logic of openness and sharing of historical knowledge; and the historical knowledge becomes the engine of the protection and preservation of places: the first concrete “preventive” action that archaeology should put in place throughout Europe.

TH2-19 Abstract 07
Preventive archaeology in current Slovakia
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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, artistic works or intangible heritage.

From the point of view of archaeology, archaeological heritage, its protection and management, the Act on Protection of Monuments and Historic Sites Nr. 49/2002 Coll. is the most important law, fully regulating the preventive archaeology as a whole. Administrative competences are applied by the Monuments Board of the Slovak Republic and its 8 regional 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 archaeologists 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 licenced 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 licenced 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 elaborating 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 authorities and their specific ways of thinking. The use of traditional methods and tools for a new and complex problem can therefore be problematic. However, the result of such a cooperation is often a good one that is valid for many years. The session wants to present the case of the history of Swiss motorway archaeology.
The Archaeologies of different times and contexts, as seen from the east part of Western Europe

Author: Dr. Stauble, Harald, Heritage Office Saxony, Germany, Dresden, Germany (Presenting author)

Keywords: after 1990, East Germany, large scale projects

Presentation Preference: Oral

After 1945 many new large infrastructural works were necessary in all parts of Europe but only very few development-led large scale projects were accomplished by appropriate rescue excavations. The major political changes around 1990 had a similar impact on economy resulting in a huge amount of new construction activities, first mainly in the east part of Europe. But from the point of view of the archeological management of large scale invasive developmental projects the economic conditions as well as the societal acceptance after the 1990s differed in comparison with post-war Europe. This may partly be an effect of the Valetta Convention from 1992, which was itself a result of many years of convincing work, but it also coincides with the socio-political and economic changes in East Europe, which surely helped the signature and the later ratification of it. Anyhow the early 1990s represent a radical change in preventive archaeology and the management of large developmental scale projects in all Europe. As Germany has more heritage laws than countries it is impossible to speak for all. Some aspected activities and problems of development-led large scale archaeological projects will be presented from the point of view of Saxony, a former part of East-Germany.

TH2-19 Abstract 09

Enabling Archaeological Research

within a Heritage Management Context: A View from the United States

Author: Dr. Heilen, Michael, Statistical Research, Inc., Haymarket, United States of America (Presenting author)

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Keywords: archaeology research, economic development, preventive archaeology

Presentation Preference: Oral

In the United States, preventive archaeology is governed largely by Section 106 of the National Historic Preservation Act, which requires consideration of cultural resources that may be affected by an undertaking involving the federal government. Section 110 of the Act further requires federal agencies to identify and manage heritage resources within their jurisdictions. A large and robust heritage management industry has developed in the United States around these requirements. The thousands of archaeologists employed each year as a result of the Act have resulted in an immense amount of data and in some cases spectacular research findings. Yet, the vast majority of projects are small and disconnected from larger research programs, with their purpose, location, schedule, and level of effort determined by development and other needs, rather than scientific research. Moreover, project planning and management is often focused on reducing costs within a competitive environment. While many projects are largely compliance-driven, some organizations have managed to develop research-driven approaches that allow for cumulative research to be conducted within a preventive context. In this paper, we discuss our approach at Strategic Research to conducting research within two different regions of the United States - coastal southern California and the desert Papagoas of southern Arizona - by developing regional research programs, accumulating data from numerous small projects to achieve appropriate samples and contexts for research, focusing on projects with strong research potential, developing analytical and database tools, cultivating research-oriented staff, and seeking, as a company, to address long-term research goals in the regions we investigate.

TH2-19 Abstract 11

The system of organisation of Czech archaeology

Author: - Makr, Jan, Institute of Archaeology of the CAS, Prague, v. v. i., Prague, Czech Republic (Presenting author)

Co-author(s) - Co-author(s) - Co-author(s) - Co-author(s) - Co-author(s) - Co-author(s) - Co-author(s) - Co-author(s) - Co-author(s) - Co-author(s)

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 increases in building activities brought much higher demands on conducting rescue archaeological field works. This progress 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 resources.

The Institute of Archaeology of the Czech Republic holds 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: - Querol, A., Spain, Complutense University of Madrid, Madrid, Spain (Presenting author)

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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 research, and in this context, and we developed a specific model (proposal) framed under 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 (“untouchables”) 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 public or private civil work.
TH2-19 Abstract 13
Preventive archaeology from 2010 onwards in Hungary – legal background and the reality
Author - Bozóki-Érnyey, Katalin, Government Office of Budapest Capital, Budapest, Hungary (Presenting author)
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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 2008/2010. 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 real/organisation of heritage administration under the aegis of the overall government-reform, the shutdown of the INFAP-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. Deapa, 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 rethink 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 - May 2015 – reflects how far behind legislation is in general when it comes to archaeology. There is no specific legislation and archaeological practices are governed by directives that are highly ambiguous, when not downright conspiratorial, archaic, manifestly insufficient and ridiculously and pointlessly restrictive (e.g. the limitation of prior verification procedures to public works only, the only case in Europe). The drafts of the guidelines on preventive archaeology, which we have been waiting for since 2006, do not appear likely to fulfill the expectations of an entire sector that has been struggling for years amidst a deep economic crisis affecting all the players involved: from developers to professional archaeologists, from universities to the Ministry of Cultural 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 the preventive archaeology, the synergy between the Ministry reform and the revision of the Procurement Code could mean the totally 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 to orienting the evolution of future processes in a direction favorable (or less unfavorable) to our archaeological heritage.
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 job 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 neat interpretation can be applied satisfactorily to all.

None 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. It is not to say the numerous 30m or 50m x 2 m trenches across a site on a consultant whom 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.

Preventive archaeology in Austria

Author - Dr. Krien, Martin, Bundesdenkmalamt, Krems, Austria
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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 application of scientific archaeology can not only establish where and what archaeology is on the site with minimal intervention, 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.

The present 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

Preventive archaeology in Austria

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Presentation Preference - Oral

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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 documents and their data integrity has improved through the introduction of the “Guidelines for Archaeological Measures”.

Destination management of heritage sites and towns in Croatia

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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.

Bridging the gap: archaeology in tourism at the Archaeological park Emona (Ljubljana, Slovenia)

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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 Emona 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 misunderstandings due to differences in understanding archaeological heritage as a source, in ways of exploiting it, and the scope and size of the possibilities. We think those conflicts and solutions employed make a good starting point for a debate, and a very useful experience for planning the development of Archaeological Park Emona and similar enterprises in the future.

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 NIGRVM PVLLVM 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 - Harasam, 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 Baran 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. Waitt 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 77, 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
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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 escapes and can be seen as a concept that is all about combining 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 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.
TH2-20 Abstract 07
A journey through time: sensory tourism in the context of archaeological museums in Poland

Author - Dr. Pawełka, Michał, Adam Mickiewicz University, Poznań, Poland (Presenting author)
Keywords: archaeological museums, Poland, sensory tourism

Presentation Preference - Oral

Whereas previous studies in tourism promoted vision, current research claims a holistic approach to sight, hearing, smell, taste and touch in order to develop effective communication with visitors and create conditions to enhance tourist experiences. Consequently, sensory aspects of tourism have recently been in focus as an important dimension in the process of facilitating positive tourist experiences. Among others, also the archaeological museums embrace resources rich in multi-sensory stimuli that are more often utilized in the planning and marketing of appealing tourist experiences.

This paper aims to present the “sensory site” of archaeological museums in Poland. The key axis of considerations is choosing to which degree they respond to the sensory tourism tendencies.

The trends discussed are illustrated by selected examples. I am referring here to the long-established archaeological museums in Poland as well as newly-open exhibitions as “Following the traces of the European Identity of Cracow”, as well as innovative trends such as those as realised in the “World of the Slavs and Vikings” or “The Slav Myth”. It is not a systematic analysis, but shows certain noticeable trends in archaeology museums: in the presentation of the artfacts, in educational projects, including the introduction of reconstructions, reenactments, museum lessons, etc. It also addresses the issue of a modern technology offering a visitor a different perspective on the confrontation with archaeology and monuments.

It also raises some crucial questions, for example, how contemporary archaeological museums support the multisensory nature of tourist experiences? If the measures undertaken are to make the exhibited artifacts more attractive, or whether they are competing with it? Are the new ways of exhibiting and presenting knowledge about the past drawing society closer, encouraging aesthetic experiences with relics of the past, the discovery of ancestors and increasing scientific knowledge? Or do they turn attention away from the items on display? Finally, what is the real purpose of the “sensory” development of contemporary museums?

TH2-20 Abstract 08
Museums in Central Asia: The Role of Cultural Institutions in disseminating Information

Author - Dr. Jarosz, Katarzyna, University of Logistics, Wrocław, Poland (Presenting author)
Keywords: digital divide, museum, tourism

Presentation Preference - Oral

The countries of Central Asia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, or Uzbekistan have great tourist potential both for foreign visitors and companies which might be interested in investing in tourism. A key factor making the place so attractive for tourists is its history, starting with the Silk Road, which dates back to Roman times (Buyers, 2003), continuing with renowned modern technology offering a visitor a different perspective on the confrontation with archaeology and monuments. However, one common denominator in all the studies is that all these countries, to a different degree, lack proper infrastructure and have not developed proper mechanisms to attract more potential visitors and tourists. One of the most often quoted sentences in the literature on the tourism industry is that information is the lifeblood of tourism. It has been clearly demonstrated in numerous projects, including the introduction of reconstructions, reenactments, museum lessons, etc. It also addresses the issue of a modern technology offering a visitor a different perspective on the confrontation with archaeology and monuments.

One of the most important sentences in the literature on the tourism industry is that information is the lifeblood of tourism. It has been clearly demonstrated in numerous studies that museums have direct impact on a country’s economy. The aim of this paper is to analyse if, and to what extent, the countries of Central Asia are competitive in promoting their national heritage. It aims to verify, to what degree historical and artistic museums in the countries of Central Asia are able to adopt effective strategies to facilitate access to information for potential tourists in order to attract them. The issue of competitiveness of the museums on the digital level and the issue of digital divide is the most important one. Providing digital access to the exhibitions, information on museums has been analysed.

The aim of the paper is to present the potential role of a historical route as a language learning and culture acquisition tool. The Route of the Blown Bridges relates Wellington’s retreat in 1812 from Burgos to Portugal after the long siege of Burgos had proved to be too tough a target. While retreating, and to avoid being trapped by the French army, Wellington ordered that several bridges on the Carrion, Pisuerga, Duero and Tormes rivers were blown. Through “the worst scrape I was ever in”-as Wellington put it- the allied army gained a moral dominance over the French not renouncing to it ever again.

We identify, categorize and analyze the route and its highlights in order to create materials which may serve as a means to gain a deeper sense of the Spanish culture and heritage. These materials will be used to foster this touristic route which may be useful to students interested in learning Spanish L2 while experiencing the country’s historical heritage.

As part of an ongoing project devoted to the planning, design and digitalization of materials called Touring the Battlefield: The Peninsular War in Castilla y Leon, our didactic proposal covers language use, cultural knowledge and intercultural competence, while contributing to the valorization and manament of our region cultural landscapes.

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, María Luisa, Complutense University of Madrid, Madrid, Spain
Co-author(s) - Martínez Fernández, Andrea, Complutense University of Madrid, Madrid, Spain
Co-author(s) - García Enriquez, Natalia, Complutense University of Madrid, Madrid, Spain
Co-author(s) - Álvarez López, Mera, 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 awaken 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 architectural 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 archeology 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.
TH2-20 Abstract 11
The research-presentation multidisciplinary approach - Symbiosis in Starigrad, Croatia

Author - Domiter, Ozren, Archaeological museum in Zagreb, Zagreb, Croatia (Presenting author)  
Co-author(s) - Radman Lineva, 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, presentional 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 Trojka 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 (Paklenica Nature Park, Velobit Nature Park, Archaeological museum in Zadar), as equal partners, in order to act in synergy to enrich the existing tourism 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 presentation 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 of, 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 and respect, and, whenever possible, fulfilled in a whole for the benefit of all included participants.

This synergetic, 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.

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TH2-21 Abstract 01
Sustainable Heritage and archaeology: a blessing or a curse?

Author - Dr. Andersson, Anna-Carin, University of Gothenburg, Gothenburg, Sweden (Presenting author)  

Keywords: Archaeology, Heritage, sustainability

Presentation Preference - Oral

This aim of this short and reflexive presentation is to encourage to even more reflexivity. The paper has been encouraged after a vivid and constructive debate on the academia.edu site initiated by the session organisers. Many people within archaeology and heritage management have commented and given their experiential point of views on the matter of Sustainability. What is "Sustainable Archaeology"? Or even a Sustainable Heritage? Is it really a matter of Heritage? Who's Heritage? Or is it a matter of how we can protect and ensure the survival of the discipline of archaeology for future generations?

In various societal circumstances it is possible to come across the concept of Sustainability: "sustainable education", "sustainable child-care", "sustainable society", "sustainable development", etc. Who are the stakeholders that have initiated the "Sustainable Archaeology"? Or even a Sustainable Heritage? Is it really a matter of Heritage? Who's Heritage? Or is it a matter of how we can protect and ensure the survival of the discipline of archaeology for future generations?

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For most archaeologists, archaeological heritage management concerns major construction works, such as motor- and railways, airports, etc. This idea, implicitly present in the Vadella Convention, doesn’t make sense anymore today. Big public works are getting rarer and rarer in Northwestern Europe. New data on all types of development, which have a destructive impact on archaeological sites, are getting available and demonstrate that these big public works represent less than 10% of archaeological destruction. In France, an inventory of all destructive earthworks was made. It appeared that housing and agricultural works are the main destructive factors, far ahead industrial and linear (roads, etc.) works which are far less important. A lot of new types of land development, often linked with the green economy, are also important. Preventive archeology of this mass of small scale earthworks is something wholly different from archeology of large infrastructure works. It should be adapted at all levels, from the transnational to the regional and administrative level. In the long term, its public impact and sustainability are however much better.

**TH2-21 Abstract 04**

**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 tackling (1) 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 will soon 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 understatements and reservations. It also induces growing public interest and can be described metaphorically as the ‘stains’ of the world’s history - a term or unclear meaning or unclear term which 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 specific cases of archaeological inquiry from Poland. To exemplify some of the nuanced arguments, the outcomes of the ongoing project titled ‘Archaeological revival - a step before planning sustainable heritage management’

**TH2-21 Abstract 05**

**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)**: Gasco Rodríguez, 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 processes served as an opportunity for Sustainable Archaeology. Thus, the economic crisis led to a political crisis that has led to social movements and 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 the country’s oldest population in Europe. It is one of the poorest and most deprived areas of Spain; its countryside and its industrial structure are disappearing and survives thanks to European subsidies. After decades of failed policies of sustainable rural development in these years of crisis local governments and civil society are the Community Archaeology a useful tool for the enhancement of Heritage. This reality has opened a new market for archaeologists of Galician and Basque Country, who 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).
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. In this presentation we describe some of the methodological strategies used; preliminary results will be presented in order to reflect on the difficulties in encompassing the different agents – government, academia, ruins and people - that interact in the urban context.

TH2-21 Abstract 07
The past in the future: archaeology, heritage and sustainable development in Laconia, Greece
Author - Prof. Voutsaki, Sofia, University of Groningen, Groningen, Netherlands (Presenting author)

Inhabitants in the area and to make archaeology a part of the local society for a sustainable future. There are also a high number of immigrants and there have been a lot of incidents of shooting and criminal activities in the area. This suburb is considered one of the most troublesome within the city of Gothenburg. It is dominated by different groups of C.

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 boost 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 museums and archaeological sites, as these form the foundation 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. agritourism, 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 discussion of shifting attitudes to the past both in relation to hegemonic discourse as shaped by classical scholarship, national education and national ideology, but also in relation to folk culture (local legends and fairy tales) and recent influences such as film, comics, the souvenir industry and the internet.

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 08
Here I live - interpretations of the past present and future
Author - PhD Synnestvedt, Anita, University of Gothenburg, Gothenburg, Sweden (Presenting author)

Heritage, interpretation, public archaeology, migration, sustainability
Presentation Preference - Oral

In the suburban area Bergsjön in Gothenburg you will find an ancient remain – a stone Age chamber grave from about 1800 B. C. This suburb is considered one of the most troublesome within the city of Gothenburg. It is dominated by different groups of immigrants and there have been a lot of incidents of shooting and criminal activities in the area. These problems are related to the fact that Bergsjön is considered one of the most troublesome within the city of Gothenburg. It is dominated by different groups of C.

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.

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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: vocational and educational training, archaeology, nature domains, heritage
Presentation Preference - Oral

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 museums and archaeological sites, as these form the foundation of local perceptions of archaeology and archaeologists.

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.

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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-author(s) - Edeso, 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-KA202-030585) 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 and enlargement.

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 important 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.
THEORETICAL AND METHODOLOGICAL PERSPECTIVES IN ARCHAEOLOGY

Humanities research perspectives on contemporary society are currently “hot topics” on the European scientific agenda. This theme seeks to examine how archaeological knowledge is used and re-used in contemporary society; how archaeological heritage is valued; how additional values are created; how archaeologists can participate in creative cultural life, activity and business.

The theme seeks to define how solutions for contemporary societal challenges are promoted and supported by the role of IT based networks of knowledge in society. In that context the theme seeks to define what current questions are important for understanding the social role of archaeology.

This theme invites scientists, researchers and practitioners interested in the current and potential use of archaeology as a tool for informing positive societal change. The theme seeks to extend beyond the archaeological sciences, examining a long list of topics. These include: the role of not-for-profit organizations and communities; issues of social engagement and exclusion; links to creative and cultural industries; social and cultural innovation; current definitions of social capital and broader economic impact; participatory culture and creative collaboration; medias and social networking; school education and interests of Y and Z generations; narratives, identities, participatory culture and creative collaboration; medias and social networking; for-profit organizations and communities; issues of social engagement in sciences, examining a long list of topics. These include: the role of not-for-profit organizations and communities; issues of social engagement and exclusion; links to creative and cultural industries; social and cultural innovation; current definitions of social capital and broader economic impact; participatory culture and creative collaboration; medias and social networking; school education and interests of Y and Z generations; narratives, identities, public memory and memory institutions. The theme also invites archaeologists who participate in Horizon 2020 projects related to section “Europe in a changing world – Inclusive, innovative and reflective societies” and COST action “Individuals, Societies, Cultures and Health”.

Practical skills training in European Archaeology: survey results

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.

Practical Skills Training in Archaeology - Options for the Future?

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 degrees 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.
THEORETICAL AND METHODOLOGICAL PERSPECTIVES IN ARCHAEOLOGY FROM THE COLOSSEUM TO PALMYRA. APPROPRIATION AND OWNERSHIP OF ARCHAEOLOGICAL HERITAGE IN A GLOCAL WORLD

Saturday, 3 September 2016, 09:00-13:00
Faculty of Philosophy, Room 209

Author - Gori, Maia, University of Heidelberg, Heidelberg, Germany (Presenting author)
Co-author(s) - Ravelli Lamir, Martina, University of Amsterdam, Amsterdam, Netherlands

Keywords: appropriation, conflict, identity

Presentation Preference - Oral

Over the last decades, there has been substantial research into the relationship between archaeology and politics. Early research explored the interaction between archaeology and State focusing on nationalism, and demonstrating that there is no such thing as non-political, value-free archaeology. Nationalism stimulated the very creation of archaeology as a science and has informed the organization and infrastructure of archaeological knowledge. However, more recent trends focus on archaeology’s relation to Modernity, insisting on the concept that archaeology has to be viewed as cultural product. As every cultural product, archaeology as a discipline is inherently a practice of cultural appropriation. Archaeologists perceive themselves as officially entitled by the society to use archaeological material as resource for understanding the cultural past in pursuit of the “truth.” The vision of the past emerging from analyzing the dynamic nature of appropriation of the past as an intentional process – whose mechanism affects social change – is that uses of the past have to be considered as pointers to competing visions of the future at both individual and group levels. Scientific archaeology also adopts such a vision. The debate on the notion of appropriation and ownership, the role and territoriality of the archaeological heritage and the impact of archaeological practice on local and global communities are issues that this session wants to address.

This session aims at:
- exploring the theories and levels of archaeological appropriation;
- understanding whether archaeology as discipline is able to overcome its predatory aspects to become more inclusive; e.g. facilitating the appropriation of national archaeological heritage by minorities, immigrants, different religious groups, etc.
- exploring uses of archaeology in present-day conflicts (e.g. as peace keeping tool, stone of contention, etc.);
- comprehending the role of archaeology in European policy at both State and European Union levels (e.g. in identity building, ethnocentric conflicts, etc.).

TH3-02 Abstract 01
Cultural heritage between intrinsic values and communication strategies in the time of Daesh
Author - Dr. Iacomi, Veronica, Confederazione Italiana Archeologi, Roma, Italy (Presenting author)
Keywords: archaeology and propaganda, Daesh, endangered heritage

Presentation Preference - Oral

The dreadful videos and photos issued by the alleged Islamic Caliphate of Daesh about the destruction of archaeological and historical monuments in the Middle East shocked not only the restricted circles of scholars but the whole world for brutality and terrifying violence. In a recent lecture on these topics, renowned Italian scholar prof. A. Giardina stated that in a long-term historical perspective the correct approach to such eventualities is neither indignation nor the search for consolation. He invited archaeologists to think about the possibility to achieve a deeper understanding of the complex dynamics among Turkey’s southeastern neighbors where the calculated destruction of cultural heritage has prompted the efforts of protection, preservation and conservation cultural heritage in Turkey are largely dictated by The Ministry of Culture and Tourism. Growing economic investment on the construction of new public museums emphasizes the importance placed on the preservation and the display of the nation’s historical and cultural wealth. These pristine contexts, however, stand in juxtaposition to a 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 (see e.g. Lafrance-Samuels 2008; Hingley 2015). There must be a multidisciplinary approach to understand and access all the cultural and ideological barriers resulting in differential inclusion, particularly that occurring in the regions of Europe which still hold something of a liminal identity. Finally, in the process of receiving asylum and entering Europe, migrants are offered a narrative of a past that is both familiar and foreign. This session wants to address cultural heritage and endemism processes in Mediterranean Europe, with a focus on the role of archaeological sites and monuments in the complex dynamics among Turkey’s neighbors (Middle East and North Africa). Archaeological Dialogues 15:121-127. Richardson, T. 2013. ‘Borders and Mobilities: Introduction to the Special Issue’. Mobilities 8(1): 1-6.

TH3-02 Abstract 02
Archaeological border studies: the impact of the Roman Frontier on the present immigration crisis
Author - Hanscam, Emily, Durham University, Durham, United Kingdom (Presenting author)
Keywords: Border studies, Immigration, Romania

Presentation Preference - Oral

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 (see e.g. Lafrance-Samuels 2008; Hingley 2015). There must be a multidisciplinary approach to understand and access all the cultural and ideological barriers resulting in differential inclusion, particularly that occurring in the regions of Europe which still hold something of a liminal identity. Finally, in the process of receiving asylum and entering Europe, migrants are offered a narrative of a past that is both familiar and foreign. This session wants to address cultural heritage and endemism processes in Mediterranean Europe, with a focus on the role of archaeological sites and monuments in the complex dynamics among Turkey’s neighbors (Middle East and North Africa). Archaeological Dialogues 15:121-127. Richardson, T. 2013. ‘Borders and Mobilities: Introduction to the Special Issue’. Mobilities 8(1): 1-6.

TH3-02 Abstract 03
Developing Politics and Attitudes towards Cultural Heritage in Turkey
Author - Dr. Danel, Elif, American Research Institute in Turkey, Ankara, Turkey (Presenting author)
Keywords: Cultural heritage, Turkey

Presentation Preference - Oral

The efforts of protection, preservation and conservation cultural heritage in Turkey are largely dictated by The Ministry of Culture and Tourism. Growing economic investment on the construction of new public museums emphasizes the importance placed on the preservation and the display of the nation’s historical and cultural wealth. These pristine contexts, however, stand in juxtaposition to a complex dynamics among Turkey’s southeastern neighbors where the calculated destruction of cultural heritage has prompted new initiatives of protecting sites and artifacts across the region. Working with the American Research Institute in Turkey (ART) and the US Embassy in Ankara, the Ministry of Culture and Tourism has recently addressed these dynamic political projects and projects addressing the increasingly important issues of security and protection. This paper focuses on these efforts as they contribute to the growing importance and necessity of responses on heritage security and protection in the entire region.

TH3-02 Abstract 04
Valorization & other policies: economic use of the Colosseum or cultural experience for visitors?
Author - Dr. Iacomi, Veronica, Confederazione Italiana Archeologi, Roma, Italy (Presenting author)
Co-author(s) - Catia, Elisa, Museo Civico Etrusco Romano di Trevignano Romano, Trevignano Romano (Roma), Italy
Co-author(s) - Russo, Angela, Indipendent Researcher, Roma, Italy
Keywords: Colosseum, Cultural tourism, Heritage exploitation

Presentation Preference - Oral

The Colosseum is one of the most important architectural sites of the Roman Empire. In the last years, several policies have been adopted by international institutions and associations towards this “historic-archaeological tragedy” will result helpful in assessing the role given to archaeology and, more general, to the past “as a tool to contrast to Daesh policies on the ground: the awareness and care of the cultural heritage considered as an essential instrument to peace, for instance, the dramatic situation of refugees moving from these countries. In short, the instrumental use of archaeology in the propaganda on both fronts urges contemporary archaeologists to reflect on the value and meaning of their discipline, beyond the academic approach and at the same time well into the flow of current events on a global, worldwide perspective.
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 mind 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 discussing 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 statical analysis of the perception of the public through a survey led on site will be presented. In conclusion, considerations about the role archæologists may and should play in these various regards will be drawn, under the peculiar perspective of the authors who experience archæology both in an academic and scientific way, and working as official tourist guides of Rome.

**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 [religious] identity which has to do with the personal, that which is interior or immaterial: 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 transcendent tradition. To highlight the above-mentioned casuistry, I reconsider the present-day focus on Illyrian origin-mythology as informative of distinctive heritage and ancient Greek syncretism.

To this aim, I contend that efforts for the creation of a discourse 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 stated 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 (Qenido, 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 respiritualization (Haynes, 2011).”

**TH3-02 Abstract 06**

**Alatri in the Sky with Diamonds**

**Author:** Pintucci, Alessandro, University of Rome “La Sapienza”, Roma, Italy (Presenting author)

**Co-author(s):** - Gori, Maja, University of Heidelberg, Heidelberg, Germany

**Keywords:** Alatri, polygonal walls, pseudoarchaeology

**Presentation Preference:** Oral

In the last decades, thanks to stratigraphic excavations and associated pottery analysis, many Italian opus poligonale 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 providing the traditional Archiac or even Pelasgic chronology. This new chronological and cultural framework for the site is supported by a passionate debate amongst local historians, who believe that the construction of the Alatri complex pre-dates the Roman arrival in the region. Local archæology amateurs, thus, opposed new dates and interpretations by having recourse to different theories, mainly based on archaeoastronomy. Alatri was associated to sites traditionally connected to pseudoarchaeology, 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 to not 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 Velux 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 archeology to engage with non-professionals amateurs even if the debate occurs in the archaeofantasy arena.
OPEN ACCESS AND OPEN DATA IN ARCHAEOLOGY: FOLLOWING THE ARIADNE THREAD

TH3-03

TH3-03 Abstract 01
Requirements for open sharing of archaeological research data

Author - Dr. Gaser, Guntram, Salzburg Research, Salzburg, Austria (Presenting author)

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 sharers 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 putting 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)

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 record, and should be connected to the primary data. This 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 networks, 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.

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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) - Dobson-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 (SARF). 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, SARF 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 archives 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 SARF, 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

TH3-03 Abstract 04

**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

Theoretical and methodological perspectives in archaeology, the successful publication of archaeological projects has been a contentious issue.

The switch from preservation solely by publication, to one of preservation by record, has placed increasing emphasis on archaeology and a descriptive written output via a journal or monograph. Somewhere between the two lies the corpus of written material known as grey literature: the ostensibly unpublished outputs often created to inform or satisfy a particular condition required by the curatorial sector. The opinions and perceptions surrounding this corpus are varied, albeit with a long-held belief that it is of poor quality and often inaccessible; a weakness of which is by its very nature cyclical.

This paper presents the findings of recent research on the nature of publication and archiving in Europe, based on regional case studies it presents evidence for the nature of the divide between published and non-published interventions. In many cases, either by accident or design, so-called grey literature is the only written output produced by excavation, including nationally or regionally significant findings. Furthermore, the amount of grey literature often matches or surpasses what may be considered the traditional published record.

Although recent projects have done much to highlight the potential of this corpus, and initiatives such as OAIS and the ADS' Library of Unpublished Fieldwork Reports have made significant strides in publishing fieldwork reports online, the extent of the significance of our grey literature may still be understated. Although the lack of traditional publication may be decreed by some, in contrast to pay-on-access journals and monographs it represents an online and free corpus of information to fieldworkers, researchers and the wider community. It is argued that grey literature is not simply a failure, or a cause for concern, but an opportunity to reverse the traditional crises in publication and to use online systems as part of an evolution in publication strategies of archaeological projects.

Keywords: grey literature, open access, publication

Presentation Preference: Oral

The SITAR project (Rome).

**Achieving interoperability and opening data: practical implementation**

**Author:** Boi, Valeria, archaeological consultant, Rome, Italy (Presenting author)

**Co-author(s):** Dr. Di Giorgio, Sara; Istituto Centrale per il Catalogo Unico delle biblioteche Italiane, Rome, Italy

**Keywords:** ARIADNE, 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 source records - i.e. 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 via STIR Project’s WebGIS portal (http://webas.archeologia.it/projects/stirwebgis/login.php), where they can be freely consulted.

SITAR Project, partner of the Arianide 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 (ICCU) and the University of Padua, and in particular it intends to return to the reflection on the methods for achieving interoperability between databases, on Open Data release within Arianide and the managing and licensing of original archive documents, i.e. grey literature, which have been digitized.

Keywords: ARIADNE, CIDOC-CRM, Open Data

Presentation Preference: Oral

Digiting Early Farming Cultures: integrating resources from Neolithic Greece and Anatolia

**Presentation Preference:** Oral

**TH3-03 Abstract 06**

**Digiting Early Farming Cultures: integrating resources from Neolithic Greece and Anatolia**

**Author:** Dr. Aaspick, Eidefraut, ÖAV, Vienna, Austria (Presenting author)

**Co-author(s):** Òzet, Bülent, ÖAV, Vienna, Austria

**Co-author(s):** Staab, Sven, ÖAV, Vienna, Austria

**Keywords:** Neolithic sites and finds, open data

**Presentation Preference:** Oral

The aims of the project ‘Digiting 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 database 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, typologies 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 online via STIR Project’s WebGIS portal (http://webas.archeologia.it/projects/stirwebgis/login.php), where they can be freely consulted.**

**The study has been carried out in collaboration with the Central Institute for the Union Catalogue of Italian Libraries and Bibliographic Information (ICCU) and the University of Padua, and in particular it intends to return to the reflection on the methods for achieving interoperability between databases, on Open Data release within Arianide and the managing and licensing of original archive documents, i.e. grey literature, which have been digitized.**

**Keywords:** ARIADNE, CIDOC-CRM, Open Data

**Presentation Preference:** Oral

In the past years, infrastructure projects in the Archaeology domain have focused on data aggregation in order to bring to the end users the vast amount of information gathered from various organizations and stakeholders. The typical processes found in a...
THEORETICAL FRAMEWORKS, METHODS, AND SOURCES TO STUDY THE DEVELOPMENT OF MEDIEVAL SOCIETIES IN EUROPE AND THE MEDITERRANEAN WORLD

Thursday, 1 September 2016, 9:00-13:00
Faculty of Philosophy, Room 209

Author - Citter, Carlo, University of Siena, Siena, Italy (Presenting author)
Co-author(s) - Tavernari, Cinzia, Abdullah Gül University, Kayseri, Turkey

Keywords: Europe, Mediterranean, medieval archaeology, theoretical framework, methods, sources

Presentation Preference - Regular session

Studies on medieval archaeology in the Mediterranean regions must relate to chronologies, sources, and material culture which are completely different from those used for Scandinavia, for instance. Northern European regions, in fact, have a close link with the Iron Age, while Late Antiquity is crucial for a comprehensive study of the medieval Mediterranean.

As much as Late Antiquity is strictly connected to the development of Medieval Europe, so are the Byzantine and Islamic worlds. Late Antique, Christian, Byzantine and most of Islamic archaeology are thus parallel worlds marked by indisputable and essential connections, albeit researchers often still work within their disciplinary clusters.

This session wants to invite scholars to move past their disciplinary clusters and contribute to a significant development of a shared knowledge among the archaeologists who focus their efforts to study the archaeology of Europe and the Mediterranean regions AD 400 to 1550. The existence of several different chronological frontiers for archaeologies, whose purpose is to produce knowledge on the same period, for example, tend to encourage the making of clusters. Researchers would surely benefit from a broader contextualization of the information related to a same period.

The very same date of the end of the Middle Ages is debatable when coming to consider medieval archaeology in connection with the Byzantine and the Islamic worlds.

Thus, the session wishes to open a thoroughly debate on the chronologies, the historical questions, the methods, and the kinds of sources archologists use in their daily work-flow over a period of 1050 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.

TH3-04 Abstract 01
Medieval archaeology in Europe. Chronologies, topics, perspectives

Author - Dr. Carlo, Citter, 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. Topics are very different too. 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 in territorial organisation of towns and countryside. While it has different roots outside it. Material culture is different too. The impact of stone architecture is different both in the Mediterranean and the Islamic worlds.

Thus, the session wishes to open a thoroughly debate on the chronologies, the historical questions, the methods, and the kinds of sources archologists use in their daily work-flow over a period of 1050 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.
TH3-04 Abstract 02
Islamic archaeology: theoretical and methodological issues
Author - Asst. prof. Tavneri, Cinzia, Abdullah Gül 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 shaped 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 it came to apply a long durée approach to the study of the material culture and the methods of masonry archaeology to the castles of the Middle East. Like other historical archaeologies, Islamic archaeology has often suffered from a sense of inferiority to the written records and has only recently begun to overcome it.

One of the first and foremost articles dealing with the theoretical issues of the discipline was published at the end of the 1980s (Inoue, 1999) and since that moment publications taking a stake of the discipline and its theoretical frameworks have grown (see for example Walmsley, 2004 and 2013; Mitwight, 2010; Tonghini 2014).

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, Amrana, 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 show 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
Monastic archaeology: sources and methodology in the Mediterranean landscapes
Author - Prof. Staatsa, Francesca Romana, University of Rome Sapienza, Roma, 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 toponography based on the integration of different written records, cartography, iconology compared with the archaeological data giving as return a multi-layered historical perspective with distinguished and integrated levels.

TH3-04 Abstract 05
Early Middle Ages as social conflict: local communities in post-Roman Iberia and the Mediterranean
Author - Dr. Tajarino, Carlos, Gipuzcoa, 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 “ethnicity” 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 naive empiricism which pays little attention to the social and political implications of these written data. However, as philosophers like Štajer, Žizek claims, this “ethnic 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 policies 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 reconstruction 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 L. Wendorf) will be used to interpret some key elements of post-imperial archaeology, using the central part 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 extrapolate conclusions and ideas for other case studies.

TH3-04 Abstract 06
Beyond hierarchy: Common property rights & migration as a factor in rapid change in material culture
Author - Professor Oosthuizen, Susan, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: common property rights, governance, migration
Presentation Preference - Oral
Darband: “The Production of Space” by Henry Lefebvre (1991) outlines three main categories of space: perceived (physical) space, conceived (mythical, conceptualized, encoded) 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.
Sudden and almost complete changes in material culture are, in archaeological contexts, frequently ascribed to migration. An inauspicious arrival 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 ethnogenesis, 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 paper then explores the impact of migration on the daily lives of peasant cultivators through their common property rights in territorial resources. It notes the structural link between property rights and governance, the role of the latter in the regulation, maintenance, protection and enforcement of property rights, and the generalized predictability of frameworks for governing shared resources – in particular their characterization as ‘horizontal’, predicated on equity among all right-holders and exemplified through normative expectations of participation and consensus. It goes on to examine Ravenstein’s (1885) classic conclusions about migrants and the migration process through the lens of common property rights and their characteristic governance structures. It concludes that, however great sudden changes in material culture might be, if there is archaeological evidence for the contemporary continued exploitation of collective resources then it is highly likely that immigrants and their descendants were assimilated into receiving communities and that they were unlikely to have been a driving force in that cultural change.

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.

TH3-05 Abstract 01

**FEMINISM AND MATERIALITY IN ARCHAEOLOGY**

**Saturday, 3 September 2016, 09:00-18:30**

**Faculty of History, Room 211**

**Author**: Hindu-regal, Tove, Gothenburg University, Gothenburg, Sweden (Presenting author)

**Co-author(s)**: Fredengren, Christina, University of Stockholm, Stockholm, Sweden

**Co-author(s)**: Tomasikova, Sylvia, University of North Carolina, Chapel Hill, United States of America

**Keywords**: feminism, materiality, relational

**Presentation Preference**: Regular session

The focus is on various relational and flexible perspectives on archaeology and materiality, a wide subject encompassing fieldwork, museum and heritage archaeology, as well as academic archaeology in research and professional settings. The presentations should also take up material contexts and innovative approaches based in critical theories of intersectionality, queer and black feminism, maroon archology and postcolonial locations. These are perspectives generally critical of the simple use of phenomenology and undifferentiated symbolisms. We suggest that archaeology may have the potential to integrate symbols in our analyses, as materialities - things, structures, practices and bodies – always include symbolic aspects. Another issue worth exploring is the position of humans and living/dead materialities; are we generally in a hegemonic position to animals or dead materialities? Or has this already been challenged with the impact of posthumanist approaches? The subject we want to explore is multifaceted. In accordance with the proposed theoretical perspectives, issues with a potential to be explored within archaeology are: the material body as a site for knowledge production; the politics of material locations and sites: geographical as well as temporal and social. We would be delighted to invite colleagues with diverse backgrounds and locations who are curios about widening practices of feminist, relational approaches to archaeology and materiality.

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**TH3-05 Abstract 02**

**Time, Colonialism and the Intricacy of Relational Practice**

**Author**: Professor Cornel, Per, University of Gothenburg, Västra Frölunda, Sweden (Presenting author)

**Keywords**: Americas, Colonialism, Relationism

**Presentation Preference**: Oral

In the context of destructive and fiecoric 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 encounter is largely one of human exploitive 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 may be an array of theoretical and methodological tools, which includes thoughts from feminist writers like Braudelli. 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. Resisting certain ideas from Marx, perhaps partly surprising, can prove productive and stimulate new approaches to questions of historical process, class and exploitation.

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**TH3-04 Abstract 08**

**Does Chronology Matter?**

**The Early Medieval Venice Narrates through Water, Wood and Labor**

**Author**: Culano, Diego, Stanford University, Stanford, United States of America (Presenting author)

**Keywords**: Anthropological Theory, Ecological Degradation, Historicism

**Presentation Preference**: Oral

How much do the historical events rewritten through archaeology speak for themselves as memories, and how much do the archaeologists construct them into cohesive narratives? This paper aims to consider the demanding activities of sequencing events and building effective chronologies in order to transform archaeological records in meaningful historical events.

Using early medieval Venice and its origins as a test case, I would investigate the political and cultural role of pre-manufactured chronologies built around few problematic texts written sources in the interpretation and narration of the archaeological records. I will also attempt a comparison between the different approaches to the materiality of the Venetian past including both Italian academics, conditioned by a strong historiographic tradition since Croce’s works, and the international scholars’ community.

The paper, integrating ecological degradation and anthropological theory of materiality, aims to reassess the process formation of new settlements in the Venetian lagoons at the end of the Roman period. From Late Antiquity to the Early Middle Ages, specific ethnic and social groups developed a new perception of the geography of Europe and of the Mediterranean region. The unique relationship with the lagoon environment is bringing novel perspectives to the interpretation of archaeological records. I will also attempt a comparison between the different approaches to the materiality of the Venetian past including both Italian academics, conditioned by a strong historiographic tradition since Croce’s works, and the international scholars’ community.

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**TH3-05 Abstract 03**

**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. This 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 posthumanism 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 04**

**Sudden and Almost Complete Changes in Material Culture**

**The Americas and the Intricacy of Relational Practice**

**Author**: Professor Cornel, Per, University of Gothenburg, Västra Frölunda, Sweden (Presenting author)

**Keywords**: Americas, Colonialism, Relationism

**Presentation Preference**: Oral

In the context of destructive and fiecoric 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 encounter is largely one of human exploitive 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 may be an array of theoretical and methodological tools, which includes thoughts from feminist writers like Braudelli. 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. Resisting certain ideas from Marx, perhaps partly surprising, can prove productive and stimulate new approaches to questions of historical process, class and exploitation.

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**TH3-04 Abstract 11**

**The Americas and the Intricacy of Relational Practice**

**Author**: Professor Cornel, Per, University of Gothenburg, Västra Frölunda, Sweden (Presenting author)

**Keywords**: Americas, Colonialism, Relationism

**Presentation Preference**: Oral

In the context of destructive and fiecoric 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 encounter is largely one of human exploitive 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 may be an array of theoretical and methodological tools, which includes thoughts from feminist writers like Braudelli. 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. Resisting certain ideas from Marx, perhaps partly surprising, can prove productive and stimulate new approaches to questions of historical process, class and exploitation.

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**TH3-05 Abstract 05**

**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. This 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 posthumanism 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.
Where is the Feminism in Archaeology?

Keywords: Feminism, Gender, Politics

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 evidence, 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.

Keywords: Binary Perception, Physical Anthropology, Venus

Bones, Stones, and Names - determining and naming prehistoric men and women

TH3-05 Abstract 06

Using methodologies of history of 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, perceiving 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 07

The end of archaeology as we know it

Keywords: Ancient Near Eastern Studies, Archaeology of the gap, Function of theory

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 part 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 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): URF, this is Underground Resistance, unexplainable. 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 ‘docile bodies’? Is it really satisfying to reduce human behaviour to performances of power/ submission?

Keywords: Exceptionalism, Gender, History

Women and archaeology in Portugal during the 60ies of the 20th century: ‘exceptio firmat regulam’?

Keywords: Portugal, Theory, Women

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 60ies, influenced largely by changes observed in culture and cross-border mentality, as witnessed young graduates Portuguese archaeologists academically in other European countries.
TH3-05 Abstract 08
Contributions of social anthropology to the knowledge of the status of adorned bodies in archaeology
Author - Dr. Belaïdi, Chloé, University of Southampton, La Rochelle 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. First, 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 of 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 adorned adorments.

TH3-05 Abstract 09
On flexibility of sexuality in historical Islamic Iran
Author - Prof. Paspil Yazidi, Leila, Nayyikhah, Iran (Presenting author)
Co-author(s): Dezhamkhooy, Maryam, University of Heidelberg, Heidelberg, Germany
Keywords: flexibility, Safavid Iran, Teimurid Iran, sexuality, biocultural, homosexuality
Presentation Preference - Oral
Being propagated repetitively, the general image of contemporary Middle Eastern Muslim women is comprised of feminine bodies draped in black clothing 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 biocultural normative. Very famous pieces of literature such as Qabosnameh [from 10-17 centuries A.D] introduce the only real love, the love between two men or two women. Noteworthy, it seems that modern governments are responsible to change the biocultural as normal sex orientation to heterosexuality in order to control the bodies and also to revise the pre-Islamic value.
Analyzing pre-modern Islamic Shia/a, it is obviously detectable that there were always ways to put these vast ranges of sexual activities out of punishment frameworks. Archaeologically speaking, such a distinctive gender performativity has been materialized in the remained material culture related to the body such as wall paintings, pottery motifs and miniatures. In the first glance, the flexibility of sexuality would be observed within the manner applying by the painters who have visualized the bodies, there are very few distinctions between the bodies of men and women freely acting, practicing sex and everyday life while there were several words addressing several types of sexuality in the literature.
In this article, the authors try to investigate material cultural dated to Teimurid and Safavid era [15-17 centuries A.D] through them they will be able to establish the very different historical framework of gender performativity and the flexibility of sexuality in Teimurid and Safavid Iran. The author try to project “sexual flexibility” as a cultural “situation”. It seems that flexibility goes beyond the contradictory homosexuality/heterosexuality.

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 perspective 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-hulth people of Vancouver Island, British Columbia, create object ‘telling’ (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 growth 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 northwestern Argentina
Author - Alberti, 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 metaphorical 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 people buried with imported grave goods and therefore discussed as indicators for different types of cultural 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 “Högelgräber” – 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 Alpines. 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 isotope analysis on actual mobility models.
Implementing Intersectionality: Diversity of Viking-Age Shields

Author: PhD student O. Näsviköld, Kerstin, Stockholm University, Sundbyberg, 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. All though 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 ‘shield categories’ I explore how different shields related 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 pinpointing 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. Anneli Nordbladh, 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.

Interpreting the late Iron Age record in Gaul

Author: Fleury, Béatrice, Bruxelles, Belgique, (Presenting author)

Presentation Preference: Oral

Late iron age studies, by the very nature of the main written source, “Caesar De Bello Gallicco”, 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 frontiers" (or non-defined genders given the neutrality of linguistic terms “the god of the Celts”, “Les Celtes”, “Celtic art”.

One could argue that in the process of synthetizing 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.

Indeed, interpretation of 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 LIA contexts, and their tangibility in other areas, on different light.

I wish to underline here that I am not writing in the perspective of “feminist archaeology”, but of the overall stream of French new archaeology.

Newer archaeological discoveries of MLT AND LLT in Gaul may enable us to build up means of identifying clues to define missing links so as to rediscover sociological context and interpret the body of record in periods of acute cultural changes in a different light.

In this paper, some new archaeological data from Gaul enable the distinction of criteria to re-examine older records, and develop by way of contextual, spatial, functional, stylistic, regional and chronological comparison, as I have already devised in previous work, approaches or indices to identify the presence/absence of women in the body of records.

Tied to a wider historical framework, and related to other links, this could allow further interpretative writing on causes for culture change, but separated from pure data analysis. Copyright 14 February 2016
A phenomenological turn in archaeological explanation: is it possible?

Author: Assoc. Professor Tsonev, Tsoni, National Institute of Archaeology and Museum - Bulgarian Academy of Sciences, Sofia, Bulgaria (Presenting author)

Archaeology borrows ideas from semiotics which in its reductionist 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, Neolithic, Prehistory

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 (Amel 2002; van Wees 2008). The community acts as a meshwork for how people, things, feelings and ideas are linked by some kind of association. This paper will review the relevant literature focusing on meshworks and develop a model of community based on the dynamic interrelation of elements within a network. It aims to establish a genetic community, diametrically opposed to the static Neolithic community, that by its very nature is always in a state of change.

TH3-06 Abstract 03

A Minoan Meshwork: Gathering the Natural World into Community

Author - Prof. Miller Boneyn, Emily, California State University Fullerton, Long Beach, United States of America (Presenting author)

Keywords: community, Crete, landscape

Presentation Preference - Oral

The making and breaking of community on Crete has been considered within the framework of the search for the emergence of a state understood generally in political and economic terms. Thus the refined luxury of Late Bronze Age Cretan palatial culture (1625-1550 BCE) with its intricate architecture, sumptuous paintings and exquisite works in a broad array of media has commanded scholarly attention. Competitive display by élites accounts in many narratives for the elaboration of the palaces, and Aegeanists have queried into the ways in which power was acquired and deployed and in particular concentrated at the massive site of Knossos. While recent scholarship has looked at earlier periods as something more than just the prelude to the palaces the discussion still envisages community as polity. But Hotchkiss (2007), Goodison (1998) and Chagnon (2001, 2004) have pointed to another element in palatial culture that suggests different ways of envisioning community, the intentional inclusion of the natural world in the organization and appointment of the palaces - orientation toward natural elements, the presence of rough baetyl, and similar features point in this direction. This paper argues that these attunements are more than just referential. Instead they reveal the way in which the life history of community on Crete always was envoked 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 reuse as house tombs providing the new center for social interaction. Animal vases in the tombs further attest 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. 1590 BCE to a reconceptualization 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 fixed at particular sites community on Bronze Age Crete was fluid and defined by the presence of natural features - by vistas, rocks and caves - as 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 community.
TH3-06 Abstract 06
Creeating Locality: Place and Community along a Fen River

Author - Dr. Kohring, Sheila, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Co-author(s) - Boudien, 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 depth and history of a place. However, communities within a given landscape are in constant fluctuation and while certain features may act as physical markers and boundaries of place - even if the narrative associated with them changes - others are forgotten as the community around them reorients and changes the way it collectively understands the world. In essence, some landscape structures become and are maintained as nodes in local knowledge networks while others fall out of networks which signify 'being local'. This paper presents a specific example of how community builds, shifts and re-builds in relation its immediate place along the changing River Oranta (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.

TH3-07 Abstract 01
The Place and Importance of the Working Parties & Committees in the EAA

Author - PhD Yilman, Eminre Murcan, Cultural Awareness Foundation Istanbul
CIE-Center for International Heritage Ac, Istanbul, Turkey (Presenting author)
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, the 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.

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
The working group „Archaeology and Gender in Europe (AGE)“: views on the past and to the future
Author - Dr. Gustavieib Schimm, 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 these 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 the scientific programs. Working groups can organize session within their topics, but besides that there is not much room for the working groups 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 closer to 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, 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 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, Amersfoort, Netherlands (Presenting author)
Keywords: Management, tourism, Archaeological Heritage
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 to 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 in heart.

Our WP explicitly invites participation and input from all stakeholders that are involved in archaeological tourism and strongly support 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 more prominently become part of the decision making processes that concerns archaeological tourism.

TH3-07 Abstract 06
Public archaeology is a martial art
Author - Dr. Richardson, Lorna Jane, University of Umeå, Umeå, Sweden (Presenting author)
Keywords: politics, public archaeology
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 if/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-aa.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 to be found, 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.
UNTOLD STORIES: TECHNOLOGY, LINEARITY AND COMPLEXITY IN ARCHAEOLOGICAL THOUGHT

Thursday, 1 September 2016, 14:00-18:30

Faculty of History, Room 217

Author: Duckworth, Chris, University of Leicester, Leicester, United Kingdom (Presenting author)
Co-author(s): - Govantes Edwards, David, Universidad Nacional a Distancia, Spain

Keywords: Archaeometry, Technology, Theory

Presentation Preference: Regular session

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.

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TH3-08 Abstract 01
Technology and the Arrow of Time

Author: Dr. Duckworth, Chris, University of Leicester, Leicester, United Kingdom (Presenting author)
Co-author(s): - Govantes 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 pyrotechnologies, 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.

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TH3-08 Abstract 02
Embracing variability as a mode of analysis

Author: Dr. Kohringer, Sheila, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: chain of events, 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.

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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): - Kotzev, Kostas, Aristotle University Thessaloniki, Thessaloniki, 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 Varamenoi Gouten and Roditi Palaimbali, which are dated at 6430±5670 and 6220±5890 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.

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TH3-08 Abstract 04
Lost and Found: The Complexity of Find Contexts and the Technology of Bracteate Breakage

Author: Prof. Wieder, 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–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. Drakes in the tidy categization 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 offertary, ritual 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. Heavy, “deluxe” bracteates undoubtedly 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 negate 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 matriarch 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.
TH3-08 Abstract 05
Untold Stories About Ancient Survey: Balbus and his "Expositio et Ratio Omnium Formarum"
Author: Moïncz, Alexandru, Institute of Archaeology, Bucharest, Romania (Presenting author)
Keywords: Balbus and Calusus, 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 technology. 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 mostly 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 Calusus, 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 synthesize 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 reconstitution 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 Calusus), 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
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 5th 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. 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 reconstitution 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 Calusus), 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 07
"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, Ruddip, 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 chemical and archaeology, among 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 be transformed from a chemical perspective as well. Recent research at the University of Oxford has emphasized the subtle variations in chemical composition caused by a unit of metal’s unique life 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.
Digging democracy

Author: -
Co-author(s): -
Keywords: -
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 archaeologists must admit that we also often retail 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 decided to focus on a new generation of archaeological sites so that they can be 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 Tanum 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 sections the section was sampled by a continuous grid and consisted of ten to twenty samples from each structure. These samples were used for geochronological analyses, mainly phosphate, magnetic susceptibility, loss of ignition and lipid acids. These samples were supplemented by samples for macrofossil and radionuclide 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 monuments and mounds won't be erected, but instead represents other parts of the society.

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.

Technological variability of pottery in long-term perspective: a case of the Neolithic settlement

Author: Kvetina, Petr
Institute of Archaeology CAS Prague, Prague, Czech Republic (Presenting author)
Co-author(s): Thir, Richard, Department of Archaeology, University of Hradec Kralove, Hradec Kralove, Czech Republic
Co-author(s): Neumannova, Klara, Institute of Archaeology CAS Prague, Prague, Czech Republic
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 Bylane, located in the Kulna 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 these different groups of pottery that reflect the distinctive technological traditions of specific chronological phases or are there only continual 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 complex 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 partly 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.

COMMUNITIES UNITED: LINKING ARCHAEOLOGICAL RECORD AND CONCEPTUAL APPROACHES ON SOCIAL COHESION

Friday, 2 September 2016, 09:00-16:00
Faculty of History, Room 331
Author: Dietrich, Laura, German Archaeological Institute, Berlin, Germany (Presenting author)
Co-author(s): -
Keywords: Bronze Age, Neolithik, Social cohesion
Presentation Preference: Regular session

The theory of “social cohesion” is one of the core concepts in macro-sociology and social psychology, and its definitions are multiple. In its core meaning cohesion is related to the formation of groups and social bonds, resulting in groups sticking together. The modern idea of social cohesion implies solidarity as well as inclusion and social integration. Social cohesion would thus imply a set of social processes that lead to developing a sense of belonging in a community. In archaeology, this concept has been predominantly related to commensality and the action of feasting, the latter is often seen as a major social strategy in creating cohesion. Other utilizations of the term of “social cohesion” in archaeology include its use as a contrary to social differentiation, or to intra- and inter-group conflicts. The session invites contributions which try to define “social cohesion” based on specific archaeological finds that could reflect possible mechanisms of community formation from the Neolithic to the End of the Bronze Age, as well as limitations in using this concept in archaeology. The analysis should be related specifically to the social strategies involved in the formation of social cohesion and not just to group identities. Study fields could include: formation of social cohesion through collective living, working, eating, fighting, building, burying etc.

Building big. Incentives for cooperative action of hunter-gatherers at early Neolithic Göbekli Tepe

Author: M. A. Dietrich, Oliver, Deutsches Archäologisches Institut, Berlin, Germany (Presenting author)
Keywords: Göbekli Tepe, Neolithik, Social Cohesion
Presentation Preference: Oral

During the 10th and 9th millennia BC, at Göbekli Tepe in southeastern Anatolia monumental circular enclosures made up of up to 5.5 m high pillars decorated richly, mainly with animal motifs, were erected by hunter-gatherer communities. One of the important questions regarding this site concerns the way in which small-scale groups joined their forces for constructing a place that clearly is strongly connected to their worldview. The distribution of elements of Göbekli’s iconography evidences a catchment area of about 200km around the site as the homeland of these groups. 20 years of excavation have revealed some clues. A close look at the massive amount of filling in Göbekli’s enclosures reveals that we are not dealing with sterile sediments. The material used to intentionally backfill the buildings at the end of their use-lifes consists of limestone rubble from the quarries nearby, flint artefacts and immense amounts of animal bones smashed to get to the marrow, clearly the remains of meals. With traces of settlement absent, for Göbekli Tepe this readily leads to the idea of large, ritualized feasts as a mode to gather workforce and ensure cooperation. The present contribution will explore the likeliness and possible consequences of this scenario.

Assessing food sharing and social cohesion in the Neolithic of the Levant

Author: -
Institute of Archaeology, Frankfurt am Main, Germany (Presenting author)
Keywords: Levant, Neolithik, Social cohesion
Presentation Preference: Oral

The formation and perpetuation of social cohesion was often related to food sharing. Food is not consumed without being socially and symbolically transformed and charged with multiple layers of meaning. Individual daily meals contrast and interact with collective commensal activities, like feasting, which are believed to be essential for maintaining the cohesion of societies. However, other interpretations tend to interpret large-scale shared meals rather as activities linked to acquisition of social power or status competition. The present paper will explore the connection between food sharing and social cohesion in the
Late Neolithic settlement of Shfr, 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. Six-called individual single-room houses coexist with ‘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 Haifa Period in Near East (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

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Keywords: Food preparation, commensality, Late Neolithic, pottery and spatial analysis
Presentation Preference - Oral

This paper focusses 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, Staroupoulo (Thessaloniki) and Toumba Kremasti (Kozani). Focused on the typological characteristics of cooking pots, namely their size and shape, in combination with the evidence of cooking facilities it is possible to define more clearly some close connections between groups or ‘households’. The role of cooking pots in Staroupoulo provide evidence for domestic production and consumption of food while in Toumba Kremasti Kiolados the context of consumption of food has been on a more public level. Subtle differences and similarities between houses under 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. Diachenko, 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. Megalithic 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 by and large vice versa 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 in size there show some clear patterning

Building on the ethnographic 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 analyzed with regard to the collective character, which is reflected by different aspects of this specific tradition. The high economic expenditure, the ongoing relevance 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 structure.

TH3-09 Abstract 07
The Boyne Valley, eastern Ireland – the epicentre of a Neolithic ‘super-ordinate’ identity?

Author - McNeill, Thor, NUI Galway, Galway, Ireland (Presenting author)
Keywords: 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 latter 4th millennium BC. The act of building will be considered from the perspective of strengthening group cohesiveness prior to the occurrence of large-scale gatherings at calendrically 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 calenderically scheduled winter solstice gatherings in the reinforcement of group identities will be discussed.
Building and Burying Together to Stay Together

Author: Prof. Milner 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 datable to this period, with the exception of the major sites of KnoSSos and Phaistos, remains scanty. Rather the social cohesion of these clusters of people was promoted 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 organized social cooperation. 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 recalibrated 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 or 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 interment - deposition on the ground accompanied by a few objects. Bodies piled up over time, the desiccated remains swept to the side or long bones and skulls selected while the rest were removed. Some 400-500 years after the tombs were constructed the population finally constructed more substantial tombs that nevertheless allowed individual tombs to continue 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.

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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 Maďarovce) is an Early Bronze Age - tell type settlement at southwest Slovakia. It is surrounded by thermal springs which are famous for their subaquous qualities. An ongoing excavation project (currently 8 excavation seasons) uncovered a medium-sized fortified site, with exceptionally high number of prestigious artifacts of erotic origin and clear evidence of extensive metalworking activities. Ceramic production and consumption is pretty much heterogeneous, with predominant elements of so called manauco, enforced ware and otomani ceramic traditions. The character of uncovered finds as well as geographical position of the site suggests, that Santovka was a place, where identities were able to merge, transform as well as maintain their distinctive character. These processes were obviously dependent of 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 feastig as a background for social cohesion on subconscius level, than other shared ritualized activities are not so different. Moreover, both hunting and grain storage could play a similar role. In this paper we will present the site 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.

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Collective harvesting at Százhalombatta-Földvár, 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-Földvár 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 Berta valley. Százhalombatta-Földvár, Central Hungary is a Bronze Age tell settlement along the Berta 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 was carried out within the framework of an international programme that was set up in order to examine the differences, similarities and connections between different regions of Bronze Age Europe. Százhalombatta-Földvár, due to its size and geographical position, can be considered the head of the Bronze Age chieftain in the Berta 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.

Sickles are common finds at the site of Százhalombatta-Földvár, 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 at other Bronze Age sites from the valley (Priskin 2014). This information suggests the site was a centralised economical activity controlled by Százhalombatta-Földvár. Thereby, harvesting (and sickles) could have been organised among social relations, and could help to keep alive these associations.

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Social cohesion and social disintegration in Bronze Age Italy

Author: Dr. Varziatti, Alessandro, Universitá di Roma "La Sapienza", Roma, Italy (Presenting author)

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Keywords: Bronze Age Italy, social cohesion, social disintegration

Presentation Preference: Oral

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 fascistic structure of power.

Anyway, it is also interesting to deconstruct this view of (ancient) societies, in order to understand how far our research traditions have fossilized our understanding of the past.

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Take an image, it’ll last longer: Mycenaean multimediality, prestige, and competitive conformity

Author: Thaler, Ulrich, German Archaeological Institute, Athens, Greece (Presenting author)

Presentation Preference: Oral

The inherently, literally built-in segregative nature of Mycenaean palaces as the seats of political authority and the role of palatially sponsored feasts, held amongst others at the palace itself, as a means of creating a shared identity and thus fostering social cohesion have been key topics of Mycenaean archaeology for the past two decades. The proposed paper seeks to further highlight the link between creating a common identity and promoting cohesion in the sense of conformity. Beyond ‘making Mycenaean’, as it has been put, how could the palace then make those Mycenaeans fall in line, i.e. bind them to itself and its agenda? Establishing a prestige discourse in which the palace was both the yardstick to gauge one’s standing and the provider of the means to enhance it is suggested as a possible key strategy, clearly 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 event organized by and/or associated with the palace are sought as possible correlates, i.e. physical archaeological evidence, of such a palace-fostered discourse. Specific attention is paid to such potential mementos which transpose iconographic themes closely associated with the socially exclusive architectural setting of the palace itself, e.g. themes in the canos 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 13
Ritual feasting as indication of social cohesion?
A late Bronze Age case study from Romania

Author - Prof. Dr. Metzner-Nebelsiek, Carola, LMU Munich, Munich, Germany (Presenting author)
Co-author(s) - Prof. Dr. Nebelsiek, Louis, Karolinska Stefan Wyszyński University, Warsaw, Poland
Keywords: ritual, feasting, Bronze Age, cohesion, competition
Presentation Preference - Oral

The paper will focus on ritual feasting in the late Bronze Age site of Lapus in Northwest Romania. As a result of an international excavation and research project (Chair for Pre- and Protohistory, LMU Munich, Germany; Maramures County Museum in Bâia Mare, RO; Archaeological Institute, Karolinska Stefan Wyszyński University Warsaw, PL) a monumental, multi-period cult building was uncovered. In each phase a large hall with a central hearth was deliberately destroyed by fire after a period of use and subsequently covered with a clay mantle, on top of which the next hall was erected. Outside those buildings large quantities of pottery vessels of various functions - ranging from storage vessels to delicate cups - have been found. We interpret them as the remains of feasting events of a larger group of people. In accordance with the common interpretation of feasting like creating group identity and cohesion within society we also see oppositional aspects represented in Lapus. As a result of excavations in the past and recent surveys within the project several contemporary or supposedly contemporary barrows with traces of comparable structures were detected. Thus ritual feasting in Lapus may also have functioned as means of competition among different families and an indicator of social distinction and a display of wealth and power.

The paper will address aspects of ritual behaviour on a theoretical as well as evidence based level.

TH3-09 Abstract 14
Do swords make warriors? Identity & cohesion among armed individuals in the European Bronze Age

Author - Notroff, Jens, German Archaeological Institute, Berlin, Germany (Presenting author)
Keywords: Bronze Age, swords, warriorhood
Presentation Preference - Oral

With the rise of the Bronze Age in Europe it seems that the sword as new and innovative weapon suddenly became assigned an importance beyond its mere role as armament. A specialized group referred to as elite warriors in research tradition seemed to have been drawn a certain status from their peculiar role within a social system developing complex group identities and heavily drawing on cohesive communities. In the course of this paper the warrior’s sword will be discussed as tangible (yet not exclusive) manifestation of such a group identity - apparently uniting (and dividing?) different levels of (functional) role and (social) status of Bronze Age warriorhood with a closer look at the weapon’s changing expression in funerary ritual and deposition further explored.

TH3-09 Abstract 15
Social cohesiveness as concept of habitus through the lens of archaeological record

Author - Pape, Eleonore, German Archaeological Institute, Frankfurt am Main, Germany
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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 though 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, Biglowa 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 included Linear Pottery houses in the territory of Poland.

TH3-10 Abstract 02
Ancestral Homes: Household Biographies in Late Iron Age Scotland

Author - Dr. Baster, 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 on a generation by generation basis 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
House and Household – an archaeological approach

Author: PhD Tageesson, 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 in situ, and sometimes 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, Linköping and Linköping with detailed accounts of the households, the owners and the residents. 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.
In the last two decades the history of archaeology has changed beyond recognition. Long gone are the days when a look at the past was the only practice of the discipline. However, even in present-day archaeology, archival sources are often neglected and/or underused. Archives are essential for historians of archaeology, but at the same time they are also invaluable for the everyday practice of archaeologists. The process of archiving is one of the most important features of archaeology and it has had a great influence on the professionalization of the discipline. However, various archival aspects are often overlooked. For example, it has been common practice to separate documents and artifact collections when archiving when they should in fact be included in the archives together as equally important archaeological data. This greatly impacts anyone who studies the past of a particular site, biography of an archaeologist and many other aspects of our discipline. Archives can also provide a starting point for research projects.

The starting point for this session is the broad definition of an archive: archival records including documents, finds and museum collections. We welcome papers from scholars working with historic as well as contemporary archival sources and we also encourage breadth-based humanistic views and interdisciplinary perspectives on archives. By exploring the archive as a concept and by combining various types of archival materials, we can redefine the archive as a resource and gain a new perspective on archive-based research studies.

TH3-11 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 documentation. In my own research on how politics influences archaeology I found that most of the time the answers were found in the archives. 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 overarchging 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 work in the archives of correspondence relating to archaeologists such as Gordon Childe, Christopher Hawkes and Luis 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, archival 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. Theoretical and methodological perspectives in archaeology: archival contents are always being interpreted with a conscious and reflective view on past paradigm shifts 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 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 from previous research adds a new layer of preconceptions.
In this paper we want to develop a very simple linear line of thought about the significance of the archives and archaeological documentation. In one of his papers James Deetz proposed that archaeological documentation, field reports and similar works should be treated as archaeography seeing that they stand in a similar relation to archaeology as ethnography does to ethnology. One could presumes that the term is invented 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 scientific attention to the archives as they hold not only the aforementioned sources, but also artifacts-objects, and thus they 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 archaeological 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 1989, Derrida 1995, Olivier 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). 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 archive of archaeology – as well the acknowledged conceptual overlap between archaeology and the archive – practical considerations of what archaeology might bring to the archive have been relatively rare (Barlow 2012). What is archaeology of the archive?

Following historians of science, Nathan Schlipper has argued that, "To reach the science in the making as much as the apocryphal result, to grasp the quotidian as much as the extraordinary, historians of archaeology need to turn to … the archives. (Deetz 2000: 186)." Archives, more than published results contain the traces of scientific practices – of course, they are, 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.

TH3-11 Abstract 07

Archives and Archaeology: some reflections based on the case study of Veieia

Author - Dott Tamburrino, Eugenio, Universita Ca' Foscarini, Venezia, Italia (Presenting author)
Keywords: archives, history of Roman archaeology, restoration
Presentation Preference - Oral

In present-day archaeological fieldwork, a preliminary phase devoted to solid archival study is increasingly gaining an important role. Nevertheless, archival research has not yet become a "best practice" in archaeological fieldwork. This paper will highlight the importance of archives in archaeological fieldwork, both for reconstructing the history of an archaeological site, as well as for directing excavations and research properly. It is also essential to underline the importance of combining information provided by several archives of different types (cartographic, documentary, photographic), which, mostly and originally, were part of unique archival experiences transformed into other archives, over time.

The importance of archives will be illustrated by means of the case study of Veieia, a Roman settlement located in the northwestern part of Italy. The site was discovered in 1747, when pieces of the famous Tabula Alimentaria Veieanea were unearthed by chance. Such a long history – which consists of moments of excavations and restoration, followed by periodic intervals of inactivity – led to many undocumented changes, even to the planimetry of the buildings, due to restorations conducted without modern methods and cautions. Some restoring operations were undertaken during the excavations, in order to preserve the archaeological remains. Other restorations took place in the first part of the 19th century, due to the work of the architect Giovanni Antonini, and in 1950s, promoted by local tourism authorities, in order to make Veieia more attractive to tourists. Those interventions were conducted in a highly ideological way and transformed the site, in many cases without allowing for the possibility of detecting those changes. In these, cases archives are fundamental to accurate reconstruction of the history of the monuments and the changes they have undergone, as well as to proper planning of archaeological research and interpretation of data. Two examples of these will be found in Veieia, where deep archival study has long been neglected, leading to incorrect interpretations of archaeological remains. Both in the case of the so-called ‘Amphitheatre’ and in that of the sewer system, many incorrect hypotheses were formulated, without attention to the archive. A new archival study undertaken by the author allowed the planning of well-oriented, direct (exploration of the sewer system) and indirect (geophysical prospection) investigations, and thus promoted greater knowledge of the site of Veieia.
Albeit Cynecaica, 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 formal recognition of this area. Europeans could not visit it before the 18th century and, even in the 19th century, travels were still not numerous. Nevertheless, the travelers’ 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, they 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 Cynecaica 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. One of the most remarkable grounds for supporting archaeology was the need to justify an expansion in the Near East 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.

Archives Via Archaeology: the case study of the building beneath Via di San Nicola de’ Cesarini, Rome

Author - Guglielmo, Andrea, Università di Venezia “Ca’ Foscari”, Rome, Italy (Presenting author)

Keywords: Archaeology, Classical Archaeology, Ancient Topography, Topography of Ancient Rome, Ancient Rome, History of Archaeology, Archives Data, Historical Archives, Roman Architecture, Campus Martius

Presentation Preference - Oral

In this paper, I will try to shed light on the discovery of a building excavated during the 1920s and 1930s beneath Via di San Nicola de’ Cesarini, Rome, by means of both archival data and archaeological evidence. Surveying the historical archives of Rome (i.e., unpublished notes, drawings, tracings of brick stamps, and period photographs) allows for both a reconstruction of the appearance of the building at the moment of its discovery, as well as the dating of its phases. The old calzata of the city, the Catasto Pio Gregoriano, and the Cabreo delle fognature della città di Roma, a limited collection of plans and drawings of the ancient and modern drainage system of the city, are also invaluable tools for the completion of this task. Thanks to this work, it will be possible to reconstruct the building in all its phases and to attempt an identification of it, drawing a new and up-to-date archaeological map in order to facilitate future work on the surrounding area.

Digging in the repository: finding the First World War in the University of Glasgow archives

Author - Dr. Novotny, Jennifer, University of Glasgow, Glasgow, United Kingdom (Presenting author)

Keywords: archives, First World War, supermodern

Presentation Preference - Oral

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 archaeologist and historian working in an archive, specifically examining the intersections of these two distinct but related practices whilst undertaking research on the First World War. 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.

Archives and shipwrecks in the Baltic

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Keywords: archives, maritime accidents, shipwrecks

Presentation Preference - Oral

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? 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? Archaeologists and archivists, well placed to talk about a war of overabundant materiality, the epitome of interventionist nature, are well positioned to think archaeologically about these archives, reviewing 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 filled away, some of which survive today. Today we continue to archive the supermodern, seemingly limitless digital files created every day that take up real-world physical space, not in kilomètres of shelves, 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 ships of the 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 Svenskaund took place on 9 July 1790 on the south coast of Finland, outside the modern city of Kotka. The battle was part of the Russo-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 Lehmasaari 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 Lehmasaari 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 relationship between archival documents and underwater archaeological material. The body of material interrogated consists of the archive – both primary and secondary sources – as well as archaeological material.

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: Analysed Archive, 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 were recorded on the finds bowls; 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 sequence. Results demonstrate that activity occurred primarily in the 2nd–1st centuries BC. The chronological analyses have also helped identify ancient curation and provide evidence addressing if Iron Age activity may have been more extensive than the two decades of excavation. Further, this demonstrates the potential that artefacts in older archives have for producing new chronological frames 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 of Rome: a photographic archive for the study of Italian heritage
Author - Foa, Lisa, Roma, Italy (Presenting author)
Keywords: archives, aerial archaeology, Adamesteau
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 2018 – 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, these 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.

The Aerofototeca, founded in 1958, is a historical photographic archive of the ICoD – Istituto Centrale del Catalogo e Documentazione – of the Italian Ministry of Culture (MiBACT). The aerophotographic archive represents a primary source for archaeological research and the safeguarding of our heritage. 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)
Co-author(s) - Osborne-Martin, Erin, Society of Antiquaries of Scotland, Edinburgh, United Kingdom
Keywords: archaeology, digital, publications
Presentation Preference: Oral

The 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, these 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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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.

The archaeological archive at 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.
The Society of Antiquaries of Scotland has been publishing since 1782 and has produced the journal Proceedings of the Society of Antiquaries of Scotland (PSAS) annually since 1851. These volumes provide a record of research excavations, 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 PSAS archive and since 2003, PDFs of papers more than a year old have been available to view freely online via the Archaeological Data Service (http://archaeologicaldatasevice.ac.uk/archives/view/psas/index.html) since 2011, users have downloaded PSAS 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 contain makes it an 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 but 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 1782 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, museums may either display behind glass in museum galleries, or locked away in museum storerooms. Digital archives of 3D images have been changing this situation rapidly, and they are 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 and show how the digital archive is created by creating their digital databases, and will also 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, crowding 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 19**

An essential documentation from the A. D. Archive of Rome to throw light on archaeological issues

**Author:** Vecchione, Alessandro, Sapienza - University of Rome, Rome, Italy (Presenting author)

**Keywords:** archive, Hadrian, Rome

**Presentation Preference:** Poster

In the era of MDAs (Massive Data Acquisition Systems) applied to archaeological sites the battle between the so-called “old” and “new” research methodologies and data recording techniques is burning up. But at the moment there is still something invisible even to the best-equipped tools: the traditional data archives. Thinking as a human being is unavoidable to unlock this large number of items we need to use.

The Historical and contemporary Archives of the Soprintendenza agli Scavi e Monumenti della Provincia di Roma was created in 1780, just a day after the Porta Pia breach and the conquest of Rome by the Kingdom of Italy. The first purpose of the archive was to record all the activities connected to archaeological findings: defending remains and monuments inside the Aurelian Wall and in the wide Lazio countryside asked for, obviously, a huge effort from such a young office.

The author of this paper had different chances to study Emperor Hadrian’s properties; the BA thesis was on Salvatore Aurigemma’s archival fund that provides a huge data about the excavation and safeguarding of Villa Adriana during and after WWII. The MA thesis was on the Gardens of Sallust and offered a new reconstruction of the morphological and structural context of it. In that specific topic the archive was very helpful in providing data for understanding the topographical aspects of the ancient property; moreover, in the archive we can find the correspondence between the Soprintendenza and the private owners of the area and the following legal dispute. Nowadays, the Historical archive of the Soprintendenza Speciale per i Colli, il Museo Nazionale Romano e l’Area Archeologica di Roma is under the responsibility of Alessandra Capodiferro. It’s housed in the National Roman Museum at Palazzo Altemps. The museum and the archive are nowadays strongly linked to each other and to the territory they cover.

The Archive and also its website (http://archeoroma.beniculturali.it/ada, Archeological Data Archive), created in 2004 by Federico Filippi and Lucia Attília, is a public cultural place intended for the community. The contemporary shape of the office is being developed within (and by) the Soprintendenza of Rome within the “Service of Historical Archives”.

The ADA is intended for scholars of Roman archaeology and it has become a meeting place of knowledge sharing and exchange. For that purpose the website hosts a huge number of online data such as the “excavation report”, e-books and, soon to be published, the iconographic collection.

The author of this paper was involved in a nearly two-year long work, supporting the activity of archiving and digitising data into different DB systems. The aforementioned case studies are helpful examples of the role of data archives in present-day archaeological research process.
TH3-12

HOW TO MAKE A FIELD SCHOOL WORK:
MANAGING ISSUES, DANGERS, OPPORTUNITIES

Friday, 2 September 2016, 09:00-16:00
Faculty of Philology, Room 114
TH3-12 Abstract 03

How to improve the offered preparation and avoid the risk of "fake" field school

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
Co-author(s) - Langlitz, Meredith A., 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 Archaeological 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, 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 archaeological and heritage management field school on the island of Menorca (Spain) from 2009 to 2016, which started as a traditional fieldschool but evolved to an "only-heritage" experience. We teach archaeology from a holistic perspective that incorporates the theory and practice of archaeological stewardship: preservation, interpretation, management, and public outreach of archaeological resources. We want to share the reasons for this shift, and the challenges we have faced to make it work.

TH3-12 Abstract 02

The many meanings of Archaelogical Education: field schools in archaeological 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
Co-author(s) - Langlitz, Meredith A., Boston University, Boston, United States of America
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Presentation Preference - Oral

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TH3-12 Abstract 01

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 engagement, 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 transferrable to a broad variety of careers.

TH3-12 Abstract 04

Through the thin mesh - Bucket flotation

In EcoPlis project: 2015 fieldwork

Author - Monstein, Patricia, ICA/EBH/University of Algarve, Faro, Portugal (Presenting author)
Co-author(s) - Matias, Rosana, Núcleo de Alunos de Arqueologia e Paleoecologia da Universidade do Algarve, Faro, Portugal
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Co-author(s) - Carvalho, Vínia, Cmara Municipal de Leiria, Leiria, Portugal
Keywords: Paleoecologia, Paleoecology, Flotation, Archaeological fieldwork
Presentation Preference - Oral
Running Your Dissertation as a Field School: Pros and cons for both instructor and students

Author - Polotar, Darren, SUNY Buffalo, Tonawanda, United States of America (Presenting author)

Keywords: Archaeologists, Field School, Teaching

Presentation Preference - Oral

Since 2010 the Cumidava Archaeological Research Project (CARP) has been run as field school, well as providing the archaeological data for dissertation research. Developed from positive first-hand experience the PhD candidate received immediately after undergrad, it has served to create a learning experience for students that not only instructed, but also conveyed passion for archaeology. CARP has experimented with team size, staffing, accommodations, work load, and price over its history. Operating outside of the university structure, much of this had to be worked out through trial and error. Through it all, there was always a strong emphasis on engaging with students and treating them as junior colleagues, teaching archaeology beyond the excavating part, and keeping it affordable. This paper discusses how this ethos was maintained and thrived, and possible ways that large institutionalized projects could improve the students’ experience.

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 formative process consists in the traditional teaching of fieldwork techniques and a first analysis of the material culture recovered on site.

In addition, a second school has been set up focusing on Material Culture Studies. Usually, the participants learn about Roman material culture through a series of introductory lectures on a specific class of material (glass, pottery, small finds, faunal remains, environmental samples etc). Then, they spend a week working hands on the finds recovered during the excavations. They learn how to deal with material culture, in terms of reconstructing the economy and society behind it, how to draw archaeological finds and how to reach a chronology for the context first, and the settlement then.

This paper will describe the construction of the training school at the Alberese Archaeological Project, emphasizing the reasons (as well as the benefits) of paying tuition fees and how the schools work in the direction of satisfying the participants’ expectations. Data will be provided to quantify and measure the results of the schools in terms of future employment for the participants. Finally, this 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 can provide.

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 has to provide students their first chance of gaining field-working experience and engage the local communities, bearing in mind the financial issues.
Theoretical and methodological perspectives in archaeology

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 valorisation.

The second purpose is to explore limitations in achieving financial self-sufficiency 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 funds 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 “St. Kliment Ohridski” in Bulgaria and Saarland University in Germany. The international project was led by prof. Alexander For, prof. Jan Lichardus, prof. Francisc Bartemes and Iliya Iliev.

The aim of this poster is to represent the results from the past years, showing the excellent collaboration between the Regional historical museum in Yambol and the University of Library Studies and Information Technologies in Sofia. The archaeological site Malkoto kale has become a place for students studying areas such as “Information Collections of the Cultural and Historical Heritage” and “Information Resources of Tourism” to further their studies in the summer. The work on the archaeological site permits students to become acquainted with an “immovable cultural heritage”. At the same time, they have the opportunity to touch archaeological artefacts which are “movable culture heritage”.

The aim of this poster is to represent the results from the past years, showing the excellent collaboration between the Regional historical museum in Yambol and the University of Library Studies and Information Technologies in Sofia. Many students who participated in these archaeological excavations have been successfully recognized after graduation in both of these specialties.

TH3-12 Abstract 11
The archaeological field school in Malkoto kale near the village of Voden, Bulgaria

Author - Bakardzhiev, Stefan, Regional historical museum - Yambol, Yambol, Bulgaria (Presenting author)

Presentation Preference - Poster

Malkoto kale represents a Medieval castle. The site is situated near the village of Voden, in the Yambol municipality. It is situated on a small pick which is only accessible from the south. The area of the site is 0.09 ha. The castle appeared in 10 c. when modern day Bulgarian lands were included in the borders of the Byzantium Empire. Malkoto kale was destroyed at the end of the 12 c. during the Third Crusade, lead by Friedrich Barbarossa (1122 – 1190). In 1189, the German Crusades crossed the Thracian territory on their way to Holy Lands.

In 2011, a joint project begun between the Regional Historical museum in Yambol and the University of Library Studies and Information Technologies in Sofia. The archaeological site Malkoto kale has become a place for students studying areas such as “Information Collections of the Cultural and Historical Heritage” and “Information Resources of Tourism” to further their studies in the summer. The work on the archaeological site permits students to become acquainted with an “immovable cultural heritage”. At the same time, they have the opportunity to touch archaeological artefacts which are “movable culture heritage”.

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.
CREATIVE ARCHAEOLOGIES II
CONTINUING THEORY AND PRACTICE
IN A NEW BRANCH WITHIN THE FIELD OF ARCHAEOLOGY

Saturday, 3 September 2016, 09:00-13:00
Faculty of Philology, Room 114
Author - Dr. Mikluž, Dimitrij, University of Ljubljana, Institute for the protection of Cultural heritage, Ljubljana, Slovenia (Presenting author)
Keywords: art, carpentry, theory
Presentation Preference - Oral
In the introduction to his book “Alien Phenomenology” (2012) Ian Bogost suggests that philosophers ought not just to write philosophy, at least not without practicing, doing, or making. He urges engagement in carpentry: constructing artifacts that do philosophy. This is more than artistic practice, carpentry is a perspective on creative work that asks philosophical questions. Or put in another way, carpentry is what you call it when things (including art) are used or made for philosophical use. I want do explore the use of carpentry as new forms of creative practice in archaeology, playful practice, that can help us to develop and conceptualize new approaches.

Among The Dead Dunes, Some Trees Grow Like The Sun
Author - Dr. MacGregor, Gavin, NorthRith Heritage, Glasgow, United Kingdom (Presenting author)
Keywords: Archaeology, Art, Creativity
Presentation Preference - Oral
In this piece,
You may encounter the past,
but you might leave
Holding the future in your hands.

The Archaeology of Pinboards –
the future and the past in ads and posters
Author - Archaeological Grahn Danielson, Benjamin, Pioea kulturarn, 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 than two hours a group of artists, asaymeeakers 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.

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.
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 concept, 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. This balance discussions from sections 1 and 2, the final section tied to real data. Drawing from the first database of archaeological field schools in the UK and from a question 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 consensus over the definition and expectations of field schools, fuelled by a lack 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 requirements by 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 06**

**Visual aesthetic of archaeological practice: a creative approach**

**Author:** Mermel-Martinez, José-Antonio, Arqueologia de Guardas Association, Beniaján (Murcia), Spain (Presenting author)

**Keywords:** archaeological practice, Archaeological theory, creative archaeology

**Presentation Preference:** Oral

The image projected by the archaeologists in the archaeological practice on the sites has set the social valuation of Archaeology in terms of relevance and usefulness. However, the procedures followed in the archaeological research have blocked, in many cases, the consideration of Archaeology as an artistic practice to integrate, on purpose, the archaeological works into the citizen’s interests. Taken into account the destruction of social, cultural conventions which are posed by some special visual styles as Street Art and Photo/Video journalism, it is analyzed the creation of archaeological Ethnography to identify visual patterns which belong to the archaeological practice, which transform it into an aesthetic of movements, to allow the reflection about the concept of “universality”. This go beyond the Theory and has been applied on practice during a field school of Archaeology done at an official High School of the Spanish State, in Murcia, in which was made relevant the presentation of new ways to understand common values of Archaeology as the experience, materiality and temporality through playing with the visual perceptions of both artistic and archaeological practices, with the creation of Art and the take of consciousness. This, finally, propose us two interesting conceptions to the Archaeology: the inclusion of creative ways to see the meanings of archaeological practice, and the utilization of Archaeology in an artistic act to fight the injustice derived from the integration processes at the moment of its formation.

**TH3-13 Abstract 07**

**Kulmin - digital dissemination of cultural heritage**

**Author:** Presloevd, Kristin, Sør-Trøndelag County Authority, Trondheim, Norway (Presenting author)

**Keywords:** digital dissemination, Kulmin

**Presentation Preference:** Oral

How do we inspire curiosity and interest in heritage and cultural history when the personal guide is absent? How can we create wonder and sense of place and time in the encounter between people and cultural heritage without a good storyteller?

Sør-Trøndelag County Authority has developed a product and a strategy for digital dissemination of cultural heritage via mobile phones and tablets named Kulmin. Focus is on the good story, the good storyline. Focus is men, women and children's encounters with the cultural heritage. The monuments and sites are makes vivid and dramatic through text, audio and video on mobile phones and tablets named Kulmin. Focus is on the good story, the good storyline. Focus is men, women and children’s encounters with the cultural heritage. The monuments and sites are made vivid and dramatic through text, audio and video on mobile phones and tablets named Kulmin. Focus is on the good story, the good storyline. Focus is men, women and children’s encounters with the cultural heritage. The monuments and sites are made vivid and dramatic through text, audio and video on mobile phones and tablets named Kulmin. Focus is on the good story, the good storyline. Focus is men, women and children’s encounters with the cultural heritage. The monuments and sites are made vivid and dramatic through text, audio and video.

The dissemination has included input from the hearing and visually impaired, and the contents should be understandable and engaging independent of the user’s ability or disable. The aim of Kulmin is to make cultural heritage accessible to all. Kulmin takes the step from protection of our cultural heritage to facilitate, make available and visualize the historical monuments and sites. Kulmin as a product is not technologically advanced. The innovative aspect of Kulmin is in how heritage is being conveyed. Technology is only the tool, the content is the king with an aim to capture the interest and create curiosity. Dramatizing the past through the good story makes the cultural heritage more accessible and exciting.
SETTLEMENT VARIABILITY AND SOCIO-ECONOMIC PROCESSES

TH3-14

Theoretical and methodological perspectives in archaeology

TH3-14 Abstract 01

Farms, hamlets, villages and towns. Settlement variability in Early Modern Scandinavia

Author - Dr. Rosén, Christina, Arkeologiska SHMF, Töljå, Sweden (Presenting author)

Keywords: Early Modern, Scandinavia, Settlement

Presentation Preference - Oral

Words like farm, hamlet, village or town are often used to describe different kinds of settlements but they are not simple and straightforward. Archival sources, maps and archaeological records show no clear link between spatial form, socio-economic situation and jurisdictional status. The same general form may correspond to different socio-economic situations. In this paper I will discuss settlements by taking variability as the starting point rather than pre-conceived concepts and models. Maps, tax registers and archaeological records from several parts of Scandinavia will be discussed with a focus on Western Sweden.

TH3-14 Abstract 02

Areas reserved for rich and populated by poor or melange of many factors?

Author - Dr. Sappärinen, Liisa, University of Turku, Turku, Finland (Presenting author)

Keywords: socio-topography, layout, Turku, early modern, urban settlement

Presentation Preference - Oral

Research, even if focused on the same topic, is relevant and has many variables, which may change in the course of time affecting approaches, methods and results in remarkable ways. In urban contexts in Finland, archaeological practise has long been restricted by the existence of studies based on historical information, which however is not abundant or diverse. The supremacy of historical studies has especially affected the research of the early modern and modern periods in those towns with earlier history where the focus of archaeological research has been in medieval periods. During the last two decades, archaeological excavations have increased the amount of source material, which offers an interesting supplement for historical studies and cartographical information.

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 Finland. The first presentation of the layout of the city are from the 1630s and had 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 conceptions and interpretations about the socio-topography of Turku in earlier periods and on what grounds? The city is a living organism that is always changing depending on 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 analysis of the 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 04

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 on the different quarter, 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 05

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, Huseby, Husby, Hossby, Huseby etc. have been a relevant topic in historical, archaeology-cate 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 husbyy) 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 theses on 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.
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 more often than not be a logical hindrance. Settlement analysis would be more adequately served 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 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 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 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.

The ecclesiastical settlements which were founded from the mid-fifth century on provided Ireland with its first permanent, large scale urban centres of production and distribution. These ecclesiastical settlements were intrinsically part of a larger economic, political, and social network that connected the monastic sites to each other as well as to the surrounding rural communities. The relationship between these two worlds was not always peaceful, as there were instances of conflict and violence between the monastics and the laity. However, these settlements also served as important centres of learning and culture, with scholars and monks travelling between them to exchange knowledge and ideas. This triadic model of settlement analysis, which considers the material remains, the socio-economic context, and the outcomes of this interaction, allows for a more nuanced understanding of the processes that shaped the early medieval landscape in Ireland.

The conquest of the Kingdom of Granada means radical changes in the management of natural and agricultural areas. Depopulated villages, rural archaeology, settlement pattern change in crop and livestock management practices in the Kingdom of Granada. The multi-proxy approach to establish a method enabling the identification of settlement success is measured not only by a relationship between material form and socio-economic situation, but also by the outcome of their relationships. 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 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.

The manner in which the dead are treated is indicative of how people saw themselves in the landscape. The transfer of bodies from family-oriented graves, including fetsa, which were often used as boundary markers, towards community cemeteries may indicate a changing nature of belonging, as the narrowing of the kin-group meant that less people would have been eligible for inclusion in these types of graves. This change in morphology after this period, many being re-occupied in the later medieval period, its possible their location echoed a shift in the social and economic structure of the 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 alminias were built, partly thanks to the water management. It was known as “Cáceres 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, data that marked the end of the Christian conquest of the whole Peninsula. At that point, after 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 waling 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.

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 rearrangement of populations and a growing process of occupation and marginalization of the rural world is observed, which led to a violent confrontation between old and new Christians. 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 rearrangement of populations and a growing process of occupation and marginalization of the rural world is observed, which led to a violent confrontation between old and new Christians. 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 rearrangement of populations and a growing process of occupation and marginalization of the rural world is observed, which led to a violent confrontation between old and new Christians. 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 rearrangement of populations and a growing process of occupation and marginalization of the rural world is observed, which led to a violent confrontation between old and new Christians. 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 rearrangement of populations and a growing process of occupation and marginalization of the rural world is observed, which led to a violent confrontation between old and new Christians.

The multi-proxy approach on identifying stable patterns in prehistoric times.

The identification of stable patterns in prehistoric settlements often depends on exceptional preservation conditions or geochemical analysis of sediments. But it is possible to determine patterns of architectural 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 stability. The initial attempt is based on excavation examples with extraordinary preservation conditions especially from the northern sea or lake sites with proof of existing or non-existing stable features. But also settlements with inferior preservation can hold evidence of stability 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. Kaczmarska, Ryszard, Nicolaus Copernicus University, Torun, Poland

**Keywords:** Pomerania, Islands, Religion, Slavs

**Presentation Preference:** Oral

The baptism of Mieszko I, the founder of Polish state, in 966, had been, for the Slavs living in the Odra and Vistula basin, an important caesura between a pagan style of life and the new, Christian one. For a long time, among medievalists and archaeologists, the knowledge on this topic has been based on researched proto urban centers such as Szczechow, Wolin, Kolobrzeg and Gdansk. So far, little attention has been paid to the centers located on the islands of Pomerania Lakeland. However, since 2004, in the Institute of Archaeology at Nicolaus Copernicus University in Torun, a research on the significance of these islands in the socio-economic and religious life of Slavs in the times of ideological and political transformation at the end of the 1st and the beginning of the 2nd millennium A.D. has been undertaken. Currently, the research is being conducted in several such places. The Island of Żółte, 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.

**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. Dushchenko, Aleksandr, Institute of Archaeology of the NAS of Ukraine, Kyiv, Ukraine

**Keywords:** demographic development, settlement, social complexity

**Presentation Preference:** Oral

Over simplification understanding of the general systems theory with its concepts of balance, positive and negative feedback strongly related population growth and increase in social complexity and economy to each other. Meanwhile, recent studies showed disproportions between demographic trends and socio-economic transformations worldwide. Concerning the simulations based upon the Cucuteni-Tripolye settlements and their systems, this paper presents the deep non-linear patterns of demographic development that in many cases may be wrongly taken for specific types of socio-political organization.

**TH3-14 Abstract 12**

**Settlement and Process in Colonial Encounters**

**Author:** Professor Cornell, Per, University of Gothenburg, Västra Frölunda, Sweden (Presenting author)  
**Keywords:** Colonisation, Settlement, Socioeconomic

**Presentation Preference:** Oral

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 Cafayqui river system in today’s Northern Argentina. Questions of relationism and encounters will be addressed, but in particular the relation between settlement organization and the socio-economic. The potentials of the concept of mode of production, in a new revised version, will be tested.

**TH3-14 Abstract 13**

**Society in flux: Evidence from the middle/late Northern Württembergian Urnfield Culture**

**Author:** Giroto, Chiara, University of Durham, Durham, United Kingdom (Presenting author)  
**Keywords:** Northern Württemberg, stratification, Urnfield Culture

**Presentation Preference:** Poster

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) 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 over 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 interfered 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.

Overall 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 rurality. 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.
THE ATLANTIC ARC AND ITS NEIGHBOURS IN THE FIRST MILLENNIUM AD: FRAMING NEW PERSPECTIVES

Friday, 2 September 2016, 14:00-16:00
Faculty of Philology, Room A7

Author: Gleason, Patrick, Newcastle University, Newcastle Upon Tyne, United Kingdom (Presenting author)
Co-author(s): O’ Riagáin, Russell, Ruprecht-Karls Universität, Heidelberg, Germany

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 conceptions 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, emphasising 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 and between the regions.

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 this 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 conceptual context. 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 01
The materiality of early Christianity: stone and the sea in western Scotland

Author: Dr. Maldonado, Adhrig, University of Glasgow, Glasgow, United Kingdom (Presenting author)

Keywords: Christianity, materiality, religion
Presentation Preference - Oral

Narratives of conversion to Christianity in Britain and Ireland prioritise the actions of human agents and the agency of their bodily remains. However, unlike much of western Christendom, the insular Atlantic provinces are characterised by a relative disinterest in translating and venerating the relics of the saintly dead before the 7th century. It is worth asking how saints and their bodily remains. However, unlike much of western Christendom, the insular Atlantic provinces are characterised by a relative disinterest in translating and venerating the relics of the saintly dead before the 7th century. It is worth asking how saints and their bodily remains.

The movement of stones by sea is one way in which these attitudes can be spotted; water-worn boulders are frequently used, utilising case studies from across the Atlantic Arc. One distinctive way in which the sacred dead and holy places were materialised is by carving names and crosses in stone. An embodied perspective of these carved stones, from sourcing and materialisation is by carving names and crosses in stone. An embodied perspective of these carved stones, from sourcing and materialisation is by carving names and crosses in stone.

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TH3-15 Abstract 02
Comparing early Christian stone monuments in north-western Europe: movement and identity

Author: Busset, Anusk, University of Glasgow, Glasgow, United Kingdom (Presenting author)

Keywords: carved stones, Christianity, movement
Presentation Preference - Oral

Stone monuments have been used by people for many centuries; as a medium for expressing messages and ideals, and as a means of transforming the landscape. During the early medieval period, this tradition developed, and indeed flourished, principally at the north-western edges of Europe. With Christianisation, carved stones were adopted as a prominent part in the process, by embodying and expressing Christianity as part of identities chosen by elites, and to convey a message of power in the landscape. Both secular and religious elites from north-western Europe commissioned and erected stone monuments in the landscape for a variety of reasons; for example, as a memorial practice, or to convey a message of power over both the people and the landscapes they experienced, inhabited, traversed, and assembled in throughout their lives. The widespread nature of the erection of stone monuments thus lends itself particularly well to a comparative study. By situating these monuments within a macro-scale approach and placing them in a wider context, the individuality of stones can be analysed and further understood. This paper will thus present early Christian carved stones and rune stones from Ireland, Scotland and Scandinavia using a three-level comparative approach developed in my recently completed PhD thesis, which consists in looking at and comparing the monuments, the landscapes they are erected in, and ultimately their role within the Christianisation process.

The theme of movement in the landscape, and how it is created by the presence of early Christian carved stones, will be used as a common thread.
demonstrate transition over time. It will highlight how at key historic centres in Ireland early Roman influences became embedded into a syncretic Romano-Irish ritual practice, which in time paved the way for the adoption of Christianity in Ireland.

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/regionalism 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, Finno-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 Polish, German, and Swedish states will be discussed in this Theme.

Archaeological and Historical Museum

Co-author(s) - Zabiela, Gintautas, Klaipėdos universiteto

Institute of Baltic Region History and Archaeology, Klaipėda, Lithuania

TH4-02 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.

TH4-02 Abstract 02

The evolution of hillforts in Lithuania according the C14 data

Author - Ass. prof. Zabiles, 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 hillforts were designed in basis of typological dating of archaeological artefacts. Until the last decade of this century the C14 data in Lithuania were made seldom
and majority 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. Meseal, Sebastian, German Archaeological Institute, Berlin, Germany (Presenting author)
Co-author(s) - Zabiela, Gintautas, 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 cooperation also several hillforts (Taurapilis, Opatnica/Vilkiskiai, Jakai) 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 archaeological monuments. For some sites the surveys also provided very precise and hillforts unknown information about the settlement context like in Taurapilis and Opatnica/Vilkiskiai (fortification ditches) or Jakai/Smardantai (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. Stancikaite, Migle, 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 – Early Middle Ages), Skomantai (Early Iron Age-Migration Period and the mid-13th-c mid-14th-c AD), Juodonna (the early Iron Age – the Early Middle Ages) and Petraitai (1st-3rd century AD – Historical times) hillforts or in the closest vicinities of mentioned monuments. The application of geophysical investigations conducted on different chronological and spatial scale all over the Europe, territory of Lithuania was not exception and pollen, plant macrofossil, diatom or phytolith analysis was carried out in the environs of the hillforts. In mostly cases, these investigations was a part of complex interdisciplinary approach that provided scientists with complex information dealing with palaeoenvironmental, economical, chronological, cultural and etc. context of the investigated monument and surroundings during the 1-2 millennia AD. Hereinafter a new data revealing the peculiarities of the vegetation patter, introduction and expansion of the cultural plants and cultivars or indicating changes of the cultural traditions were obtained based on results of pollen survey. The presentation deals with two strongholds located in Zamland close to the coast of Baltic Sea near to each other. Test excavation of ramparts and ditches showed not very complicated stratigraphy. Hand made pottery of Prussian type was present at the bottom of the ditch. Radiocarbon date 1240 ± 30 (GIN-15093) fits well with traditional chronological date of Prussian ceramic. Main question we tried to answer was if these strongholds were the places of concentration of population and activities? First part of the question got the negative answer. Second part of the question got not so clear answer. Various forms of reconstructed activities are discussed in report.

TH4-02 Abstract 06
Hillforts Kringliten and Dienews in Zamland - versions of interpretations

Author - PhD Krieke, Nikolay, Institute of Archaeology RAS, Moscow, Russian Federation (Presenting author)
Co-author(s) - Eriksen, Ivan, Institute of Archaeology RAS, Moscow, Russian Federation
Co-author(s) - Raeva, Vera, Institute of Archaeology RAS, Moscow, Russian Federation

Keywords: hillfort, pottery, radiocarbon

Presentation Preference - Oral

The presentation deals with two strongholds located in Zamland close to the coast of Baltic Sea near to each other. Test excavation of ramparts and ditches showed not very complicated stratigraphy. Hand made pottery of Prussian type was present at the bottom of the ditch. Radiocarbon date 1240 ± 30 (GIN-15093) fits well with traditional chronological date of Prussian ceramic. Main question we tried to answer was if these strongholds were the places of concentration of population and activities? First part of the question got the negative answer. Second part of the question got not so clear answer. Various forms of reconstructed activities are discussed in report.

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 described on a military-strategic background since the beginning of the archaeological research in the 19th century the number of intensively investigated monuments until is now surprisingly low. Especially the northern part of former East Prussia, nowadays as Kaliningradskaya 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 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 the 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 Kalingrad 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 rampan of several hillforts in Lithuanias 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:** Podelecki, 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 are 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 practices comparable.

With application of behavioral archaeology theory, the research of the formation processes of Narkūnai “Dūbin” hillfort is presented as a case study with spatial analysis of household and technical ceramics, bone assemblages 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, Rīda and Krivkānu hillforts. In addition, distribution of early hillforts and early hillforts as a behavioral expression in the East Baltic region and its chronological character are analyzed.

Typologically most of the earliest finds from the hillforts are attributed to PN-VI, with exception to the bone pins with nail-shaped head and Majdłowie type bronze pin that indicate a possible end of PIII. Casting moulds for socketed axes from Narkūnai, Galva and Bērziņi, casting moulds from Krivkānu and Brīvīšu hillforts, and casting moulds for spearheads from Asva, Brīvīšu and Krivkānu hillforts are one of the earliest evidences, dated to PN-VI, of locally executed metallurgy in East Baltic region. The historigraphical classic route of Daugava river seems to attract most of the early metalworkers. Casting moulds for Māleri-type socketed axes are an indication of earliest metalworking activities in the hillforts. The latter casting moulds, like the rest of the technical ceramics types, are scarce, with similar amounts in Narkūnai and Krivkānu and one newly found in the National Museum of Lithuania from Gāmaļi hillfort. However, the Māleri-type bronze axes are not specific to the East Baltic region, on the contrast the axes are mostly found in Sambia and in Upper Volga region of the inseparable Azorino-type axes. Furthermore, spatial analysis of Narkūnai hillfort technical ceramics indicate that the Māleri-type bronze axes had 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 behind 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:** Niedźwiadek, 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 eastern Lower Lusatia and Western Pomerania, several cases are 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 early Lusatian culture in 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. Silvia, Jerzy, Institute of Archaeology University of Lodz, Lodz, Poland (Presenting author)

**Co-author(s):** Dr. Kliś, Piotr, Department of Geomorphology and Palaeogeography, Faculty of Geological Science, Lodz, 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 1930s. 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 ring-fort is 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 geochronological methods were undertaken. Multiple methods such as magnetic gradiometry, earth resistance, aerial prospection, photoplate prospecting 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 Celm, the course of not preserved ramparts in Błowe and Pijark, a previously unknown second, smaller ring-fort in Stare Biszowce. 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. The excavations were excavated in 1940s but reevaluation 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 Rajskà river in the central part of valley floor, but on the Pleistocene alluvial 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 palaeoenvironmental 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 from times of a late medieval mote and bailey residences, which replaced an older, early medieval ring-fort. The surveys revealed the existence of earthen and timber ramparts as well as moats with a depth of up to 1.4 m with organic fill of gypa and peat and partially inorganic deposits with rich remains of woods as well as other organic materials. The results correspond to various geophysical anomalies and crop marks documented during aerial reconnaissance.

Acknowledgements. This research project was financed by three one-year grants from The Ministry of Culture and National Heritage No. 01613/13/FPK/ND (2013), 4962/14/FPK/ND (2014), 4962/14/FPK/ND (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 Holtenstedt the Carolingian Holdunsteti from 804 AD?**

**New contributions to an old controversy**

**Author:** Dr. Schneeweiss, Jens, Institute for the History of Material Culture RAS, Saint Petersburg, Russian Federation (Presenting author)

**Co-author(s):** Dr. Brandt, Jochen, Archäologisches Museum Hamburg/Helmussmuseum, Hamburg, Germany

**Keywords:** Carolingian Border, ceramics, dendrochronology

**Presentation Preference:** Oral

The stronghold “Alte Burg” near the village of Holtenstedt is an Early Medieval fortification, which was long-interpreted as the place where Charlemagne met representatives of the Danish king Godfred 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 history of interpretation of the site but especially for the understanding of the ceramic finds. The excavations at Holtenstedt revealed a unique complex of pottery showing both Saxonian and Slavonic influences. The solution to the dating problem can establish Holtenstedt as a reference site for those “hybrid” ceramics. In autumn 2014 recent research including excavation and geophysical survey provided new data that are presented in the 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 dictur Holdunsteti” in the Royal Frankish Annals in 804 AD.
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.
Keywords: Bronze Age Cairns, Gotland, Ritual Practice

Presentation Preference: Oral

There are over a thousand cairns on Gotland that has been discussed as burial sites belonging to the Bronze Age and around 200 of these have monumental dimensions, ranging from 20 to 56 meter in diameter and 2.5-7 meter high. Only a few of these structures have been partly excavated and only one has 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 (Uggarderojr, Digerrojr and Hägrör) and re-examination of the material excavated at Kauparverojr 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 ritual environment during several thousand years.

TH4-04 Abstract 03

Patterns or randomness? Contextualising Estonian Bronze Age bronze stray finds on the landscape

Author: Paavel, Kristiina, 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 willed 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): Martinsson-Wallin, Hekne, Uppsala Universitet, Visby, Sweden

Co-author(s): Wahlin, Joakim, Dalarnas Museum, Falun, 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 Gothemshammar and to understand its location in the surrounding landscape. Excavations into the feature uncovered its internal construction details, as well as, datable 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 Gothemshammar 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, Zilinskaite, Vilnius University, Vilnius, 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 pots and hoards of 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 neighboring 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 (Mlar type 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 functioned 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, Valerie, University of Tartu, Tartu, Estonia (Presenting author)

Keywords: Bronze Age, Finno-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 byITO material, but 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 this 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, Eastern Baltic. 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.

**TH4-04 Abstract 09**

**The Early Roman Iron Age site at Ellinmäki, Rauma Finland**

**Author:** PhD Uotila, Kari, Muuritutkimus, Kaarina, Finland (Presenting author)

**Keywords:** digital documentation, early Roman, iron finds

**Presentation Preference** - Poster

During the years 2001-2015 of field studies both ground-penetrating radar and aerial photographing with a drone were tested. Documenting of the carns was mostly done with laser scanning technique. This is the largest 3D-documentated Early Roman Iron Age site in Finland.

The site was 3.5 hectares and it was surveyed in several phases. New cairns were found from the forested terrain during each of the last phase of the excavation the whole hill was opened with a digger, which revealed about 250 carns. Based on this the total number of carns can be estimated to have been about 300 and about 200 of these have been man made.

From between the stone mounds a concentration of over 2500 mortar-pottery shards was found. This has been interpreted as a part of a settlement site. In this area also pieces of burned bone were excavated. From these bones of fish, seal and one bone from either a sheep or a goat were identified. Macrofossil analysis revealed seeds of barley and wheat.

The most surprising finds were two iron bracelets, two pieces from iron knives and two small pieces of iron. These were all found from a cairn located at the highest outcrop of rock in the area. The cairn was covered with red sandstone slabs. There was also another cairn which was covered with sandstone slabs in the area but it revealed no finds.

The iron bracelets are a very rare find from an Early Roman Iron Age site in Finland and they suggest connections to the Baltic region.
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.

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.
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 minor barrows of the same period were discovered. In recent years a new settlement has been discovered to the NW of the rich 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 (ZBSA), 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 material and an isolation. 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.

TH4-05 Abstract 03
Rosenholmje
a central site in Middle Jutland

Author - Olsen, Martin, Winther, 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, Rosenholmje. 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 graves with gravegoods and constructions that place them in the upper social hierarchy. 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 “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.

TH4-05 Abstract 04

Studying the Iron Age Settlements in Lithuania: Current issues and Future Directions

Author - Dr. Vengalis, Rokas, Lithuanian History Institute, Vilnius, Lithuania (Presenting author)

Keywords: prehistoric settlements, settlement pattern, survey

Presentation Preference - Oral

The research of the Iron Age in Lithuania (which is dated to the 1st millennium A.D. 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 the these communities.

There is quite a challenge encountered in attempting to analyze the intra-site structure of settlements 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 the Kernavė 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 representativity 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 on several thousand deniers. This now provides new potential for re-analysis.

Another barrier is the lack of research on a microregional level aimed at complexes of hillforts and barrow cemeteries. Rather rare representations of hillforts and barrow cemeteries have been found in the territory of the so-called Eastern 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.

TH4-05 Abstract 05

An attempt to define ratio of barrow cemetery and settlement site in term of community size

Author - Dr. Strimaitiene, 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 impacted 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 fragmentated and limited to small-scale excavation producing small and biased samples. At best, only the location of a settlement site can be identified on this basis, which is far from going into the nature of the community. In other words, the ratio of barrow cemeteries and settlement sites has barely 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 contemporary widely excavated settlements with well-defined structural pattern from neighbouring countries.

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. 5/4th–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 Eastern 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 attesting 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. B. Rovell (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.

Aakre Kivivare complex is an interesting archaeological site in north-east Estonia which was settled continuously over 1000 years. Therefore assumptions of a larger society of the time periods can also be made. 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. 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 09

Brothers-in-arms. Interregional contacts of the Balt warriors in the Roman and Migration periods

Author: Dr. H. K. Kontny, Bartosz, University of Warsaw, Warszawa, Poland (Presenting author)
Keywords: Balti, 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 Baltic 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 refers to the weaponry as well as in the field of tactics and symbolism.

TH4-05 Abstract 11

A changing community in north-east Estonia from 400 BC to 900 AD

Author: PhD student OI, 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.

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 attesting 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.
CULTURAL ENCOUNTERS: PERSPECTIVES ON MOBILITY AND CULTURAL IDENTITIES IN THE BALTIC SEA REGION 7000 - 2300 BC

The mentioned time period in the North-European prehistory is very dynamic, and is acknowledged by three more significant substantive economies. These economies are generally defined as to relate to different cultural groups and varying social customs: the farming Funnel Beakers, the seal hunting and fishing people of the Pitted Ware Culture, and the battle herders of the Battle Axe Culture. Local and regional variations of these cultural groups and subsistence economies are present in all countries around the Baltic Sea region during this time period. Issues about the social relations and contacts between these different cultural expressions have for a long time been vividly discussed within archaeology. However, developed archaeological methods and new results from by example strontium isotope and ancient DNA-analyses, have revealed that the mobility among people around the Baltic Sea in prehistory appears to have been more intense than previously thought. What impact does developed archaeological methods and results generate on the traditional interpretations of cultural encounters? How could these results be related to the archaeological material? The issue is important from the perspective that the archaeological knowledge we produce, by necessity also must be open for scientific revision. This session, therefore, aims to explore and discuss developed perspectives that could challenge the traditional interpretations of cultural encounters and borders among cultural groups in the Baltic Sea region during 4000-2300 BC. The presentations in the session may enrich archaeology on a theoretical and methodological level, but will also have the possibility to influence the wider cultural discussions concerning the contemporary constructions of cultural identities in Europe. The outcome of this session may also provide stronger arguments for a necessary understanding of the conditions of the contemporary and multicultural Europe.

TH4-06 Abstract 01
Ski Archaeology or tracking genesis & evolution of mobility technology across Prehistoric Eurasia

Author - MA Mazet, Laurent, Sagnilandet Lejre, Lejre, Denmark (Presenting author)
Keywords: Experimental Archaeology, Prehistoric Transport Means, Ski-Mobility-Wood Technology
Presentation Preference - Oral

May Ski Archaeology contribute to clarify the emergence of transport technology, and to map Post-Glacial migrations across Eurasia? The evidence of mobility in Post-Glacial northern Europe and Asia is well established. More than 200 ski, pole, sled, canoe finds and rock carvings have been found in the Eurasian continent from Northern England to Eastern Siberia. Recently, archaeogenetics have shed a new light on Upper Paleolithic, Mesolithic & Early Neolithic migration waves and ways within Eurasia and across the Bering Sound. All things considered, the dispersion of akin artifacts does not only questions the mobility of flint, antler and bone tools, but also the early development of durable (but perishable) woodwork transport means, for hunters-gatherers or early nomadic herders and their survival equipment, through new landscapes to adapt. Travois & skates, dugout canoes & grooved runners, skis & bore, early backcasts & later coracles, rafts & early wheeled carts are many examples of technological kinship, finding alter egos in vehicles or dwelling shapes, recorded by subarctic ethnographies across three continents: fur-shoot skis, snow shoes & bark canoes, sledges & toboggans, transportable tents & seasonal huts. In use over the very long term, they all descend from the same shaping of a piece of wood, thinner or lighter, bent and adapted to transitional displacement by human (or animal) propulsion. Beyond the revision of ancient ski’s typology, this research aims to reconsider the emergence and track the developments of Post-Glacial mobility technology, linking material & cognitive resources, functionality & former geography. Experimental reconstructions, emphasizing “archaic” woodworking processes, chains experiment, and comparison to archaeological evidence and craft traditions, may contribute to sketch a “techno-genetic” family tree for these Prehistoric vehicles, through chronology and geography.

TH4-06 Abstract 02
The affect of Landscape Scale Forcing Factors on the Earliest Neolithization in the Baltic Basin

Author - Troksisky, 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, leasing and demographic pressures break down in the face of exceptionally slow temporal development of the Neolithic 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 Kajanian Plain the substitution phase of agricultural adoption is short relative to the phases of agricultural availability and agricultural consoliation because it was triggered by landscape level forcing events of various intensities and durations.

Furthermore it is posited that the contemporary dissolution of the Lengyl 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 Lengyl complex and neolithized hunter gatherers.

TH4-06 Abstract 03
Neolithic Cultural Encounters in the Territory of the South Lithuania (4200-2000 BC)

Author - Marcinkiewičiūtė, Eglė, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: cultural encounters, Neolithic hunter-gatherers, South Lithuania
Presentation Preference - Oral

Till the end of 20th century southeastern part of the Baltic region was interpreted as periphery of the neolithisation centers in Central and Western Europe. Neolithisation also Indo-Europeanization process was explained Late Neolithic colonization of Corded Ware Culture (Battle Axe Culture) warriors, who assimilated autochthonous hunter-gatherers. Archaeological and multidisciplinary research over the last 15 years denied the approach of dynamic evolution, revealed intensive mobility and interaction among various societies of hunter-gatherers and farmers. In the territory of the South Lithuania cultural encounters appear to have been the most intensive. Favorable geographical conditions and raw material found in a surface of the area caused an emergence of numerous multilayer settlements of hunters-gatherers. Archaeological material of Dubčiai, Nemunas, Narva and maybe Combi-Ware cultures also pottery of Funnel Beakers, Globular Amphora, Corded Ware cultures was found in this territory. The most of the sites were settled in a sandy soil which is unfavorable for preservation of organic materials, also flint artifacts of different chronological complexes are mixed in this kind of environment. Nevertheless, by applying paleo-geographical environment reconstruction, spatial-statistical analyses and correlating data of radiocarbon analysis, research of landscape micro-topographical, floral and faunal features as well as ethno-archaeology and experimental archaeology patterns, it is possible to extract and date different complexes, define activities of subsistence economy and behavior of the societies.

TH4-06 Abstract 04
Pottery traditions and cultural processes in the Gulf of Finland region in the 3 mil. BC

Author - Postgraduate Khokhina, Margarita, Saint-Petersburg State University, Saint-Petersburg, Russian Federation (Presenting author)
Keywords: Gulf of Finland region, Late Neolithic - 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 (EMP), 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 adzes/axes concerned with thin walls of the vessels and shallow ornamentation, typical for Karelia and south-eastern Finland. Another component is organic temper (feather with shields) and mostly comb ornamentation which is most probably characteristic for the upper Volga region. Intensification of contacts during the ENE resulted in a variety of Comb Ware tradition - the relative ease and speed of the spread of these is an evidence of probable relativeness 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 not to be homogeneous. There are some “typical” vessels, which have a wide range of analogies in Eastern Baltic and even in so-called Comb-on-Antler-Odsherøn”. 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.

Where it is worth to mention, that different variants of Comb Ware tradition are very closed to each other in one of most conservative aspect of the pottery tradition - in modelling of the vessels. They are almost all formed by coating technique. At the same time, vessels made in Corded Ware tradition are modelled from small separate patches of clay. The difference of the two potentials of the vessel forms 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 closed 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, Ceramic Studies, Sweden, Nyhamnsläge, Sweden (Presenting author)
Co-author(s) - Lucenius, Jenni, Åland museum, Mariehamn, Finland
Co-author(s) - Stenbäck, Niklas, Societas Archaeologica Upsaliensis SAU, Uppsala, Sweden
Keywords: Åland, Pitted ware, Kiikais 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 has traditionally been explained by continuity 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 analysis and analysis of thin sections of the clay in the vessels. The study includes early (Ka I:1) and late (Ka III) Comb ceramics, Jetibo I and II type of Swedish pitted ware and Kiikais ceramics. Each are interpreted 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 a e.g. a clay figure seems to have been of non-Åland origin, and the question is if this figure 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, 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 Hureuaka 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), almost identical to the first one 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 typical 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 07

Human-animal relationships and identity expressions at Zvejnieki cemetery (north-eastern Latvia)

Author - MA Macâne, Alja, University of Gothenburg, Göteborg, Sweden (Presenting author)
Keywords: human-animal relationship, hunter-gatherers, burials, Zvejnieki, Latvia
Presentation Preference - Oral

The Neolithic cemeteries around the Baltic Sea reveal complex burial practices. Zvejnieki (north-eastern Latvia) is among the largest hunter-gatherer cemeteries in the Baltic Sea region. This presentation will explore the expressions of hunter-gatherer identities through ritual practices based on new osteological analysis of the animal remains in the grave fills. This research is part of a PhD project that examines how animal and human worlds co-existed, confronted, and affected each other during the Stone Age in the Baltic Sea region. The relations between humans and animals and their encounters from a perspective of materiality and posthumanism could question the dominant position of humans. The choice of the personal adornments, combination of animal species and fragmentation of body parts appear to have significant importance when burying the dead in Zvejnieki. In contrast to previous research on hunter-gatherer burials, which concentrated solely on humans, this project provides a complementary perspective that stresses a more holistic view by looking at the animal remains. This will develop a deeper understanding of the relationship of humans towards animals during the Stone Age.

TH4-06 Abstract 08

The enigmatic Dolmen on the Island of Gotland

Author - Fraiser, Magdalena, Uppsala University, Campus Gotland, Visby, Sweden (Presenting author)
Co-author(s) - Sanchez Quinto, Federico, Evolutionary Biology Centre, Uppsala University, Uppsala, Sweden
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Co-author(s) - Sjögren, Maria, Evolutionary Biology Centre, Uppsala University, Uppsala, Sweden
Keywords: Genomics, PWC, TRB
Presentation Preference - Oral

The Ånserve Dolmen in Toffa Parish on Gotland is the eastern most of its kind in Scandinavia. Dolmens and passage graves in Northern mainland Europe are associated with the Funnel Beaker culture (TRB) and activity sites with TRB pottery have been located on the Island from the Early Neolithic time period. We present new radiocarbon dating and isotope results, which show that the Dolmen was used for an extended time period, yet contemporary archaeological remains from the Funnel Beaker culture are scarce on the Island at a time when the Pitted Ware culture was widespread along the coastal areas. Previous genomic research has shown that hunter-gatherer individuals from the Middle Neolithic Period culture on Gotland had different biogeographic affinity to that of contemporary TRB individuals from the Swedish mainland (Boglund et al. 2012; 2014). Here we use genomics to investigate the relationship of individuals from these two different cultural contexts on the same island, over time.

TH4-06 Abstract 09

Re-thinking Bourioise: New Perspectives on the Pitted Ware Culture on Gotland in the MiddleNeolithic

Author - Dr. Anderson, Anna-Carin, University of Gothenburg, Gothenburg, Sweden (Presenting author)
Keywords: Bourioise, Method, Pitted Ware Culture
Presentation Preference - Oral

This paper relates to the issue: what impact does developed archaeological methods and results generate on traditional interpretations of mobility and cultural encounters? The aim is to present a new method of interpretation, which I have developed in my thesis. The method has its foundation in a re-thinking and an archaeological adaption of the concepts and reasoning of the French sociologist Pierre Bourdieu. Such application and adaption of the concepts of Bourdieu on an archaeological material is suggested, has previously never been done before. Though the reasoning of Bourdieu has been used in studies of archaeological material, an examination of a number of these earlier studies surprisingly revealed a simplified use of the concept, where insufficient considerations have been taken to the complexity of Bourdieu’s reasoning. The most common approach in previous research is to only use Bourdieu’s concept of Habitus, which is used without contextualization and according to the ad hoc principle. Through an adaption of the concepts in accordance with a contextualisation of the living conditions and the
Genomics of the people of the Baltic Sea region 4000-2300 BC

Author: Dr. Malmström, 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, for example, Funnel Beaker individuals from Germany, and to other individuals from earlier farmer context, than they were to the geographically close and contemporaneous people from Pitted Ware hunter-gatherer contexts. In this case, genetic variation seems to mirror subsistence strategies and material culture more closely than geographical proximity. This 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 Pitted Ware hunter-gatherers being descendents 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 individuals from a Corded Ware/Battle Axe context, which post-dated the Funnel Beaker farmers and were partly contemporaneous with the Pitted Ware hunter-gatherers, display yet another genomic signature compared to those of the Funnel Beaker and Pitted Ware people. Corded Ware individuals from Sweden, Estonia and Germany comprise of genetic components from western hunter-gatherers, from early farmers, as well as from Yamnaya herders.

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 would further increase 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.
Friday, 2 September 2016, 09:00-13:00
Faculty of Philology, Room K.Donelaitis

**TH4-07 Abstract 01**

**Looking for patterns in prehistoric diets – is there an objective approach?**

*Author* - Törv, Mari, University of Tartu, Tartu, Estonia

*Co-author(s)* - Needleman, John, Centre for Baltic and Scandinavian Archaeology, Germany

*Key words:* diet reconstruction, isotopic analysis

*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, or perhaps even by age or sex, according to a specific diet model. Such modelling and case studies have been conducted in different periods during the Stone Age and geographical settings within the study region, including the transition from foraging to farming. We aim to show where and how diet reconstruction has been achieved, and where it has been difficult or impossible to do so.

**TH4-07 Abstract 02**

**Mesolithic diversity in the Baltic region**

*Author* - Dr. Erkis, Gunilla, Archaeological Research Laboratory, Stockholm University, Stockholm, Sweden

*Co-author(s)* - Lidén, Kerstin, Archaeological Research Laboratory, Stockholm University, Stockholm, Sweden

*Keywords:* stable isotopes, Mesolithic, mid-Holocene

*Presentation Preference:* Oral

Taking the two Mesolithic sites in Motala – Kanaljorden and Strandvägen – as a starting point, stable isotopic data from a wide range of Mesolithic sites will be discussed. The large variability in carbon, nitrogen, sulphur and strontium isotope values reflects 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* - Legzdina, Danila, Institute of Latvian History, University of Latvia, Riga, Latvia

*Co-author(s)* - Lübke, Harald, Centre for Baltic and Scandinavian Archaeology, Germany

*Keywords:* Mesolithic, Lubans, stable isotopes

*Presentation Preference:* Oral

A long-standing archaeological research at the Lake Lubāns valley have revealed the area 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 18 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 carbon and nitrogen isotope analysis.

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

*Co-author(s)* - Needleman, John, Centre for Baltic and Scandinavian Archaeology, Germany

*Keywords:* faunal, hunter-gatherers, Eastern Baltic, stable carbon and nitrogen isotopes

*Presentation Preference:* Oral

Stable isotope analysis of carbon (13C) and nitrogen (15N) 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. We have developed and refined a method to target specific questions.

In the paper we will examine both the spatial and temporal requirements for a faunal baseline. The methodological discussion will be complemented by examples from our 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* - Törv, Mari, University of Tartu, Tartu, Estonia

*Co-author(s)* - Needleman, John, Centre for Baltic and Scandinavian Archaeology, Germany

*Keywords:* stable isotopes, mesolithic

*Presentation Preference:* Oral

In this paper we present new stable isotope analysis results from a Mesolithic site in Rinnukalns, Latvia, in the 4th millennium cal BC. 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 carbon and nitrogen isotope analysis.

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.
The freshewater shell midden at Rinnyakula, 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 mid-4th millennium cal BC. Dietary stable isotopes in bone collagen from the crania of 3 individuals buried in the midden, and also from all 4 individuals dated to this period at the nearby Zvižņieki cemetery, suggest that adult diets were dominated by freshwater species to an extent not seen previously, and that forest and especially coastal resources were relatively insignificant, by comparison with the preceding period. Incremental sampling of dentine can provide a record of diet at a much finer temporal resolution than bone, however, and we are therefore sampling the molars of one Rinnyakula individual to see whether it is possible to detect changes of diet and even of residence, at the quasi-annual scale permitted by this method. This approach may also allow the estimated date of death to be refined, as the radiocarbon age of collagen with a more terrestrial or marine isotopic signature will be less affected by dietary reservoir effects.

TH4-07 Abstract 06
The Neolithization of the north European lowlands:
Archaeometric results on human remains

Author - Dr. Piezonka, Henny, German Archaeological Institute, Berlin, Germany (Presenting author)
Co-author(s) - Prof. Dr. Terberger, Thomas, Lower Saxon State Office for Cultural Heritage, Hannover, 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.

This last decade saw increasing progress in the analysis of human remains by archaeological 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 07
Deconstructing the conception of pre-Neolithic farming in SE Baltic

Author - Dr. Piezonka, Henny, German Archaeological Institute, Berlin, Germany (Presenting author)
Co-author(s) - Prof. Dr. Terberger, Thomas, Lower Saxon State Office for Cultural Heritage, Hannover, Germany

Keywords - SE Baltic, Subneolithic, Subsistence

Presentation Preference - Oral

This paper is a critical evaluation of zooarchaeological, macrobotanical, 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 the water reservoir effect when dating bulk samples of lacustrine sediments, misrecognition 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 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 Subneolithic 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.
Eurasia: “Initial Upper Paleolithic”, “transitional assemblages” and Aurignacian assemblages. They cover different windows of time between 50 and 35 ka and their direct association with anatomically modern human remains is variably substantiated. Comparative analysis of lithic assemblage with tool collections from the other sites of transitional period can expose certain cultural, geographical analogies, which permit to address questions related to the origin, distribution and nature of the interaction between the three main mentioned groups of lithic assemblages and also of the people, who were creating them. The discovery of any affinities would shed new light on our understanding of the mobility and migration routes of the ancient European population.

TH4-07 Abstract 10

Loose human bones from cultural layers at Zamostje 2, central Russia (c.6500–4000 cal BC)

Author - Tõrv, Mari, University of Tartu, Tartu, Estonia (Presenting author)
Co-author(s) - Meadlow, John, Center of Baltic and Scandinavian Archaeology, Foundation of the Schleswig-Holst, 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) - Mosisev, 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 2 (c.6500–4000 cal BC), despite extraordinarily good 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 6 or 7 to mature adult. Two cranial fragments have been dated by radiocarbon to the Late Mesolithic (acinarium) period (c. 8500–3900 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.

TH4-08 Abstract 01

The Fortifications of Gothenburg - A Centennial Construction Site

Author - Wennberg, Tom, Gothenburg City Museum, Gothenburg, Sweden (Presenting author)

Keywords: Early modern times, Fortified city, Gothenburg

Presentation Preference - Oral

In the early 17th century Sweden was at a political turning point. This was the beginning of an era known as “The Swedish Age of Greatness” (Storstatsperioden). In the wake of a major defeat in the Kalmar War, the state was reformed regarding centralization of power, more elaborate bureaucracy and higher taxes. This was the foundation for an expanding empire and the beginning of a centennial project that resulted in the fortified city of Gothenburg.

In the expanding state of Sweden during the reign of Gustaf II Adolf (1611-1632) more than 15 new towns were founded. Perhaps the economically most important and strategically best placed of these were the city of Gothenburg on the Swedish west coast. Founded 1621 in the estuary of the river Göta, it became the main link to the North Sea trade and onward.

The design was very modern with the continental idea of an ideal plan protected by massive fortifications. The construction of these fortifications lasted for more than 100 years and are generally described in three stages. This paper will give an archaeological perspective of this massive project and show how continental theories of fortification were applied and customized for the local conditions.

TH4-08 Abstract 02

The new fortified Kalmar – a work in progress during the 17th century

Author - Konsmar, Annika, National Historical Museums, Linköping, Sweden (Presenting author)

Keywords: siege archaeology, conflict, fortification
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. It had a strategic position by the mouth of the river Nissan 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 the 17th century and a new fortification was erected between 1588-1605 under the leadership of the Dutch master builder-architect Hans van Steenwinkel and after his death in 1601 succeeded by Wilum Cornelsen. 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 Brömssön 1645 Halmstad and the province of Halland became Swedish. The fortifications were maintained during the end of 17th century but started slowly to disintegrate 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 geographical 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.

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 1596-1648 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 for the king in fighting for the Baltic Sea domination 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 project was intended 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?

From earthworks to scars of the cold war - 500 years of coastal defence on Gotland

Author: PhD Svedjeno, Gustaf, Uppsala University, Visby, Sweden (Presenting author)
Keywords: artillery, coastal defens, Gotland
Presentation Preference - Oral

Gotland, situated in the middle of the Baltic Sea, is with its relatively few inhabitants and long coastline of around 560 km, hard to defend from invaders. There are a few good natural harbours, of which the most seem to have been defended by fortifications in some form from historical times up until the 17th century, with some breaks. The remains of most of them are still visible in the landscape.

This presentation is about a new research project, just started about coastal fortifications on Gotland from early modern times up until the turn of the new millennium, when all coastal fortifications and fixed coast artillery batteries where closed down, not only on Gotland, but in all of Sweden. This covers a period of nearly 500 years, but this presentation will mostly deal with the early modern times.

The project was initialized by an observation of some symbols and notes in a historical map from 1694 which is to my knowledge not discussed before. In the map are three conventionalized symbols of scones with a note, saying “old decayed scones of wood” in an area with no known fortifications until the late 19th century. One question is when and who built them, since they are from a period of several wars, when Gotland was swinging to and fro between Denmark and Sweden. There are no visible traces at the sites today.

In the military archives there are some interesting fortification maps, over all or parts of Gotland, and several detailed blue prints of fortifications, from the 18th century. One map and some blue prints are made by the land surveyor and lieutenant of the fortifications Mattias Schilder in 1712-14 during the Great Nordic War, when the threat of a Russian invasion became imminent. The map shows the position of some 20 “beach batteries” and some additional inland ramparts. It is clear that most of the beach batteries were built, and most of them are identified, but not all. In an initial analyses based on high resolution LiDAR data, is one of the missing ones found at a different location than previously supposed. An interesting aspect, which the project hopes to shed some light on, is on what criteria the 20 sites were chosen, since many known landings sites have no batteries.

Some of the sites for these beach batteries are known to have earlier, Danish batteries, of unknown date. There is a written source from 1681, ordering the Danish governor of Gotland to put all scones fallen in decay by the countryside harbours in order, but when the first fortifications was erected is unknown, which we hope be able to answer.
Kuressaare was a small fortress – four bastions located at the corners of the medieval fortifications were sufficient for its defense – 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 fortresses. 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 meant constructionally, and analyze the fortification-theoretical arguments for these costly and labour-consuming undertakings.

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**TH4-08 Abstract 08**

**Inside the rampart on the borderline: Lava fortress in 17th century**

**Author:** Professor Sölén, Adrian, Higher School of Economics, St. Petersburg, Russian Federation (Presenting author)

**Keywords:** Lava fortress, Rampart, Russian-Swedish border

**Presentation Preference:** Oral

After Stolbovo Treaty 1617 the new border between Swedish Kingdom and Muscovy was traced. For about 10-12 years the border was not guarded. Some special system of border control appeared only in Autumn 1629 and then developed into very complicated version.

The road between Muscovite fortress Ladoga and Swedish fortress Nothborg (former Oreshek) after 1617 was divided into two parts lying in two states. The border was the river Lava. There on a high bank of small river a hillfort appeared in about 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 hillfort. After the Great Northern War it lost its significance.

The ruins of the hillfort (situated now near the village Gorodische) was archaeologically studied. The rampart was built in two periods using some wooden constructions two times. The inside part of the hillfort was practically free of cultural layers. The inside part of the rampart was added with significant earth structures that did not allow the rampart to destroy inside the hillfort.

The problem is in dating. The ceramic material belongs to 16-17th cc. and is connected with local (“Oreshek”) tradition of ceramic production; meanwhile some spots of ceramic belong to the medieval period. The issue of dating the hillfort is still open.

**TH4-08 Abstract 09**

**Breaching walls and sinking ships: experimental evidence for the performance of 17th-century heavy artillery**

**Author:** PhD Hocker, Fred, Vasa Museum, Stockholm, Sweden (Presenting author)

**Keywords:** Gun, Siege, Experimental archaeology

**Presentation Preference:** Oral

In 2014, the Vasa Museum carried out an extensive field trial of a replica 24-pounder bronze demi-cannon, based on those found on the warship Vasa. The gun was developed in 1620 as a mobile heavy field-piece, adapted to naval use in 1628 for Vasa and her sister ships. This gun later equipped both the largest warships and field artillery units during the Thirty Years War, ending it service career as a fortress gun in Sweden’s Baltic outposts. A two-week program of fire revealed not only the ballistic characteristics of this type of artillery, but trials against a replica section of ship structure demonstrated that conventional interpretations of the effect of cannon fire on warships is oversimplified. This paper presents the results of the tests in the context of how such guns might have been used against both ships and shore installations.

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**TH4-08 Abstract 10**

**Prussian, early modern fortification in Pomerania, a result of the Prussian - Swedish struggle**

**Author:** PhD Podruczy, Grzegorz, Adam Mickiewicz University, Slubice, Poland (Presenting author)

**Keywords:** Fortification, Pomerania, Prussia

**Presentation Preference:** Oral

The Duchy of Pomerania, after the death of the last duke from the House of Griffins in 1637, was the scene of a struggle between Prussia and Sweden. Initially the duchy was divided into two parts – Prussian Farther Pomerania, and Swedish Hither Pomerania. But as a result of the Swedish defeat in the Great Northern War in 1720, Prussia also won a large part of Hither Pomerania, with the capital city and main fortress, Stettin and the entire estuary of the Oder river. But all of Pomerania was again witness to Prussian-Swedish hostility during the Seven Years’ War. Its last act was the annexation of Swedish Hilger Pomerania with Stralsund in 1733.

One of the key factors for this struggle were the fortifications. They were built during the wars (field fortifications) and during peacetime as well (fortresses, autonomous forts or sconces and fortified cities). Siege warfare assumed an important role in the wars.

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 half, 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. The Prussians thoroughly rebuilt it during the long modernization between 1656 and 1716. Apart from Kolberg a fortress in Rügenwalde was the planned, but never built. The main achievement of the second period was the modernization of the fortress 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 Pommeren, Neu Warp, Demmin, Dammgarten and Anklam), or single strongpoints such as sconces in Penemünde, Anklamer Fehr, Beinemünde and Divenau. Only some of them were modernized (Penemünde and Anklamer Fehr Schanze) 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 (asasme 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).
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 a result of both countries constant rivalry for dominion in the north which had its origin in the medieval period.

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 assemblage of artifacts that can be directly linked to the Danish siege of Ålvsborg 1612 was recovered. The artifacts consisted of a range of ordinance, 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)  
Keywords: Castle, Town wall, Fortifications, Medieval

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 heaven. 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 Helsingør. 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 Stobaeus was ordered to modernize the fortifications. The outdated town walls were now pulled down. Fortunately, before he began replacing the fortifications Stobaeus 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,  
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 1589, 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 as complete an account of the story of this boundary as possible.
The document contains multiple abstracts and presentations on topics related to archaeology, specifically focusing on animal remains, cultural landscapes, and hunting practices in the Baltic region. Here is a summary of the contents:

**TH4-09 Abstract 01**

**Bioarchaeology in action – a multidisciplinary approach on animal remains in ritual contexts**

Author: PhD Student Kirkinen, Tuija, University of Helsinki, Helsinki, Finland (Presenting author)

Co-author(s): MA Ahola, Marja, University of Helsinki, Helsinki, Finland

Keywords: interpretation, material studies, rituals

Presentation Preference: Oral

**TH4-09 Abstract 02**

**Wild mammals in culture and landscape of the medieval Poland**

Author: MA Wieczek, Jan, Nicolaus Copernicus University in Torun, Toruń, Poland (Presenting author)

Co-author(s): Prof. Makowiecki, Daniel, Nicolaus Copernicus University in Torun, Poland

Keywords: archaeology, hunting, Poland, wild mammals, Middle Ages

Presentation Preference: Oral

**TH4-09 Abstract 03**

**The role of big game hunting among Iron Age boreal zone farmers**

Author: PhD Student Kirkinen, Tuija, University of Helsinki, Helsinki, Finland (Presenting author)

Co-author(s): MA Ahola, Marja, University of Helsinki, Helsinki, Finland

Keywords: animal hair identification, inhumation burials, wild animals

Presentation Preference: Oral

**TH4-09 Abstract 04**

**In search of an animal skin: applying SEM for the soil of Perttulanmäki Corded Ware grave, Finland**

Author: PhD Student Kirkinen, Tuija, University of Helsinki, Helsinki, Finland (Presenting author)

Co-author(s): MA Ahola, Marja, University of Helsinki, Helsinki, Finland

Keywords: animal hairs, Corded Ware grave, SEM

Presentation Preference: Oral

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 journal Archaeologia in 70’s and 80’s. There are also two archaeozoological synthetic works about past Polish fauna by Piotr Wyrust (1985, 1994). However in present research authors revise old records and opinions on this topic. Special attention will be also paid to fusion of bioarchaeological, historical and ethnographical 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 fun-bearing animals. Apart from considerations on cultural aspects some osteometric observations will be performed. Measurements will be used for detecting the diachronic and synchronous trends in body size changes.

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**TH4-09 Abstract 01**

**Bioarchaeology in action – a multidisciplinary approach on animal remains in ritual contexts**

Author: PhD Mannermaa, Kristina, University of Helsinki, University of Helsinki, Finland (Presenting author)

Co-author(s): MA Kirkinen, Tuija, University of Helsinki, University of Helsinki, Finland

Keywords: interpretation, material studies, rituals

Presentation Preference: Oral

Archaeology has produced a remarkable amount of bioarchaeological material and data from ritual contexts (e.g., burials, offering sites, rock art sites). This material mainly consists of organic materials, e.g., bones, teeth, antler, hair and fur. The basic methods to study such materials - identification, qualification and quantification - have been adopted from biological sciences. Such material data, reflecting practices and studied with natural scientific analyses, form a basis for understanding elements in the past human-animal relationships. However, as the data such rarely allows us to understand the intentions or significances of these practices, and approaches to interpretation of such data vary. In order to search for better ways to understand the meanings of practices, a multidisciplinary initiative was launched at the University of Helsinki in January 2016. This initiative will gather together the researchers of archaeology, study of religion, linguistics, folklore and ethnography in order to find fresh interpretations of bioarchaeological data and the prehistoric hunter-gatherer cultures the data presents. In this paper we present the main aims, methods and goals of our project.

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**TH4-09 Abstract 02**

**Wild mammals in culture and landscape of the medieval Poland**

Author: MA Wieczek, Jan, Nicolaus Copernicus University in Torun, Toruń, Poland (Presenting author)

Co-author(s): Prof. Makowiecki, Daniel, Nicolaus Copernicus University in Torun, Poland

Keywords: archaeology, hunting, Poland, wild mammals, Middle Ages

Presentation Preference: Oral

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**TH4-09 Abstract 03**

**The role of big game hunting among Iron Age boreal zone farmers**

Author: PhD Student Kirkinen, Tuija, University of Helsinki, Helsinki, Finland (Presenting author)

Keywords: animal hair identification, inhumation burials, wild animals

Presentation Preference: Oral

The role of big game hunting among Iron Age boreal zone farmers. Alices alces and Rangifer tarandus in bioarchaeological assemblages at Iron Age and Early Medieval sites in South-East Fennoscandia.

This paper aims to discuss the role of big game hunting among the Iron Age farming populations in the southern half of Finland and West Karelia (Russia), South-East Fennoscandia. In Finland the importance of hunting and fur trade as supplementary economies have been considered an outgrowth of area’s location at the northernmost limits of the cultivation zone in Europe. In recent studies hunting is hypothesized to have continued as the main subsistence strategy especially in Finnish inland areas long after the early phases of agriculture. In the northern and eastern parts of Finland hunting retained its central role up to the Modern Age.

In this paper, the continuity of hunting and the long-lasting legacies of accompanied traditions are studied on the basis of Rangifer tarandus fenius and Alces alces skin and hair remains found in archaeological assemblages up to the 17th century. Although the results are based on a somewhat heterogeneous and fragmented body of source material, they underline the importance of hunting and wild animals in the Late Iron Age and Early Medieval world.

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**TH4-09 Abstract 04**

**In search of an animal skin: applying SEM for the soil of Perttulanmäki Corded Ware grave, Finland**

Author: PhD Student Kirkinen, Tuija, University of Helsinki, Helsinki, Finland (Presenting author)

Co-author(s): MA Ahola, Marja, University of Helsinki, Helsinki, Finland

Keywords: animal hairs, Corded Ware grave, SEM

Presentation Preference: Oral

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. Indeed, the Perttulanmäki grave, excavated at the 1930’s, is the only Corded Ware grave in Finland with preserved human bone material. Also fragmented skeletal material, the grave was furnished with a Corded Ware vessel, stone artefacts and a curious “dark layer of soil” surrounding the grave structure. This feature, and the new analyses conducted to the soil samples collected from the feature, is at the core of this presentation.

During the 1930’s, the feature was interpreted as remains of an animal hide. However, no supporting evidence was found then despite the analysis made with the optical microscopy. In November 2015, we conducted new microscopic analyzes to the archived soil samples taken from the grave. By taking SEM micrographs, we detected mineralized animal hair remains and identified them as belonging to the Cervidae family.

Our unique findings confirm that an animal skin was present in the grave pit, possibly used to cover its floor. Similar practice has been noted from the organic remains of contemporary Yamnaya graves of south-east Europe. However, the Perttulanmäki grave is the first Corded Ware grave with preserved animal skin remains. We suggest that more soil samples should be re-analyzed with SEM, to reveal more evidence of animal skin use in other Corded Ware graves.
A critical appraisal of using relative bone weights of reindeer from archaeological sites

Author - Prof. Bartosiewicz, Łazę, Osteoarchaeological Research Laboratory, Stockholm University, Stockholm, Sweden (Presenting author)

Keywords: meat consumption, reindeer, relative bone weight

Presentation Preference - Oral

Quantification in archaeology 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 collection or context. Fragment weights have remained understudied in developing such methods. The argument against their unsuitability 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 often is 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 Paleo-European 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.

Given 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.

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)

Keywords: Neolithic, Poland, Zooarchaeology

Presentation Preference - Oral

The paper explores the role of pig in ritual of 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 practice; however, the role of this species in other ritual activities, including feasting, is largely under-explored. Taking into account new evidence from Globular Amphora Culture at Witziszewo 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, dissected and consumed in distinctive and standardised manner during a short-time event. The evidence from Witziszewo represents hitherto undocumented aspect of ritual activity of GAC communities, and has no direct analogues 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. in Chodzież), and communal consumption of carcasses (as documented in Witziszewo). This issue will be a subject for further research to determine whether it was a widely applicable rule or a single instance.

Cluttered faunal remains from a Roman Iron Age burial mound in Sweden: a taphonomic perspective

Author - Stolle, Bettina, Stockholm University, Uppsala, Sweden (Presenting author)

Keywords: Roman Iron Age, community ritual, animal remains

Presentation Preference - Oral

The area of Fullerö, north of Uppsala has been subject to numerous archaeological excavations. Artefacts 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. Artefacts and bones (mainly unburned) were unevenly spread out in the fill of the mound. Looting 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 artefacts 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, looking 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.
Reindeers in Lithuania: a technological study of antlers artefacts

Author - Daugnora, Linas, Klaipėda University, Klaipėda, Lithuania (Presenting author)
Co-author(s) - Gimininkas, Algirdas, Klaipėda University, Klaipėda, Lithuania
Keywords: Lithuania, Lyngby type axe, reindeer antler

Presentation Preference - Oral

In the Lithuanian territory found 32 skeletal bones and manufactured artefacts of reindeers (Rangifer tarandus). Between them in 2014-2016 three Lyngby type implements made out of reindeer antler were found within territory of Lithuania. One of the Lyngby type artefacts dating back to the 4400 to 4200 BC, the other two - 12 000 BC - to Late Alfeld - Younger Dryas period. All other articles dating to Younger Dryas period. Trisotopic, stable isotope, radiocarbon dating, morphological examination on the implements carried out in Klaipėda 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 Lyngby 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 - Wnukowska, 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 archaeological techniques (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 dermal (ivory). If confirmed, it would link this eastern Bell Beaker enclave to the Iberian Peninsula, where the use of ivories 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 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 aurochs). 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 artefacts can facilitate raw material identification and, subsequently, highlight issues connected with the raw material selection and its significance in the past societies.

The use of aquatic resources by Early Mesolithic foragers in southern Scandinavia

A long tradition in the research of prehistoric southern Scandinavia recognizes a full use of aquatic resources in the Late Mesolithic Ertebølle culture (5500-4000 BC); coastal sites are frequently found containing well-preserved fish bones, and isotope values from human collagen indicate a high dietary intake of marine resources. However, recent finds and new methodologies suggest that the view of a terrestrial/fish based diet in the Early Mesolithic period (5500-4000 BC) can be reinterpreted and the use of freshwater resources is found to be more important than previously known. Aquatic resources could therefore be seen as a major source of sustenance for foraging societies in Scandinavia much earlier than has been realized previously. In Norje Sunnansund, an Early Mesolithic site located in Blekinge, south-eastern Sweden, large amounts of fish bones were found that have been used to estimate the amount of fish being caught at the site, by analyzing different rates of taphonomic loss. The results from the excavated part of the settlement suggest that at least 60 tons of fish were caught. The large amount of caught fish and the evidence of the means of preparing and storing them form the earliest example of a large scale fishing society, and the knowledge required to catch and prepare this volume of fish has further implications on a more structural societal level. A structured society is a prerequisite for the development of sedentism and enables large groups of people to gather together over an extended time period. Conservative dietary estimations from the recovered fish bone material suggest that enough fish were caught to sustain 100 adults, living solely on fish, for over 4 years.

Zooarchaeological Data and the Historical Sources of Livestock and Breeding at Kurtuvėnai Manor

Kurtuvėnai Manor – one of the first fifteenth century 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 – XX centuries (inventory books of Kurtuvėnai Manor and information from letters) evidence with a careful osteological analysis of 3027 bones and their fragments (XV – XX 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 – Šalčiaus, XVII century – Naujienių, XVIII century – Pliateriai). 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 material culture, hunting 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 studies, fragment type and data of inventory books confirm that here 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 circle. For example, in 1563 Stanisław Skalski sent 80 partridges for Prussian Duke Albrecht, three years later he sent 100 partridges. We also know that the households 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 conditioned to grow 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 18
Archaeozoology of Port Towns in Poland
Author - Prof. Makowiecki, Daniil, Uniwersytet Mikołaja Kopernika w Toruniu, Torun, Poland (Presenting author)
Co-author(s) - Wiejacka, Martyna, Uniwersytet Mikołaja Kopernika w Toruniu, Torun, Poland
Co-author(s) - Wiejacki, Jan, Uniwersytet Mikołaja Kopernika w Toruniu, Torun, Poland
Keywords: Archaeozoology, Middle Ages, Toemis
Presentation Preference - Oral
Between 9th and 10th century strong port centers had been established at the southern Baltic Sea. Some of them played a key role in the history of Pomerania and of Poland. We can list, among others, Gdańsk, Kolobrzeg, Szczecin, and Wolin. Each of these centers was developing in a different cultural and environmental context. Archaeozoological research suggests that the residents of these areas were 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 17
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. Makowiecki, Daniil, 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 of 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 Gdańsk and Kolobrzeg. On the basis 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 Łobzin located on Wolin island. People living there have exploited local avifaunal species such as White-tailed Eagle and Cormorant.

TH4-09 Abstract 16
Did rats abandon a sinking ship?
Discovery of animal products from the 14th c. shipwreck in Tallinn
Author - Dr. Lõugas, Lembi, University of Tallinn, Tallinn, Estonia (Presenting author)
Co-author(s) - Matina, 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 sided 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 15
How to process meat for a 17th century warship
Author - Gornik, 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 where Sweden was on the rise to their stormaktstiden, the time of their greatest power, but the ship Capitulated around 20 minutes after the launch. This catastrophic event led 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 2200 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 they lost their context information or 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 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://www.neolithic-institute.org/bonecommons/items/show/1868) 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 plotted with the direction of the strike as separate layers for each bone on the GIS files.

TH4-09 Abstract 14
Evolutionary history of Baltic seals inferred from the analysis of historical and subfossil samples
Author - Dr. Pilz, Małgorzata, University of London, Lincoln, United Kingdom
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Co-author(s) - Makowiecki, Daniil, Nicolaus Copernicus University, Institute of Archaeology, Toruń, Poland
Co-author(s) - Daunora, Linas, Kaipélda, Lithuania, Institute of Baltic Sea Region History and Archaeology, Kaipélda, Lithuania (Presenting author)
Co-author(s) - Karlsson, Olle, Swedish Museum of Natural History, Stockholm, Sweden
Co-author(s) - Huseby, Inge, Durham University, School of Biological and Biomedical Sciences, Durham, United Kingdom
Keywords: Baltic sea, mtDNA haplotypes and haplotype diversity, seal species.
Presentation Preference - Oral
Global or local extinctions of large mammals known to have been exploited by humans raise a question of whether the extinction resulted from their exploitation or from natural factors. The extinction of the harp seal (Pagophilus groenlandicus) population from the Baltic Sea is an example of such case. Comparison of population genetic parameters between the present and an extinct population is an important approach for understanding the differences between the two populations. We study a genetic variation in the control region of the mitochondrial DNA (mtDNA) of the harp seal in the Baltic Sea by using DNA sequencing and haplotype network analysis.

Harp seals represent a good model to study the genetic changes in seal species. The Baltic seal is a subspecies of the harbor seal (Phoca vitulina) and is genetically isolated from the main population in the North Atlantic. The Baltic seal has a different diet and habitat, and it is susceptible to human activities, such as hunting and the oil industry. The Baltic sea is a typical example of a seaport that has been used for hunting and trade purposes for centuries. The Baltic seal population was exploited for its meat, oil, and fur in the past. The hunting pressure on the Baltic seal population increased during the 19th and 20th centuries, resulting in a rapid decline in its numbers. The Baltic seal population was protected in 1931, and since then, its numbers have recovered, but the population is still considered to be vulnerable.
Also the number of hunted roe deers and deers increased in the Early Neolithic, however not significantly. People started to hunt also other species. A larger number of the marten, badger, fox, otter and other predator bones were found. That elks were common, as more than 70 percent of all bone and antler tools used in the Early and Middle Mesolithic were made of analysied, the dominance of the previously mentioned animals matches with the Latvian paleozoological material. It is obvious around Lielais Ludzas lake in Latvia.

Places, also to clear out what kind of methods were used to make hunting and fishing tools in Stone Age settlement komplex all accessible animal species. Enviroment combined with material use-wear tecnology was an important part of Stone Age people

Since 1950ies in Latvia is known a Stone Age settlement komplex 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 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 Kreiži, Budigka, Jurizdika I and II, Kreiži burial ground were led by Rauls Šnore, Francis Zagozinski, Lūciņa Vankina, who confirmed that the territory around the lake was inhabited during the Middle Stone Age. But after few years of surveying archaeologist R. Šnore found more story find concentration sites all around the lake that could also have been a settlements - Ballais point, Baznīckunga island, Harpuņu island, Jurizdika I and II, Kâvi, Kubulova, Lumcuža, Ludza town, Seļekova I and II, Šēpupīni, Uldi un Vīlī (Dūtnie). 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 it so is important to see correlation between worked bone and after 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 komplex 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 bars. 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. Paave). Although not all tools were analysed, the dominance of the previously mentioned animals matches with the Latvian paleozoological material. It is obvious that elk was 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.

TRADITION, INNOVATION AND NETWORKS - METAL WORKING AROUND THE BALTIC SEA FROM THE BRONZE AGE TO THE MIDDLE AGES

Thursday, 1 September 2016, 14:00-18:30
Faculty of Philology, Room K. Donalaičio
Author: Sahlén, Daniel, Stockholm University, Bromma, Sweden (Presenting author)
Co-author(s): Armbuster, Barbara, Toulouse, France
Co-author(s): Jouttiläinen, Anne, Helsinki, Finland
Co-author(s): Baage, Ragnar, Tartu University, Tartu, Estonia
Co-author(s): Tomson, Arne, Latvia National History Museum, Riga, Latvia
Keywords: Metal working, Technology, The Baltic Sea
Presentation Preference - Regular session

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 "chaineopération" 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.

Traces on Material Culture: Craftspeople and Contact Networks in the Nordic Bronze Age

Author: Dr. Nigeard, Heide, 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 craftsperon back behind the objects. Different craftspeople and their area of influence could be identified, from a craftsperon-sor 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 organization 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 craftperson back into the light of research.

Technology exchange and iron trade around the Baltic Sea

Author: Jouttiläinen, Anne, Helsinki, Finland (Presenting author)
Keywords: Metal trade, iron, smithing traditions
Presentation Preference - Oral

Dissemination of people. Prehistoric and medieval production of metals in the Baltic Sea region demonstrates both shared metal trade, iron, smithing traditions
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 Pre Roman and Roman Iron Age, there are differences in technologies, that indicated that there was only a limited spread of traditions and knowledge.

In this period, 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 techniques were introduced in ten centuries of Denmark. One illustrative example is a number of single edge swords found in the votive deposit at Vimoze 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 second 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.

TH4-10 Abstract 03
Vendel period seaxes from Grobin
Author - Abolins, Artis, Riga, Latvia (Presenting author)
Keywords: Baltic Sea region, Metal Working, Vendel period
Presentation Preference - Oral

TH4-10 Abstract 04
Bronze Age fine metal working in Nordic Europe - gold discs and vessels
Author - Dr. Hab. Armbruster, Barbara, Laboratoire d’archéologie TRACES - UMR 5608, Toulouse, France (Presenting author)
Keywords: Fine metal working, Nordic Bronze Age, sun discs and vessels
Presentation Preference - Oral

TH4-10 Abstract 05
Some aspects of the local weapon production in Western Latvia from 9th to 13th Century
Author - Dr. Tomasons, Anturs, Latvian National History museum, Riga, Latvia (Presenting author)
Keywords: Early Medieval, Eastern Baltic, Weapon production
Presentation Preference - Oral

TH4-10 Abstract 06
New archaeometallurgical investigations on bronze age objects from the Eastern Baltic region
Author - Dubasova, Elka, Curt-Engelhorn-Zentrum Archäometrie gGmbH, Mannheim, Germany (Presenting author)
Co-author(s) - Čivilytė, Agnė, Lithuanian Institute of History, Vilnius, Lithuania
Keywords: Archaeometallurgy, Bronze Age, Metal Objects
Presentation Preference - Oral

TH4-10 Abstract 07
A multidisciplinary approach to the study of Polish silver denarii minted by the early Piasts
Author - Dr. Del Hoyo, Julio M., The National Museum in Krakow, Krakow, Poland (Presenting author)
Co-author(s) - Malisz, Marta, The National Museum in Krakow, Krakow, Poland
Keywords: Non-destructive analysis, Polish denarius, X-ray fluorescence spectrometry
Presentation Preference - Oral

X-ray fluorescence (XRF) analyses have become a standard method in archaeological science due to their non-invasive and non-destructive nature. Chemical analyses of metal alloys may provide information about the manufacturing process, the provenance of raw materials, and the geographical distribution of ancient mints. A total of 110 silver denarii from the early Piasts (10-11 th centuries AD) belonging to the collections of the National Museum in Krakow and the National Museums Berlin have been studied using micro-X-ray fluorescence spectrometry and the data have been contrasted with archaeological finds. The research has focused on evaluating the use of this technique as a screening tool for elemental surface characterization of the alloys. All denarii are made of Ag and Cu, with minor amounts of Pb, Fe, Au, Bi, and Zn. Quantitative analyses have revealed silver contents in the 86-97 % range for several of the surveyed coins. Regardless of the problems associated with the use of different
instruments and various experimental conditions, the results are in agreement with previous data obtained for similar coins from the same time period and geographical location. The advantages and limitations of the technique when examining numismatic collections are also explained. A known drawback of this method is silver surface enrichment, which is a common process observed in 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 studying 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.

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TH4-10 Abstract 08
Smithies and forges in the Northeastern Baltic from the 11th to 16th century AD

Author - Saage, Ragnar, Tartu University, Tartu, Estonia (Presenting author)
Keywords: Baltic metal working, Historical metallurgy, smithy sites
Presentation Preference - Oral

Smithy sites are quite rare monuments to be archaeologically excavated. This study encompasses sites from Estonia (Paasta, Haapsalu, Kuressaare and Käki), Finland (Gubbacka and Tontitnäki) and Russia (Minino I and Gat) to get a better understanding of the smithies discovered so far and how have the forge construction changed. Also, ethnographic records of 19th-century Estonian smithies are used to illustrate the variability of the different smithy set-ups and (when provided) the conflicting reasoning behind these choices.

In the Northeastern Baltic, the period under investigation can be divided into three stages. Firstly, the Iron Age smithies with pit forges in the 11th and 12th centuries. Secondly, the transitional period in the 13th – mid-14th century, when the urban smiths began to use new forge designs, while some rural smithies continued to operate in the Iron Age traditions. The 13th century marked a period of crises in the Eastern Baltic, which was followed by the founding of new towns, which brought forth an influx of craftsmen from the already established towns from the West. Thirdly, the developed crafts guilds period from the mid-14th – 16th century, when the continued movement of apprentices had ensured the spread of urban smithy designs and techniques to the rural areas.

While Russian smithies do not necessarily follow the pattern of Finland and Estonia, they provide a valuable source of well-preserved data that help fill in the gaps in our knowledge from that period.

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TH4-10 Abstract 09
Tracing Multimetal Craftsmanship through Metallurgical debris – Open air workshops and multimetality

Author - Svensson, Andreas, Lund University, Lund, Sweden (Presenting author)
Keywords: Metallurgical debris, Multimetal craftsmanship, Multimetality
Presentation Preference - Oral

Multimetal debris is by far the most informative source material for studying the metal craftsmanship of the past. In comparison to the known fainter and far more attention in archaeological research, debris material are more or less confined to the original workshop sites and hence provide direct evidence as to production volume and quality, site organisation, artisanal skill and operational sequences within the various crafts.

On many sites throughout the “Metal Ages” evidence of both iron smithing and the use of non-ferrous metals can be found. Traditionally, a clear division between these types of crafts has been enforced in site interpretation, separating sites into ferrous versus non-ferrous workshop sites chronologically or spatially. However, the presence of, for instance, smithing slag cakes with droplets of Cu-ally in their matrix as well as casting debris of both metals and ceramic materials in forges and smithing hearths challenges this strict division.

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 based first and foremost on the metallurgical debris documented on or collected from them. Sites in selected target areas will be subject to intra-site analysis of their metallurgical remains focusing on workshop organisation, the array of metalworking techniques utilised and the chronological variances of multimetal craftsmanship.

A primary aim in the project is to elucidate the conceptual aspects of complex metalworking. The term multimetallity is used to analytically frame all the societal and cosmological aspects of metal craftsmanship. Through this inclusive perspective both the metal craftsmanship and the metalworkers behind it are positioned within the overall socioeconomic framework. The metalworkers, their skills and competences as well as the products of their labour are viewed as dynamic actors in the landscape and on the arenas of political economy of the Late Iron Age. This paper aims to present a few examples of the surveyed multimetal sites, discuss workshop reconstruction through metallurgical debris and present preliminary interpretations of the sites internal organisation and placement within the cultural landscape. Many of the sites surveyed so far are interpreted as open air workshops with a relatively long continuity ranging several generations of metalworkers. How is this to be interpreted? Where the multimetal craftsmanship undertaken of temporary character? And if so, why did the metalworkers continue to use the same workshop site for generations?

The concept of multimetallity and the possibilities to capture this elusive, yet crucial, element of metal craftsmanship through the study of metallurgical debris will also be discussed in the paper. The surveyed sites and the reconstruction of their internal workshop organisation will serve as examples of how multimetallity was manifested on the sites and in the landscape.
To begin with, an arcaic 'object autopsy' on the famous Gniezno 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 ornament. Why was then so much effort put into restoring the Gniezno 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.

In the case of 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 feigned dress ornament, we might ask whether the Yelets emblem represents the might of the princelly 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 Yelet brooch displays signs of wear and repair that might indicate that it had been passed down to later generations. As Viking Age craftsmen were 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. hab., Armbruster, Barbara, Laboratoire d’archéologie TRACES - UMR 5608, Toulouse, France (Presenting author)
Co-author(s) - Pesch, Alexandra, Zentrum für Baltische und Slawenarchäologie, Schloßwig, 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 (Schloßwig). This paper deals with the technological aspects of these fineries including the “chaîne opératoire” of the production processes and the tools imploved. 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 process in the Žardo-Bandužiai archaeological complex (Lithuania)
Author - Masliučienė, Ieva, Klaipėda University Institute of Baltic Region History and Archaeology, Klaipeda, Lithuania (Presenting author)
Co-author(s) - Selskienė, Aušra, 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 (Žardo) 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 metallography 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 RB RAS, Novosibirsk, Russian Federation (Presenting author)
Co-author(s) - Daubaras, Mantas, Lithuanian Institute of History, Vilnius, Lithuania
Co-author(s) - Wärmänder, Sebastian, Stockholm University, Stockholm, Sweden
Keywords: dental non-metric traits, Lithuanian
Presentation Preference - Oral
Domains and Sinpigos archaeological sites are located in the Lake Birzulis region, West Lithuania. Calibrated 14C data for the Mesolithic graves from Donkalnis and Spiginas are around the second part of the VII millennium BC – the middle of the VI millennium BC. Sinpigos Mesolithic graves belonged to the period from the second quarter of the VII millennium BC to the middle of the VI millennium BC [Esenys, Balčiūnienė, 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 [Balčiūnienė, Černyš, Jiankauskas, 1992; Balčiūnienė, 1985, 2012, Bulyte, 2012]. The main features of this type are the absence of external traits such as, for example, spotting 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 generally 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 crania 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 (Yuriy Olein Ostrom), Sweden (Scateholm) and Mesolithic and Neolithic series from Ukraine (Vasilevka, Vorvyn-1, Vorvyn-2, Nikolskoe, Yasynovka) because some of the Neolithic burial 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 Yriulny Olein Ostrom, less in Zvenieky and minimally in Lithuania. So we can suggest that its presence depends on the distance from the Baltic Sea. Lithuanian findings lack almost all eastern non-metric markers, except the six cusps, but proportions of molar crows they have close to contemporary Saami, Latgalis and some mongoloid groups. This differ them from all of the Ukrainian samples which belong to clear middle European dental type, without any eastern admixtures.
Prevalence of pathological lesions in the Iron Age water burial site Levānuža, Western Finland

Author - Balo, Kat, University of Helsinki, Helsinki, Finland (Presenting author)
Co-author(s) - Jakov T., University of Durham, Durham, United Kingdom
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Co-author(s) - Wessman, Anna, University of Helsinki, Helsinki, Finland
Keywords: Finland; Osteochondritis dissecans; Paleopathology
Presentation Preference - Oral

The prevalence of peripatric lesions in the lower molars, however, were slightly higher in Levānuža than in later periods. This may be explained by advanced dental wear or trauma. The alveolar-CEJ distance was also lower though 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 Levānuža 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 osteochondritis dissecans, but its prevalence exceeds the normal crude prevalence rate of osteochondritis (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 skulls seems to be a slightly lower than the later periods in Finland.

Schönro'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.


Evidence for venereal syphilis in post-medieval Riga, Latvia

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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 (RDCC) and 198 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. All individuals were then observed for pathological changes possibly associated with VS, including destructive lesions on the outer table of the skull vault and in the vertebral column, as well as bieritic, extensive new bone formation on the long bones of arms and legs. According to the morphological analysis, there were 108 males, 80 females and 86 non-adults in the RDCC population, and 74 males, 45 females and 77 non-adults in the SPCC population. Six individuals from the RDCC and two from the SPCC with lesions possibly associated with VS were selected for further analysis.

Pathological changes on the outer table of the skull and on the long bones of legs characteristic of VS were observed in four female and one male individual from the RDCC. In addition, changes possibly related to late congenital syphilis were observed in a male and a young non-adult individual from this cemetery. All these individuals had been buried in a small area adjacent to the Northern wall of the Riga Dome Church, and it has therefore been hypothesised that it belonged to a hospital.

There were only two individuals with possible VS from the SPCC, a female and a male, both aged between 20 and 30 years at death. The skeletons were incomplete, and the diagnosis was based on bilateral, extensive new bone formation on the arms and legs, along with cortical thickening of the long bones. St Peter's Church of Riga was associated with wealthy traders, but the cemetery outside the church mostly accommodated the poor, occasional residents of Riga who belonged to St Peter's parish. 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 Jēkabpils, 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 (29%) 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, unequal variances). However, a significant relationship (p=0.03) 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 = 0.06). 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.

Prevalence of pathological lesions in the Iron Age water burial site Levānuža, Western Finland

Author - Balo, Kat, University of Helsinki, Helsinki, Finland (Presenting author)
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Keywords: Finland; Osteochondritis dissecans; Paleopathology
Presentation Preference - Oral

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 Jēkabpils, 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 (29%) 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, unequal variances). However, a significant relationship (p=0.03) 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 = 0.06). 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. 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 the basis to compare the ancient DNA profiles of Viking age remains to ancient and contemporary European populations for information about ancestry and the migrations in ancient times. Our project called Life Histories in Teeth was launched in 2015 with the aim to develop isotope sampling methods and to produce isotope analysis (\(13C, 15N, 18O, 34S\)) and a smaller sample set is further selected for compound specific isotope analysis, bringing them to life.

Two boat-groves, Salme I and Salme II, were found and excavated in 2008-2011 in Saaremaa, 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 age, sex, origin and social status. However, with recent developments, modern DNA technology can enable a comprehensive genetic analysis. Today we can get information about ancestry, origin, gluten 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, weight, fatty acids, body odor and BMI.

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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 retest 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 Eastern Baltic burials were selected in order to cover all chronological horizons of a 800-1000-year period (c. 34th–11th centuries AD) to obtain radiocarbon dates associated with each artefact type as possible. Special attention was also paid to the construction of the burials, 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 typology schemes.

The radiocarbon dates appeared to be unexpectedly old compared to the typological ones, and this can be hardly explained by the uncertainties of sampling or 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 possibly 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 this 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 all the hilfort and cemetery were presented new information on the relative dating of these and even challenged the old interpretation (Ononen 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 Bronze Age cultures of north and south of Gulf of Finland. Second, we present new 14C-based chronological schemes of the site to shed light on both absolute and relative dating of hilfort and cemetery. Third, we present new data on dietary habits and discuss genetic affiliation of the people based on δ13C, δ15N 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.

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Investigating the human remains from the Tallinn gallows hill is part of an ongoing study of Estonian execution sites. The study involves field work and excavations of uninvestigated gallows hills, as well as analyzing material from previously excavated sites in Estonia. Comparisons will be made with data from neighbouring countries, and the ultimate goal is to provide a clearer picture of the history of executions in Estonia.

The main gallows site in Tallinn was excavated in 1994 as part of a construction project. Most of the site was dug through, and it is the so far most completely excavated Estonian execution site. The stone gibbet was erected around the 14th-15th centuries and was in use until the middle of the 18th century. During the rescue excavations a triangularly shaped and partially preserved structure foundation was encountered, and also numerous human remains: at least twenty complete skeletons together with approximately a hundred commingled skulls located inside the gallows structure. During the excavations, these human bones were interpreted as originating from executed individuals.

The mixed human remains were subjected to preliminary investigations in the mid-1990’s, but no thorough osteological analysis has so far been done for this extremely interesting material. Now, 20 years later, these remains will therefore be re-analyzed, with a particular focus on answering research questions such as identifying all the traumas that could be related to execution or violent death, and to determine sex, age, and pathologies – which age/sex group was executed the most, and where there any subadults among the dead?

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 lead to an influx of genetic diversity not seen there before as well as admixture of local hunter-gatherer and immigrating people. Changes in the human genetic makeup caused by the Neolithic Revolution were analyzed and described in previous studies including ancient samples from many parts of Europe, however the genetic makeup of ancient humans from the Eastern 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 Neolithic 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 on 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

Author: Savulka, Sandra, Bournemouth, United Kingdom (Presenting author)
Co-author(s): - Smith, Martin, Bournemouth, United Kingdom
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

Author: Dr. Wärmländer, Sebastian, Stockholm University, Stockholm, Sweden (Presenting author)
Keywords: bioarchaeology, craniometrics, skeletal analysis
Presentation Preference: Poster

At the time of its sinking in 1676, the Swedish flagship Kronan 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

Thursday, 1 September 2016, 09:00-13:00
Faculty of Philology, Room 10

Author - Shirshikov, Roman, Vilnius University, Vilnius, Lithuania
Co-author(s) - Svirickas, Konstantin, Kaliningrad State Museum of History and Art, Kaliningrad, Russian Federation

Keywords: Baltic ware, Latvia, Potters’ wheel

Presentation Preference: Oral

The paper focuses on the variability of pottery-forming technologies in Latvia during the Iron Age, emphasizing the role of the potter’s wheel in shaping cultural and economic interactions within and across the Baltic region. The analysis of ceramic assemblages from various sites in Latvia and the neighboring territories demonstrates the adoption and modification of Baltic ware traditions, highlighting the importance of exchanges and cultural influences in the first millennium AD.

TH4-12 Abstract 01
The Scandinavian influence upon Western Latvia: the case study of Grobiņa Archaeological Complex

Author - MA Santa, Jansone, University of Latvia, Riga, Latvia (Presenting author)
Keywords: Cultural exchange, Migration Period, Nemunas

Presentation Preference: Oral

The increasing attention has been drawn to the Scandinavian expansions in the Viking Age, while leaving aside earlier periods, which laid the foundations of character of the Viking Age. The main aim of the paper is to identify the role and meaning of Grobiņa, in the late prehistoric Western Latvia and entire Eastern Baltic region, analysing characteristic of the Scandinavian colony and the mutual relations between colonists and Curonians. The study uses both written and archaeological sources.

TH4-12 Abstract 02
The cemetery of Linkuhnen and the cultural exchange between Western Balts in the first millennium

Author - Dr. Jahn, Christoph, Museum für Vor- und Frühgeschichte Berlin, Berlin, Germany (Presenting author)
Keywords: Migration Period, Nemunas

Presentation Preference: Oral

The cemetery of Linkuhnen at the Nemunas River is best known for the large number of swords and other weapons from the Viking Age. Until little attention has been paid to the various finds from the Roman Iron Age and Migration Period in Linkuhnen. The analysis and re-evaluation 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 show a continuous usage of the cemetery from the Iron Age and the Migration Period to the Viking Age (2-11th century AD) with almost 500 burials and over 5000 grave goods. The finds from the Migration Period are indicators for long-distance trade and communication between Prussians, Scalvians, Curonians and other archaeological cultures in the first millennium. The presentation will offer a closer look at the burial site of Linkuhnen and an overview of the changing cultural relationships 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 03
Preliminary considerations on the technological variation within Baltic ware pottery

Author - MA Sušte, Ailise, National History Museum of Latvia, Riga, Latvia (Presenting author)
Keywords: Baltic ware, Latvia, Potters’ wheel

Presentation Preference: Oral

The potter’s wheel is one of the principal technological innovations of the Late Iron Age (10th – 13th century). Through Baltic ware pottery, its use rapidly spreads across the Baltic Sea region. This paper focuses on the variability of pottery-forming techniques in Latvia during the adoption of the slowly rotating potter’s wheel and Baltic ware pottery. As indicated by archaeological material, both Eastern and Western Latvia are part of the Baltic Sea trade network. It is the path along which potters spread their goods and skills. However, when conducting a more detailed analysis of Baltic ware, the use of potters’ wheel is subject to distinct local variations. In the East, there appears to be a sudden switch from the previous pottery tradition to the new Baltic ware. There is little to no interlaying period of varying hybrid-forms. It seems that the technology and the skills for using it were acquired almost at the same time. In the West the potters’ wheel is taken up only partly, preserving previous pottery production methods and using them alongside the new methods. The hand-made manufacturing tradition was not forgotten; in fact, hand-made pottery was still produced until the fourteenth century. This paper aims to show a different pattern of relation of the local people to the changing world around them through the acquisition of Baltic ware and the potter’s wheel. The differences of taking up the new technological innovation could not have originated just from differing placement within the trade network. Both regions have equal access to the new technology. However while some take it up rapidly others seem more hesitant. The braking and remaining of thousands of years old pottery production traditions was influenced by longstanding socio-economic paradigms. Further discussion of pottery variation might reveal some important playing factors within these paradigms.

TH4-12 Abstract 04
Belt hooks, fishing lures or clothing fasteners?

So-called belt hooks in the Western Baltic lands

Author - Dr. Władysław Szewczenko, University of Warsaw, Warsaw, Poland (Presenting author)
Keywords: Burial rites, Chronology, Prussians

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 werelisted, with nearly half of them found at the burial ground in Kaup near Wejherowo. The 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.

The so-called belt hooks were discussed in the past. The problem that attracted special interest was the function that the belt hooks served. Several interpretations were presented, however, most of scholars believed they were belt fasteners (G. Gürelhalzen). An alternative explanation assumed that they were fishing lures/hooks.

The author of the paper will focus on few issues. First of all, results of analysis of the distribution of ‘belt hooks’ will be presented. Another issue of a significant importance will be the chronology of the investigated objects. A special attention will be paid to the problem of their function. Were they belt hooks, fishing lures or buckles for fastening clothes?

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) - Sviridov, Konstantin, IA RAS, Moscow, 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 unknown where was the source for such sophisticated jewelry technologies often applied Prussian masters at one a thing from start the XI century. These techniques 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 Scandinavian sample. Time of their appearance in Prussia is similar with such décor spreading in neighbor territories of the Kuri and the Finns.

The inlay was used for arms (sword pommels from Izračakina, Switsy) (Zimmerbude), plugs of spearheads from Vetrovo and Fedorovo (Moldaier). Spearheads from Kovrovo, Fedorovo and Kauster, parts of harness from Kurisëk (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 (Moravia, Poland, Kaliningrad region (East Prussia), Belgorod region). New findings of this stage goods (belt plates, spurs) are represented in materials from burrial ground in Fedorovo, Ruvnina Dolna (Unterplenen, Równina Dolna, Poland), Prudno/Alt Wehlau, Simonischken, Klinovka (Vilnius, Kunterstrauch), 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 decor 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 it’s 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 human and animal agency and interaction (morphological variability, growth and development, senescence, diseases, diets) as well as human and animal population studies (paleodemography, genetics).

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 Polish Academy of Sciences, Poznan, Poland (Presenting author)
Co-author(s): - Werra, Dagmara H., Autonomous Unit for Prehistoric Flint Mining in Warsaw, Institute of Archaeology, Warszawa, Poland
Co-author(s): - Mangado, Xavier, University of Barcelona, Barcelona, Spain

Presentation Preference - Workshop

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 artifacts 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 Abstract 01

Archaepetrological Study of the Lithic Industry from “Hort de la Boquera” site (Tarragona, Spain)

Author: PhD student Rey-Solé, Mar, University of Barcelona, Barcelona, Spain (Presenting author)
Co-author(s): - Garcé-Anglejas, Pilar, University of Barcelona, Barcelona, Spain
Co-author(s): - Mangado, Xavier, University of Barcelona, Barcelona, Spain

Keywords: Archaepetrology, Flint, Raw materials

Presentation Preference - Oral

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 archaepetrological 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 the results that 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 Bourdonnée, François-Xavier, Université Bordeaux Montaigne, Pessac Cedex, France
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Keywords: chert characterization, geochemistry, lithic raw materials procurement

Presentation Preference - Oral

An intense fastwork focusing on the definition and characterization of chert sources outcropping in the Pyrenees (SW Europe) was recently done. 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 micropalaeontological characterization of chert using macroscopic and microscopic methods. However, results showed that these techniques had some limitations regarding the existent similarity between several formations. Thus, recovering the previous data obtained after the textural, petrographic and micropalaeontological 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 - Chatzipapadogiou, 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-MC), 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. Their disadvantages 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.

Finally, the main principles, functions, equipment and limitations of these techniques will be demonstrated. Secondary, 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-authors - Dr. Feuertré, Paul, S.A. Paléontome, Villard-de-Lans, France
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Co-author(s) - Prof. Filmer, Peter, Institute of Statistics and Mathematical Methods in Economics, Vienna University, Vienna, Austria

Keywords: flint, archaeometry, Belgian case study

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 last 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 now 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 accumulations were present in relic beaches and carried by nearby palaeorivers. 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 homogeneous nature of the flint matrix. This project investigates the geochemical signature of these flint objects with
Erratic Flint from Poland. Preliminary results of petrographic and geochemical analyses

Author: Dr. Sobokwa-Takaba, Iwona, Centre for Prehistoric and Medieval Studies in Poznań, Institute of Archaeology, Poznań, Poland (Presenting author)
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- Hughes, R.E., Geochemical Research Laboratory, Portola Valley, United States of America

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 most 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 paritcular 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 extremely difficult to link a deposit to concrete artefacts found at 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, are widely used in prehistoric times. Almost all styles of their use have been studied by 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: siliceous sandstones, quartzite, siliceous marls, marne-horritone, flysch radiolite, bricza-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 of crucial issue in the study of connections between prehistoric communities.

The purpose of our work is to present the primary macroscopic and petrographic characteristics of different variants of siliceous sandstones, quartzite, siliceous marls, hornstones, flysch radiolites 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 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 (Barcevičius, Taralkėvičius, 2015, Archaeologia Lituana, v.16, p.45-62) enables to hypothesise 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 date 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, Si, P, Br, Cl, 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+) sub-samples from the same brick (avoiding the effect of random sample selection), b) to take samples from the inner part of the brick (excluding anthropogeochemical 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.

Zamostje 2 via thin-section analysis

Site Zamostje 2 is situated in the northern part of the Moscow district on the Dubna 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-Volga outwash alluvial lowland with the depth of about 100 m. Lowland transect to Kūriaša-Drimtelis 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.
This paper is interested not only in the formation of these hollows but the nature of their infills and the research potential of the archaeological materials. Using micromorphological analysis of the subsoil of the Early Medieval stuff, we especially focused on huts called ‘sunken huts’. This case study is not only relevant for the study of these structures but also for the study of other similar types of buildings. The results presented here show the potential of using micromorphological analysis to study the formation processes of these structures.

Keywords: micromorphology, Early Medieval, huts, sunken huts.
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 micro-morphological 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 BFs, structures in priori without notable interest, give a lot of information on the archaeology of the sites. The interdisciplinarity 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 08**

**Cooking pits, formation processes and democracy**

Author - Swedberg, Stig, Kulturskapskapet, Fältbacka, Sweden (Presenting author)

Co-author(s) - Ödstrand, Annika, Kulturskapskapet, Fältbacka, Sweden

Keywords: Cooking pits, Democracy, Multi analysis

Presentation Preference - Oral

In a Scandinavian context cooking pits have often been thought to carry none 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 radionuclide 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 Tanum 1821 a compilation was performed of the cooking pits that had been excavated in the local area. The presentation of this paper is to use archaeobotanical remains and pottery sherds for interpreting layers and pit-filling processes. At Monte das Cabanas more than 3400 charcoal fragments, 397 sherds and 43 carpological remains have been analysed. All these archaeobotanical materials provide taphonomic information to reconstruct cultural and natural processes involved in pit-filling. At Monte das Cabanas the P-P-P-P problem of this paper is to use archaeobotanical remains and pottery sherds for interpreting layers and pit-filling processes.
To solve this situation we created a strategy for the excavation. We measured the volume of large (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 material is composed by both marine and terrestrial birds, including edible species as well as diurnal and nocturnal raptors. The procurement of small prey has been widely discussed over the last decades, and in particular since the recovery of bird bone remains from the Middle Palaeolithic site of Gruta da Figueira Brava located on the west coast of central Portugal. The identification of a Middle Palaeolithic lithic industry essentially made of quartzite and the MIS-5 absolute dates obtained by speleothem analysis have confirmed a Neanderthal occupation of the cave. The mammal assemblage recovered shows evidence of Neanderthal manipulation of large to very small animals, including tortoises and rabbits, with only scant participation of carnivore activity to the mammal accumulation. An faunal assemblage was also recovered and is composed by both marine and terrestrial birds, including edible species as well as diurnal and nocturnal raptors. 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/raptor activity. In order to identify the agent of bird accumulation, a detailed analysis within the framework of taphonomic analysis was performed. The data suggests that diverse occupational dynamics occurred in the cave with differences between the neroeked 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.

**TH5-03 Abstract 11**

Taphonomic analysis of the birds from the Middle Palaeolithic site of Gruta da Figueira Brava

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**Keywords:** Archaeological prospection, Italian prehistory, Site formation processes

**Presentation Preference:** Oral

The procurement of small prey has been widely discussed over the last decades, and in particular since the recovery of bird bone remains from the Middle Palaeolithic site of Gruta da Figueira Brava located on the west coast of central Portugal. The identification of a Middle Palaeolithic lithic industry essentially made of quartzite and the MIS-5 absolute dates obtained by speleothem analysis have confirmed a Neanderthal occupation of the cave. The mammal assemblage recovered shows evidence of Neanderthal manipulation of large to very small animals, including tortoises and rabbits, with only scant participation of carnivore activity to the mammal accumulation. An faunal assemblage was also recovered and is composed by both marine and terrestrial birds, including edible species as well as diurnal and nocturnal raptors. 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/raptor activity. In order to identify the agent of bird accumulation, a detailed analysis within the framework of taphonomic analysis was performed. The data suggests that diverse occupational dynamics occurred in the cave with differences between the neroeked 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 9**

Transdisciplinary results of site formation processes in the wetland site Zug-Riedmatt (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 6 m, below the dafacs 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 in the lab. Using a microarchaeological methodological approach, 79 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, archaeozoology and micromorphology. The three profile columns cover the whole occupation layer of up to 1.3 m of thickness, which shows significant differences between the different types of structures regarding the activity areas around them. These areas were not detected in the field situation but are due to the analyses. The radioactivity datings shows that the site was occupied temporarily. The site was situated at a 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.

**TH5-02 Abstract 10**

Formation processes related to foragers in tropical forests

**Author** - Dr. Friesem, David, University of Cambridge, Cambridge, United Kingdom (Presenting author)

**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 focuses on the study of archaeological site formation processes related to forager ways of living in a tropical forest environment. It presents a geo-archaeological case study from
Unravelling the formation process: re-excavating stratigraphy beneath the temples of Malta

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The great megalithic temples of Malta were first examined in a systematic manner in the early years of the 20th century by the earliest archaeologists. Thomas Ashley and Eric Peat from the UK joined Théodore Jamin in Malta in the first properly recorded excavations, and their published records provide us with a rich and varied archaeological evidence from a century ago. In early and late stages of the Middle Ages, which was not hitherto assumed by singular studies, the archaeological record through coordinated methodologies to extract the maximum information from the remnants that remain.

Interdisciplinary research for unravelling the chronology of archaeological sites of Ułow (Poland)

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A group of archaeological sites located near the village of Ułow 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 conducted in 2002 and has been intensified since 2014, when a research project entitled “Roztocze – the ancient terra incognita” (Settlement micro-region in the area of Ułow in Middle Roztocze in the prehistory and its background). Interdisciplinary studies) obtained financial support from the National Science Centre in Poland. The main focus of the research is the reconstruction of processes behind prehistoric settlements in this area based on interdisciplinary investigations, including archaeological, anthropological, geomorphological, and archaeobotanical research, among others. In this area, the archaeological site 3 is especially interesting when taphonomic problems are considered. It was largely excavated 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 Welbark 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 was 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 fire-pits belonging to the Roman period cemetery, turned out to be of 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 interval of settlement dated to the early and late stages of the Middle Ages, which was not hitherto assumed by singular archaeological findings. Moreover, the archaeological analysis of barrows dated to the Corded Ware culture, complemented by radiocarbon dating, demonstrated taxonomical and chronological 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 prehistoric cultural formation is possible by the implementation of a complementary and interdisciplinary approach.

Keywords: Antiquarian, Malta, Temples
Presentation Preference: Oral

Neolithic before Neolithisation? The evidence of first farmers in south-western Slovakia

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Keywords: environment, Neolithic, pottery technology
Presentation Preference: Oral

The beginning of the Neolithic in south-western Slovakia was so far mainly studied from typological-chronological perspective. Most of the find assemblages come from the earlier rescue excavations, field surveys, stray finds or finds without reliable find circumstances. These factors and the lack of multidisciplinary approach did not allow researchers to study the neolithisation process in a more detailed way.

Recent discovery of a new Early Neolithic site in Sanottievá shows that this gap in the evidence is now filled. The site is located in south-western Slovakia on the northern outskirts of the Pannonian Lowland, in the drainage basin of the creek Bišť, which flows into Ipel. The constant monitoring of the site since 2012 and subsequent archaeological excavation with interdisciplinary approach about 10 years sight into the transition of Mesolithic and Neolithic. The presence of thermal springs led during the Quaternary to the accumulation of travertine mounds. The Holocene formation of travertine dammed the creek Bišť and led to the accumulation of calcareous clay during the Early Holocene. The analysis of plant microremains and molluscs dated to the first half of the 6th millennium BC shows that the site was covered with mosaic of forest and vegetation of open habitats.
Exceptional discovery was made in the stratigraphically older layer of calcareous clay, where unusual pottery was located. Radiocarbon dates of the organic temper from pottery correspond with the end of 7th and beginning of 6th millennium BC. The pottery is of unique shape and form. 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 Štiavnice 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 Udistalen, Gøt, Norway. Udistalen 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 to construct a phenomenological understanding of life in Udistalen 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 archaeoaoustic 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.

TH5-02 Abstract 17

Regional correlations of destruction layers using Earth’s magnetic field: The Levant case study

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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 ovens sampled in-situ within individual destruction layers at the settlements of El-Araj (Iron Age IIA-IB) and Kefar Hananya (13th-8th centuries BCE). During parts of the Iron Age the 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.

TH5-02 Abstract 18

Applying silence and sound to environmental reconstruction: frameworks, applications, implications

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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 1977 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 soundscapes as well as helping us understand how sounds were part of the prehistoric environment and the formation processes of site creation. Thus, we believe we can add further information about the location and cultural (sound-producing) activities of 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.

Blake & Cross (Current Anthropology, 2015) proposed a framework for systematic sound-recordings that is objective, comprehensive and multidisciplinary in orientation. Their framework implies considerations regarding human auditory systems, human uses and environmental effects of sounds, sounds’ impact for social behaviour, ethnological considerations of sounds, sound-making tools, natural soundscapes, and ethnographic generalities as well as particular cultural examples.

Zubrow and Lindström (Current Anthropology 2015) applied Blake & Cross’s framework in areas around the “Vikingtidsgravene” (graves from the Viking Age) in Udistalen, Gøt, Norway. Udistalen 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 to construct a phenomenological understanding of life in Udistalen 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 archaeoaoustic 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.

TH5-02 Abstract 19

Not separating wheat from chaff: considerations for differential recovery of charred 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 charred archaeobotanical material from archaeological deposits. The basis of this presentation is data from 10 archaeobotanical 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 sparsely distributed remains might be used for broader site interpretation by trying to identify activity areas via the integration of archaeobotanical data with contextual information from excavation.

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 often 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/sediments) 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 (Devo et al., 2013; Vrydaghs et al., in press).

References:


Understanding how such heat conditions can be maintained during destruction of mud brick structures is currently under study.

Destruction event can be untangled to components such as spatial temperature patterns and directions of architectural collapse, heating conditions. Using FTIR spectroscopy, micromorphology and paleomagnetism back on site we show how the Stratum VIA destruction event (Stratum VIA of the late Iron Age I) is studied using a geoarchaeological approach. Initial mineralogical analyses, using FTIR spectroscopy, indicated that mud bricks found at the destruction level are homogenously 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 found in an in-situ standing wall shows the same magnetic field directions, suggesting in situ burning, i.e., construction with sun-dried mud bricks.

We conducted several sets of laboratory-based experiments using model bricks fired under different temperature, duration and oxygen level conditions. The resultant fired model bricks were further tested for mineralogical changes under these various heating conditions. For ca. 250 large-volume samples (ca. 5 L) and ca. 120 small-volume samples (ca. 0.3 L). We developed specific quantification instruments for identifying the depositional processes since these same processes contribute to the presence of pottery in a very specific context. In this respect, the manner in which artefacts are presented in the archaeological record constitutes one of the main decodifying tool of the archaeological record. For definition purposes, we will use 3 stages that are acknowledged in the lifecycle between both. It is precisely this aspect, the relationship between stratification and objects, that we want to discuss in this poster.

Future if proper palaeoeconomic evaluations of archaeobotanical remains are to be done.

Unravelling Formation Processes Associated with Destruction by Fire

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 conflicts, in conquest campaigns. A recent project is conducted at Tel Megido, a key Near Eastern archaeological site, in which a massive destruction event (Stratum IA of the late Iron Age I) is studied using a geoarchaeological approach. Initial mineralogical analyses, using FTIR spectroscopy, micromorphology and paleomagnetism back on site we show how the Stratum VIA destruction event can be untangled to components such as spatial temperature patterns and directions of architectural collapse, and propose areas of ignition and fire path spread. Further experimentation with modeled mud bricks revealed that a minimum of 650°C (as determined from all directions) is required in order to produce the observed effects. Understanding how such heat conditions can be maintained during destruction of mud brick structures is currently under study.

The importance of formation processes in archaeology is unquestionable. They condition the stratigraphic circumstances of sites and are determining factors for understanding the phenomena of occupation, abandonment and post-abandonment of archaeological structures and sites. To know, for example, whether we are dealing with the level of use or destruction of a building is basic to be able to reconstruct its biography, to determine its level of residuality or to establish its chronology.

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 last third of the 20th Century. This investigator 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 those same elements have come to us over 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.

Starting from the experience accumulated by our group in field excavation, this study aims to characterise the main 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 recovery 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.
TH5-02 Abstract 26

**Palynological contribution for formation processes reconstruction in a Neolithic pile dwelling site**

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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, stabling of livestock, etc. In addition, the integration of both biocultural 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 (Siona, Spain), a pile dwelling site located in the shore of Lake Banyoles.
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 3000 years ago. Compared to early and later periods, the lifeways of these pastoralists, who brought with them domesticated animals including horses, 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 most 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, reindeer, cattle, sheep, goat, cows).  As well, every pastoralist skeleton is examined for paleopathological evidence of trauma, disease, and morphological alteration.

Isotopic results indicate that foragers utilized a mixed subsistence strategy, relying considerably on the Lake’s many fish species and, possibly also on the Baikal freshwater seal. In particular, Cis-Baikal pastoralists have stable nitrogen ratios from -11.0 to 18.0%, which is two to three trophic levels higher than the domesticated fauna (mean = -4.0 to 5.0%). With slightly lower 15N values in individuals from later periods. Paleopathologists from the Buturkhei period have stable carbon values that are 2.0 to 4.0% lower than the domesticated fauna, which can be explained by consumption of freshwater resources. In some later period pastoralists 13C values become even more negative, which, in conjunction with lower 15N values, suggests the C4 plant millet may have been consumed either by people or their livestock. Yet, fish remained an important part of the pastoralist diet up to modern times.

Many of the skeletons were very incomplete, limiting paleopathological investigation. Of the most complete skeletons, by far the most common pathological lesions are osteoarthropathy of the spine and degenerative disc disease (n=9) and spondylodiscitis of the fifth lumbar vertebra (n=3). One older male had a healed tibia-fibula fracture and two individuals had genu valgum. Of the first two, the upper limits, especially the hammer and ulna, were robust and had very pronounced muscle attachment sites. We propose this suite of pathological lesions and bony abnormalities are likely the result of a lifetime of high mobility and riding horses through the rough steppe environments of the Cis-Baikal. This research offers our new insights into the lifeways of Cis-Baikal’s enigmatic pastoralists.

**TH5-03 Abstract 02**

**Porotic hyperostosis and cribra orbitalia**

**over the Neolithic transition in the Danube Gorges, Serbia**

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**Keywords:** cribra orbitalia, Neolithic transition, porotic hyperostosis

**Presentation Preference - Oral**

The most commonly reported pathological lesions in archaeological collections are porotic hyperostosis on the cranial vault surface and cribra orbitalia on the orbital roofs, both macroscopically visible as constrained areas of pitting and porosity, and both being manifestations of diastope expansion. Hemolytic and megaloblastic anemia are the most likely causes of porotic hyperostosis, while other pathological processes (scurvy, rickets, hemangiomata and traumatic injuries) can also lead to orbital rosetting.

Here we present results of a gross anatomical study of porotic hyperostosis and cribra orbitalia in a sample size of 113 individuals from four archaeological sites spanning the Neolithic–Early bronze age transition in the Danube Gorges, Serbia (Vlasac, Leperaški Vrci, Hajdučka Vodenica and Padina; c. 9500 – 5500 BC). We also discuss the paleopathological implications of our findings in terms of previous isotope studies of this material. Our results show a high prevalence of porotic hyperostosis (89%) and a low prevalence of cribra orbitalia (13%). No major change in prevalence of these lesions was observed through time. Isotopic studies indicate an overall consistency in dietary habits during all three phases at all sites in the Danube Gorges. As there was no significant improvement in the quality of the diet, nor a change in living conditions, characterized by small, crowded settlements, this is considered supporting evidence that nutritional and sanitation factors are probable causes of porotic hyperostosis and cribra orbitalia in this region. Our findings have useful implications for other studies of chronocapacitive malnutrition and infectious disease spanning the Neolithic transition elsewhere.

**TH5-03 Abstract 03**

**Dental paleopathology, diet and mobility at the Copper Age site of Marroques Bajos (Jaén, Spain)**

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**Keywords:** bioarchaeology, Copper Age, Iberia, paleopathology, stable isotope analysis

**Presentation Preference - Oral**

Marroques Bajos represents one of the largest Copper Age (c. 3200-2250 BC) mega-sites in Iberia and comprises a collection of numerous human remains. The site includes three areas of necropoleis (N1, N2 and N4) where primary and secondary burials were documented. In this paper we explore dental paleopathology, dietary differences and mobility patterns throughout bioarchaeological and multi-isotopic methods (n~108). The evaluation of the health status showed no significant differences in the frequency of caries between the three areas of necropoleis. However, at N2 there is a higher proportion of hypoplasia and at N4 of caries than the total sample. Stable isotopes of carbon 13C and nitrogen 15N in bone collagen showed different sources at N4 that at the other two mortuary areas. In addition, strontium isotope analysis 87Sr/86Sr and oxygen 18O showed greater variability at N2 and N4 that at N1. This research aims to investigate social differences based on health status, access to resources and place of origin between the three funerary areas based on the combination of palaeopathology and stable isotope analysis. We will discuss the correlation of diet and health along with the mobility patterns and the implications of these findings in the frame of the evolution of late prehistoric societies in the Iberian Peninsula.
TH5-03 Abstract 04

Late Iron Age Switzerland - New isotopic evidence for dietary habits of "Celtic" populations

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Presentation Preference - Oral

Investigations of stable isotope ratios from human remains in relation to geographical regions, sex, age, grave goods and chronology allow statements about the living and environmental conditions in ancient times. Stable isotopes do not decay over time and are therefore ideal tracers in biological systems. Swiss Island series are of great importance for research on European populations of the late Iron Age (450 to 15 BC). Written sources are scarce and biological-archaeological analyses provide direct information about individuals. Human remains (N = 146) from burial sites of different regions at the Swiss Plateau and the Swiss Alps were analysed. Collagen was extracted and stable carbon, nitrogen and sulphur isotopes were analysed. Additionally, published data from Münzingen (Moghadam et al. 2018) were included for comparisons.

All data were analysed for sex, age, regional and chronological differences within and between the burial sites. Stable isotopes indicate an overall diet mainly based on animal protein and plants following the C3 photosynthetic pathway. Significant differences between the Swiss Plateau and the Swiss Alps were found with more positive 813C and 815N mean values observed for the Swiss Alps. Some individuals indicate a significant intake of C4-plants in the diet. Cultural and/or climatic changes as well as different geological conditions might have had to led to different patterns of crop cultivation and animal husbandry. No significant difference could be detected between males and females as shown for Münzingen. Regarding the age classes the 815N values follow an isotopic trend indicating a breastfeeding signal for infants. The 818O data suggest a more terrestrial based diet with minor consumption of freshwater fish. Differences in the 818O data might reflect different local 818O values with minor mobility in Late Iron Age populations.


TH5-03 Abstract 05

Dietary and social patterns in early medieval southwest Germany – a stable isotope approach

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Keywords: Diet, Early Medieval Society, Stable Isotopes
Presentation Preference - Oral

This presentation explores the ecological dynamics of food resources and the establishment of dietary differences in the early medieval Alamania. Differential dietary patterns develop through various socio-cultural, economic and environmental factors and may be expressed in an unequal distribution of food resources or food preferences within a society or differential subsistence strategies between populations. The Alamannic row graves in southwest Germany present a substantial source to study these factors for a majority of the 5th-8th century AD with an allegedly ranked but somewhat fluid social system. The analysis of stable carbon and nitrogen isotopes in bone collagen of adult human and faunal remains of four row grave cemeteries (Fridingen a. d. Donau (N = 65), Kirchheim u. Teck (N = 62), Neresheim (N = 54)) and the separate necropolis of Niederstötzingen (N = 110) is conducted in order to investigate the interaction of resources such as diet, socio-cultural and gender identities in the framework of the respective natural conditions. The comparison of dietary proxies, archaeological and environmental data reveals a pattern of divergent internal dietary structures between settlement sites, reflecting different strategies in more or less favorable locations in the Frankish Empire as well as chronological changes. Higher amounts of animal protein in the diet of individuals buried in exceptional places (e.g. burial mounds) in Fridingen a. d. Donau and Niederstötzingen indicate socio-cultural dynamics, where special treatment in death is connected to dietary distinction during lifetime.

TH5-03 Abstract 06

What ate and who were people buried in the early medieval chamber graves in Poland

Author - Draszyca, Darek, University of Warsaw, Warsaw, Warsaw, Poland (Presenting author)
Keywords: chamber graves, early Middle Ages, stable isotopes analyses, diet, provenance
Presentation Preference - Oral

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 6 inhumation cemeteries 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 beginning of the 11th century. Chamber graves formed a heterogeneous group of people. Some of them seem to be of local origin and some were newcomers from different regions. Their diet, with some exceptions, did not vary much from the deceased interest in ordinary graves. However, the diet consumed by men and women buried together in double graves differed significantly.

TH5-03 Abstract 07

A paleoarchaeological and isotopic approach to dietary changes in medieval Holland

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Keywords: dental caries, medieval Holland, stable isotopes
Presentation Preference - Oral

The late medieval period in Holland was characterised by substantial socioeconomic changes. While the region was largely undeveloped prior to AD 1200, after large scale urbanisation and flourishing international trade, changes that would have impacted many aspects of life. This paper investigates the effect of these changes on diet by comparing skeletal collections from the central medieval village of Blokhuizen, AD 1000-1200 to the late medieval town of Alkmaar (AD 1448-1572) using a combination of dental disease and stable isotope data.

The caries results clearly point to a dietary shift (213 individuals analysed). The urban population of Alkmaar has a significantly higher caries frequency, which begins at a younger age, than the individuals from Blokhuizen, suggesting increased consumption of cariogenic products, such as sugars and starches. Significant dietary differences are also demonstrated by the stable isotope data (sample of 50 individuals analysed). The population of Alkmaar showed significantly enriched 815N ratios and had more variable 813C ratios than the population from Blokhuizen. This may be due to increased consumption of freshwater or marine fish by the people of Alkmaar. Alternatively, the consumption of animals/animal products of a high trophic level such as chicken, eggs, and pigs could have contributed to enriched 815N ratios.

A difference in the patterning of caries and isotopic data in males versus females between the two populations also demonstrates a dietary shift. In rural Blokhuizen, there was a significant difference between males and females in regards to caries frequency but not stable isotopic values. This likely reflects the universal biophysical phenomenon of higher caries frequencies in women. In urban Alkmaar, there was no significant difference in male-female caries frequencies, suggesting the diet changed in such a way that the expected difference was eliminated. The males were eating a certain type of food that was far more prevalent in the female diet, that did not shift their 815N values away from that of the females, but elevated their frequency of caries. This could include more starches or sugars, but also increased consumption of beer should be considered.

The combination of caries and isotopic data points to clear changes in diet for urban individuals of late medieval Holland.

It is hypothesised that an increase in market dependence and availability of international trade products in the late medieval period contributed to this dietary shift. Through the urban markets, new products such as fresh fruits, but also sugar and honey, became more widely available. Additionally, new techniques for preserving fish may have resulted in increased consumption of marine foods in towns. Moreover, a greater component of omnivore of high trophic levels in the diet could have contributed to the observed dietary shift. This study demonstrated that the integration of paleoarchaeological and isotopic research provided a more complete understanding of dietary changes in medieval Holland.

TH5-03 Abstract 08

The mobility at medieval cemetery in Hamina in northern Finland

Author - Dr. Laitinen, Maria, University of Turku, Turku, Finland (Presenting author)
Keywords: Mobility, medieval, strontium isotopes analysis
Presentation Preference - Oral

Stable isotope analysis is used to study mobility in the past societies. It has provided us a tool to investigate outsiders from populations, and also to estimate the mobility patterns. It is based on assumption of strong correlation between strontium isotope ratios in environment and human calcified tissues.
This strontium analysis method was applied on a large skeletal collection (MIN 260) discovered from the Iin Hamina cemetery. The site which was used during the 16th-18th century AD and has been previously studied with stable isotopes for diet, which strontium isotope ratios are the result of mixing between people with different aquatic environment. 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.

**THS-03 Abstract 09**

**Diet, morbidity and mortality of a north Finnish town 1600-1800 AD**

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**Keywords:** Neolithic, foddering strategies, stable isotopes

**Presentation Preference:** Oral

Kemi (65ºN 25ºE) has been a small but relatively important town in southern Finnish Lapland since the 17th 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 1690 and 1850. These data include the individual’s name and profession, the date of death, the place of death and, from 1750 on, the cause of death. In addition, the naturally mummified remains of some individuals buried under the churches of Kemi and Hankupää (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. Zoaarchaeological 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.

**THS-03 Abstract 10**

**Dietary variability among earliest domesticated pigs in the Iberian Peninsula**

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**Keywords:** Neolithic, foddering strategies, stable isotopes

**Presentation Preference:** Oral

Dietary variability among earliest 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, for example with animals slaughtered between the age of 18 to 24 months. This pattern shows relatively homogeneous over time. In this region, in order to investigate how early Neolithic communities raised and managed domesticated pigs in the NE Iberian Peninsula, we selected a rich assemblage of wild and domestic pig bones from Neolithic sites, dated between 5700-3500 cal BC, for carbon and nitrogen stable isotope analysis. The results reveal remarkable variability in the diet of domesticated pigs between sites, pointing to the existence of different management strategies. This study shows the correlation of the results by the type of diet (cultivation of crops, pasture, forest, 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 such as FTIR and Raman microscopy 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 characterise non-ultrafiltered collagen extracted from 50 skeletons recovered in 8 necropoleis from NW Spain, representing a wide chronological period (~3500 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 synthesise 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 α-helix and a residual increase in carbohydrates, and ii) a secondary process related to the loss in β-sheets; and two minor components related to: i) variations in aliphatic side chains and ii) absorptions of the OH of carbohydrates and amides. 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 δ13C and δ15N 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. It 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 δ13C and δ15N values, thus supporting their use for paleodiet reconstruction.

**THS-03 Abstract 11**

**What can FTIR tell us about archaeological bone collagen preservation?**

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**Keywords:** bone collagen, FTIR, quality indicators

**Presentation Preference:** Oral

The collagen of human and animal bones is routinely isolated and analysed in Scientific Archaeology (e.g. paleoestudies, 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 ratio, collagen yield, amino acid profiling or amino acid racemization. In addition, spectroscopic techniques such as FTIR and Raman microscopy 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 characterise non-ultrafiltered collagen extracted from 50 skeletons recovered in 8 necropoleis from NW Spain, representing a wide chronological period (~3500 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 synthesise 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 α-helix and a residual increase in carbohydrates, and ii) a secondary process related to the loss in β-sheets; and two minor components related to: i) variations in aliphatic side chains and ii) absorptions of the OH of carbohydrates and amides. 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 δ13C and δ15N 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. It 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 δ13C and δ15N values, thus supporting their use for paleodiet reconstruction.

**THS-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 size 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 pathogen's life cycle. In the case of the pathogen mycobacterium leprae, it has been shown that some host genetic factors across the human immune system that infer protection against the disease, with the most important being Toll-like-receptor 1 (TLR1). Analyses of modern samples have shown that the frequency of the alleles of this particular locus vary significantly between different populations across the globe. In this study, we investigate the frequency and even the presence of the allele thought to be protective agent against leprosy in populations of the past. For this reason we generated new aDNA data from two cemeteries from Medieval Sweden (where leprosy had been previously documented) and compared the results with published genomes from even earlier populations, looking back to the Mesolithic. Our findings show that the “protective” allele was already fixed in Medieval Europe but seems...
to 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
Author - Dr. López-Costas, Olalla, Universidad de Santiago de Compostela / Group Earth System Sciences, Dept Geography, Santiago de Compostela / A Coruña, Spain (Presenting author)
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 approaches such as stable isotope analysis, ancient DNA and elemental composition, as well as other of more recent introduction as FTR, pyrolysis-QC-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 pursued aim 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 unravelling 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 highlyald, 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 “Paleodiet meets paleopathology”.

What does it really matter? As Physical Anthropology teaches us, the focus should be put in the populations since they better reflect the environmental conditions of the past. Avoiding the bias of 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 metallurgy which 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 unveil the multiple processes governing bone and tooth formation and degradation.

TH5-03 Abstract 14
Famine to find God? 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 archaeological populations, especially on those minorities not commonly mentioned in the texts. This is the case for nuns. Despite the relative availability of works dealing with religious communities food and everyday life, these are almost exclusively focused on male, i.e. monks. However, the habits of the cloistered nuns have remained invisible to chronicles as well as to archaeological populations, especially on those minorities not commonly mentioned in the texts. This is the case for nuns.

In order to contextualize nuns’ diet, 13 faunal specimens were also performed in animal and human skeletons recovered from the Cloister of the Infante Don Juan, in Belmonte (Cuenca, Central 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 between 25 to 39 years of age-at-death (n=19). Archaeological 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, cataphry).

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 death, 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 homogeneous. Terrestrial animals δ13C ranges from -18.5% 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 autocatalysis of proteins. The paleopathological study also supports the assumption of a very austere life, e.g. muscular/skeletal stress markers and osteoarthritis have a high presence in the sample. This intriguing hypothesis demands more research to test the most intimate life of the female inhabitants of the cloisters in their way to find God.
Since 2012, excavations at the site of Montiel (Spain) have led to the discovery of two cemeteries, representing two socially and culturally distinct communities: one Muslim (11th - 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 environment. The results were compared to recent studies 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 to decades before their death, as a result of the minimal part of bone (bioapatite) regulates the geochemical composition of bone, which is typical for Sibbojoki.

The burial site of the Strzyzow Culture in Rogalin contained 15 graves with the skeletal remains of 18 individuals. In 3 of 15 graves skeletal remains of more than one individual were found (one adult and one child in each of 3 double graves). Interdisciplinary anthropological and genetic investigations allowed to approximate sex and biological age (skeletal and dental age) of individuals. There were skeletal remains of 9 adults and 9 of children. Among the adults there were 4 males and 5 females.

Strzyzow culture: a unique example of Late Medieval agrarian society

The burial site of the Strzyzow Culture in Rogalin contained 15 graves with the skeletal remains of 18 individuals. In 3 of 15 graves skeletal remains of more than one individual were found (one adult and one child in each of 3 double graves). Interdisciplinary anthropological and genetic investigations allowed to approximate sex and biological age (skeletal and dental age) of individuals. There were skeletal remains of 9 adults and 9 of children. Among the adults there were 4 males and 5 females. Genetic investigation allowed to establish sex of the children - 2 males and 5 females. The sex of two individuals (children) is unknown. DNA investigations confirmed the presence of STR markers located on the Y chromosome, which can be used to infer the ancestry of the individuals, whose remains were excavated and examined.

Skeletal and dental pathologies have been analyzed. Osteoma in the tibia of the individual found in grave No. 10 has been referred to knee arthritis. In the case of this individual has been denominated by the research team. The analysis of STR markers located on the Y chromosome, which can be used to infer the ancestry of the individuals, whose remains were excavated and examined.

In 2008, a burial site was discovered in Rogalin (Eastern Poland). Interdisciplinary investigations were carried out and it was concluded that the site was a unique example of Strzyzow Culture, an agricultural culture found in Eastern Poland and in Western Ukraine dating from the Early Bronze Age (2000/1950-1600 BC). The Strzyzow culture spread over the area from the eastern part of Lublin Upland, that is the area between the upper Wiśla river and the Bug river, to the area of south-western Volhynia crossing the Horyn river in the area of present-day Ukraine. The highest density of its sites is in the territory of Toruń Plateau and near the town of Hrubieszów. Approximately of the Stone Age, the neolithic pastoral Corded Ware culture disappears in its existing form, and post-Corded Ware traditions become the foundations for the creation of new archaeological cultures which are chronologically assigned to the Early Bronze Age. The western part of Poland, in the Odra and Warta river basins, is occupied by the Late Neolithic culture, and the central and eastern part (upper Odra and Vistula river basins, Lublin region, Volhynia, Podolia) is the area of the Mierczezow culture. After 2000 BC, on the basis of cultural and 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 to decades before their death, as a result of the minimal part of bone (bioapatite) regulates the geochemical composition of bone, which is typical for Sibbojoki. The burial site of the Strzyzow Culture in Rogalin contained 15 graves with the skeletal remains of 18 individuals. In 3 of 15 graves skeletal remains of more than one individual were found (one adult and one child in each of 3 double graves). Interdisciplinary anthropological and genetic investigations allowed to approximate sex and biological age (skeletal and dental age) of individuals. There were skeletal remains of 9 adults and 9 of children. Among the adults there were 4 males and 5 females. Genetic investigation allowed to establish sex of the children - 2 males and 5 females. The sex of two individuals (children) is unknown. DNA investigations confirmed the presence of STR markers located on the Y chromosome, which can be used to infer the ancestry of the individuals, whose remains were excavated and examined.

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Interdisciplinary investigations on Strzyzow cultures were carried out in order to transport silver down to the Swedish coast. This places Silbojokk in a multi-cultural sphere where people met and changed ideas and learned from each other. In the 1950's a dam was built in order to regulate the lake Sädvajaure, on which shorelines the site is situated. In the 1970's a mining operation was carried out. The site is now a tourist attraction.
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 an exact 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 haplotypes of mtDNA in these relationships are H1b and H2a respectively. In addition, mtDNA haplotypes have been obtained in the analysis of the graves 2, 6B and 12. Preliminary results indicate that individuals belonged to haplogroups H1a and H6 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 analyses 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 stratigraphic culture.
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 discussions have been heavily influenced by the importance of 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, there has been growing interest in this field. The aim of this study is to test and apply this method to bioapatite samples at HEKAL laboratory, Debrecen to obtain a reliable and effective method for AMS 14C 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 analysis of such sort of samples.

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. Besides 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 detection of burnt bones (biopatita) and unburnt bones (collagen) 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 bones two, basically different directions have formed. Besides the differential chemical method there is another one which is based on the severe chemical pre-treatment of the biocarbonate sample. By measuring parallel organic bones as reference, a refined chemical pre-treatment was tested and applied to biocarbonate 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 Cinerary

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 1980’s, 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 decedent’s reported stature and weight. However, the urn contents weighed 4735.5 g. The urn contents also contained material inconsistent with cremains (e.g., moist sediment, stones, ferrous metal). Analysis using XRD 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 - MBlc, MA Kinnüüt, 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 grave. The work has been conducted on four different grave sites and the intention is to find out whether there were retrievable systems behind placing the dead into the grave and explain the findings in the context of the Iron Age burial practices. The contents of the tarand graves are severely commingled – artefacts and bones are scattered in between the stone constructions. Also, the bones in these graves are very fragmented and can be either cremated or inhumed, even though cremation was the predominant rite. Visual osteological analysis of the found material has been beneficial, but has also given rise to further questions. In order to understand more about the burial customs and gain more information from the material, I have used the help of a combination of methods; among them radiocarbon dating, aDNA analysis, statistical and location analyses, 3D photography etc. I will give an overview of the used methods and how they have benefitted my research. I will also focus on the results and present possible interpretations of the findings thus far.
TH5-04 Abstract 07
Up in Flames: Animals, People, Identity and Cosmology in Anglo-Saxon East Anglia, UK

Author - Rainford, 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 palicy 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 trend of quality 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.

TH5-04 Abstract 08
Cremation in the Scottish Chalcolithic

Author - Bloxam, Anna, UCL Institute of Archaeology, London, United Kingdom (Presenting author)

Keywords: 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 actually looking at a break in recorded evidence?

While some authors have noted the existence of occasional 'Beaker' cremations, these are typically glossed over or treated as anachronisms. No comprehensive study has been carried out, and there is no characterisation of what the Chalcolithic cremation rite may have involved. The work in radionuclide 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.

TH5-04 Abstract 09
Advances in 14C dating of cremated bones at HEKAL Laboratory, Debrecen, Hungary

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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 biosapate. 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 formulae. 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 biosapate 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 biosapate 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 (2600/2500–1600/1500 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 biosapate samples, after the repetitive rinses with sodium hypochlorite 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 biosapate samples we could not be the same, to that of 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.

TH5-04 Abstract 10
Excavator bias and laboratory techniques of cremation burials

Author - Mgr. Pigchov, Erika, Charles University, Prague, Czech Republic (Presenting author)

Co-author(s) - Pankoczki, Anna, - Pigchov, University of West Bohemia, Plzen, Czech Republic

Co-author(s) - Erika-Monika, Martin, Palacky University Olomouc, Olomouc, Czech Republic

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-extraction; sieving of burial infill. We used eight burials from Jeffreys- Phedermási sites (Czech Republic) for the purpose of the study. Four burials were saved and four burials were micro-extracted and scanned by CT. Burials under the study comprised ‘‘petrified’’ burials, um burials and um-ashed burials. Results show significant bias caused by possible indiscernible handling by the excavator. The most useful method for analyzing highly fragmentary burnt bones appears to be computer tomography (CT) together with micro-extraction. When only CT is used, the precise bone identification is not possible, whereas during micro-extraction 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.

TH5-04 Abstract 11
Cinerary urns radiology and knowledge sharing: a web-based "paleopecs" proposal

Author - Innocenti, Dario, Monfalcone, Italy

Co-author(s) - Simoni, Francesco, Research Unit of Paleoradiology and Allied Sciences LTSC- SCIT Azienda Sanit, Trieste, Italy (Presenting author)

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-extraction. 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, the 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.
Cremation responses to changes in ritualism, culture and technology in Iron Age and Roman Britain

Author - Carroll, Emily, University of Reading, Reading, United Kingdom (Presenting author)

Keywords: Cremation practices, Cultural transitions, New approaches

Presentation Preference - Poster

The Late Iron Age to Early Roman period in Britain was a time of immense social, economic and political transition, where native customs and Roman fashions became amalgamated; it is thus the epitome of cultural exchange and vital to our understanding of ancient interactions. Funerary rites embody social organization, technology and belief. Their manner and how they have changed over time represent these cultural transitions in the ancient world, providing an insight into the merging of ideologies, ancient body concepts and the social attitudes towards the dead. While changes in inhumations are well-studied, transitions within cremation practices have received less attention, despite being a predominant burial rite for large parts of prehistory. As a result, the nature of cremation funerals in ancient Britain and their implications of cultural exchange are not well established. This multidisciplinary PhD project is the first that seeks to address this gap in contemporary research through a combined examination of the charred wood and plant remains from cremation deposits, the anthropological analyses of the thermally altered human bone as well as their microscopic and macroscopic heat-induced alterations, inspecting both the pyre and grave goods included and analysing the spatial distribution of burials within their cemetery contexts. This presentation will introduce the project as a whole and then focus on the results of a meta-analysis of Late Iron Age and Early Roman British cremation practices. The data obtained will not only formulate a corpus of burials from the period being studied, but will also be used to establish how cremations are recorded and analysed in UK archaeology, what areas of research are incorporated and what areas are neglected. It is hoped that this presentation will not only add to the current knowledge of prehistoric cremations, but will also greatly inform the development of standard recording practices for these burials across commercial and research institutions.
PLAGUE IN DIACHRONIC AND INTERDISCIPLINARY PERSPECTIVE

Friday, 2 September 2016, 09:00-16:00
Faculty of History, Room SP1

Author: Dr. Latham, Wynham, Northwestern University, Chicago, United States of America (Presenting author)
Co-author(s) - Schröder, Jay, Northwestern University, Chicago, United States of America
Co-author(s) - Ritzert, Jeremy, Northwestern University, Chicago, United States of America
Co-author(s) - Panagiotakopulu, Eva, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)
Co-author(s) - Kristiansen, Kristian, University of Gothenburg, Gothenburg, Sweden

Presentation Preference - Oral

The hypothesis of the spread of the Black Death via trade links with Asia and Europe, in relation to the relevant archaeological record are also explored.

Keywords: ancient DNA, paleogenomics, plague

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, Kgs. Lyngby, Denmark (Presenting author)
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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 in 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 times older than previous estimates. We also identify a temporal sequence of genetic changes that lead to increased virulence and the emergence of the bubonic plague. Our results show that plague infection was endemic in the human populations of Eurasia at least 3,000 years before any historical record of pandemics. Our findings open the possibility of identifying other ancient human pathogens directly from human remains (See S. Rasmussen, M. E. Allentoft, K. Nielsen, L. Orlando, M. Sikora, K.-G. Sjögren ... E. Willerslev (2015). Early Divergent Strains of Yersinia pestis in Eurasia 5,000 Years Ago. Cell, 163:571–582).

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 plague are not well understood. By using a mouse model of respiratory infection combined with comparative genetic and genomic studies between Yersinia species, we have identified two specific events – the acquisition of the Pla protease and the inactivation of the YadA adhesin – as key steps in the emergence of Y. pestis as an easily transmissible, severe respiratory pathogen. The acquisition of the Pla protease enabled ancestral Y. pestis strains to grow to high levels in the lungs and cause a fulminant, multifocal severe pneumonia, while the loss of YadA shifted the respiratory infection from a restricted, granuloma-like pathology to a loosely contained, easily expelled state. Indeed, the loss of YadA by Y. pseudotuberculosis may have been a key step by which Y. pestis acquired the ability to be spread by respiratory droplets, thus enabling epidemics of plague.
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 1600 and 950 BC.


TH5-05 Abstract 06
Plague Before the Plague: Early Bubonic Plague in Greek Medical Literature
Author - Muhall, John, Harvard, Cambridge, Massachusetts, United States of America (Presenting author)
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 in 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 sixth century AD, when it is first described by 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 Aetius 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 θύμος (bubōn) describes glandular swellings appears twelve times in the Hippocratic Corpus, none of these twelve instances suggest that these boubōnes are plague buboes as opposed to other glandular swellings. A passage by Rufus of Ephesus that has been preserved in the Medical Collections of Orbisbanus contains the first description of a disease that we can confidently identify with plague. Rufus calls the disease “pestilenzial boubōnes” and describes it in a way that could correspond to our modern 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 “pestilenzial boubōnes”: Poseidonus, Dioscurides, and Diosynius Kurtos. The names Poseidonus and Dioscurides could correspond to a number of possible figures, though indications are that Poseidonius and Dioscurides correspond both to modern descriptions of Y. pestis and to sixth-century descriptions of the Justinianic plague. While it was previously thought that this Diosynius Kurtos was active in the third century BC, I will argue that Diosynius Kurtos could have been active anytime before the first century AD.

Finally, I will argue that, like the Hippocratic authors, there is no robust evidence that Galen was aware of bubonic plague. The uses of the term boubon in Galen refer most often to common lymphangitis and do not resemble plague buboes. While the passage in Rufus suggests that Y. pestis was active in the Mediterranean from around the first century BC to the first century AD, after the first century AD there are no new descriptions of Y. pestis until Late Antiquity.

TH5-05 Abstract 07
Placing the Plague of Justinian in the Yersinia pestis phylogenetic context
Author - Klink, Jennifer, McMaster University, Hamilton, Canada (Presenting author)
Co-author(s) - Wagner, David, Northern Arizona University, Flagstaff, United States of America; Sahl, Jason, Northern Arizona University, Flagstaff, United States of America; Goring, Q., Brian, McMaster University, Hamilton, Canada; Wieglaender, Nicholas, McMaster University, Hamilton, Canada; Holmes, Edward, The University of Sydney, Sydney, Australia
Co-author(s) - Poinar, Hendrik, McMaster University, Hamilton, Canada
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 (1347-1351/53) and waves continuing from the 14th centuries and the 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 rodent reservoirs to humans. These results show that rodent species which do not 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 Altenering (Bavaria, Germany)
Author - Dr. Gutsiedild-Schümmer, Doris, Freie Universität Berlin, Berlin, Germany (Presenting author)
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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-Bajuwarenring and Altenering/Klettham, where the causative agent of plague, Yersinia pestis, could be detected palaeogenetically.

The burials from the early medieval cemeteries of Aschheim-Bajuwarenring and Altenering/Klettham 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 plan that “[...at that time all the customary rights 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 [...]” (Pocysuo, Di Ballo Persico II 23, 15). On the contrary: the burial rights, as far as reconstructable, had been carefully conducted. The only difference is that the so 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 an early stage of its development.

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-coverage Yersinia pestis Genome from a 6th Century Justinianic Plague Victim
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Analysis of a High-coverage Yersinia pestis Genome from a 6th Century Justinianic Plague Victim
TH5-05 Abstract 10

Plague in Valencia, 546: A Case Study of the Integration of Texts and Archaeology

Author - Gruber, Henry, Harvard University, Cambridge, United States of America (Presenting author)
Keywords: bubonic plague, mass graves, Spain
Presentation Preference - Oral

Although so-called Justianic Plague of Yersinia pestis that began in the early 540s dramatically altered the history of the Mediterranean, the 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 Justianic 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 legislates 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 bishops in Spain, 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 Antiquity plague and showcase the promise – and difficulty – inherent in the interdisciplinary study of bubonic plague.

TH5-05 Abstract 11

Germany and the Black Death: a zooarchaeological approach

Author - MA Pavlos, Prokalamos Dimitros, Ludwig-Maximilian-Universität München, Munich, Germany (Presenting author)
Keywords: Black Death, livestock keepers, 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, 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 demographic changes. Zoonoarchaeological 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 archaeology. To this in particular finding sites, the zooarchaeological 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.
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 climate and ancient 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. We also assess the potential impact of the Black Death and the post-Black Death lineages on the evolution of Y. pestis.

Our results provide support for low genetic diversity in the plague bacterium during the Black Death. A subsequent analysis of the eastern 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.

**Keywords:** ancient DNA, historic disease spread, medieval plague

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**TH5-06 Abstract 01**

**Mid-Holocene settlement complexity in Northern Ostrobothnia, Finland**

**Author:** Pesonen, Petra, National Board of Antiquities, Helsinki, Finland (Presenting author)

**Co-author(s):** LiDAR, Neolithic, settlements

**Presentation Preference:** Oral Additional information

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 housespit sites were later inspected in terrain. A total of 481 new housespit sites were recorded during field survey, thus bringing the River Siilajoki area to one of the densest occurrences of pithouses in the country, only rivalled by similar areas in the River Iijoki (Kierikki) and River Kemijoki (Tömävaara) 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.

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**TH5-06 Abstract 02**

**Changing the perspective of Neolithic civilization: Sopot culture tells discovered by remote sensing**

**Author:** Dr. Šiljeg, B., Institute of Archaeology, Zagreb, Croatia

**Co-author(s):** Kalatitić, H., Institute of Archaeology, Zagreb, Croatia (Presenting author)

**Keywords:** GIS, prehistoric enclosures, Sopot culture

**Presentation Preference:** Oral

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
of eastern Croatia, including other techniques of remote sensing such as satellite infrared images, resulted in discovery of many new archaeological sites. These data have been processed jointly by teams of 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 end 2015 - to be increased in the future). The contributions are considerable, under forest cover or not, but the zone with woodland needed to be increased in the future. 

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 general understanding of the territorial organization from Gallic and Gallo-Roman periods is considerably renewed. Indeed, the oppida (hill forts) that dot 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 reinterpretated. In addition, the “antique” road called “Chausée Jules César”, serving the plateau on the north side of the Seine, finally shows his consistency as a strong element of organizing Caléses and Vélicasses 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 strictly 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.

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**TH5-06 Abstract 05**

**Airborne LiDAR data for the study of Roman military presence in NW Iberia**

**Author** - Dr. González Álvarez, David, Universidad Complutense de Madrid, Salas, Spain

**Co-author(s)** - Costa García, José M., Universidad de Santiago de Compostela, Compostela, Spain

**Presentation Preference** - Oral

Airborne LiDAR data for the study of Roman military presence in NW Iberia. The Roman military settlements are usually characterized by the perishable nature of the structures and the material culture associated to them. Since these sites are almost invisible in the landscape, the use of remote sensing techniques for their study became essential. Although the use of certain remote sensing tools - i.e. aerial photography - on this issue in the Iberian Peninsula is not new, the development of Roman military archaeology in recent decades greatly demanded a significant renovation of the methodological approaches. In this way, we put into practice a low-cost methodology combining historical and modern aerial photography, satellite imagery, airborne LiDAR, GIS and conventional archaeological field surveys techniques. These tools actually provide a new and qualitatively differential approach, allowing us to study the spatial, locational and morphological characteristics of these sites, and thus leading to a more contextualising approach. In this paper, we will focus on the differential combination of a series of airborne LiDAR data-grids, covering a large area in Galicia, western Spain, to test this methodology against different landscapes, terrain types and vegetation canopies, we can outline the potential and limitations of it. On that basis, we can then develop a predictive model for its use when studying Roman military sites such as temporary/marching camps. This technique allows us to map archaeological landscapes as a whole, so we need to develop different strategies to increase the visibility of certain types of features in the landscape. Landscape is not just a messy amount of archaeological features, but a palimpsest of multiple temporalities we need to read and understand.
Between 2011 and 2014 the authors investigated in detail the protohistoric land use and occupation of the Raganello River basin in southern Italy, which had previously (2000-2010) been archaeologically surveyed by the University of Groningen Institute of Archaeology. These investigations aimed at fine-tuning non-invasive archaeological prospection techniques for schematic archaeological remains and at mitigating pervasive research biases in the study of the protohistoric landscape 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 on the coastal plain of Sybaris (100–400m a.s.l.), 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 (nat foundations) detected on known protohistoric surface sites, and show that settlement densities have been seriously underestimated. At the Monte San Nicola hilltop, a large-scale magnetometer survey on the silty soils of the Plio-Pleistocene marine terraces landscape (50-500m a.s.l) 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 remains of a cremation cemetery, the experiment has added a rare example of this site type. Finally, in the generally eroded upland valley at Contrada Madalena, where soils consist of schists and marls (700-1000m a.s.l), 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 and test any anthropogenic and natural magnetic anomalies would be distinguishable. We discuss several examples of gridded and ungridded on-site MS surveys to demonstrate the effect and implications of this approach.

More than 1,000 years on, early medieval ecclesiastical and secular sites are still clearly visible on the Irish landscape, marking the locations of long abandoned settlements. This complex period saw the introduction of Christianity to Ireland and resulted in dramatic changes to the landscape with the establishment of ecclesiastical sites of varying scales, and the appearance of enclosed agrarian settlements. Although the archaeological remains are abundant, many of these areas are now considered ‘ruin’ and are somewhat sparsely populated. This has benefited a remote sensing approach as aerial imagery and lidar have access to a relatively untouched landscape base. These techniques have made a substantial contribution to developing an overview of the early medieval landscape by allowing us to refocus our attention on small-scale settlement patterns, moving away from a previous large-scale national overview with arguably little regard for understanding how the landscape actually worked on a day-to-day basis at a community level. By integrating lidar and aerial remote sensing techniques with geophysical survey, the landscape of this complex period can be pieced together using the sometimes faint surface and subsurface remains. From ‘walking in maps’ in the landscape to identifying new features, advanced remote sensing techniques have helped us to engage with early medieval society at a more localised community level.

Revaluating the landscape of Lesser Poland.

Love, hate and “vicious circles” of non-invasive methods

Non-invasive techniques in Poland are viewed as pre-excavation prospection tools and in this manner are generally accepted by the archaeological milieu. This approach based on the practical needs of the traditional cultural-historical paradigm pigeonholes such techniques like geophysics or remote sensing solely as prospection methods and denies them the position of integral tools in the archaeological work. A recent article by Rączkowski 2005, Tradition in Power: Vicious circle(s) of aerial survey in Poland). 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 in archaeological remains and has been subject of many (settlement) surveys in prior years but has never been covered by a macroregional non-destructive (remote sensing, geophysical) study. The project is enthusiastically oriented towards existing Archaeological Record of Poland (AZP, a nation-wide archaeological mapping programme based on the sole application of field-walking) results as a valuable source of complementary (historical-cultural) data that may be an important corrective factor in a holistic interpretation of acquired non-invasive datasets. Despite this general eagerness it needs to be noted that data derived from the AZP programme requires a critical approach. AZP remains unfortunately resilient to attempts of modernization, both from a theoretical and practical perspective, where the perceived limitations of other (usually non-invasive) techniques forsake the need for change (e.g. aerial prospection as described in: Rączkowski 2005, Tradition in Power: Vicious circle(s) of aerial survey in Poland).

The presentation will illustrate the limitations of the AZP programme and will introduce new non-invasive datasets, potentially bypassing limitations and complementing both approaches. This is especially important for the study of unexplored areas, which are not covered by the AZP programme. Despite this general eagerness it needs to be noted that data derived from the AZP programme requires a critical approach. AZP remains unfortunately resilient to attempts of modernization, both from a theoretical and practical perspective, where the perceived limitations of other (usually non-invasive) techniques forsake the need for change (e.g. aerial prospection as described in: Rączkowski 2005, Tradition in Power: Vicious circle(s) of aerial survey in Poland).

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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 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 Ho Bay and the Wadden Sea. The settlements are registered mainly as pit-house cropmarks, 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 do seems 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, where 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.

THS-06 Abstract 10
The 16th century In Depth Defenses of the Nissan River Valley Revealed by Remote Sensing
Author - Pettersson, 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

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 the surviving accounts 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 “laid waste” in the written sources.

However, this could have been avoided. A well planned system for defense in depth was established before the war. Big defensive positions had been built in strategic positions along the river valley at a distance of about one day marches 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 unsuspecting Saxons fell in hams way.

The remains of these defenses and their historical importance went almost unnoticed until recently. The research project Getaryggen 1567 broadened its scope after having located and investigated a battlefield from the conflict. By using a combination of written sources, LIDAR, GPR and aerial photography 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 Getaryggen 1567 project cannot be overstimated. In a densely forested landscape, very different from what it looked like in the mid-16th century, modern techniques 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 lives 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 elucidate the problems of matching the particular Remote Sensing Technique to particular environmental conditions and 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.

THS-06 Abstract 11
Above and below the surface. The use of Remote Sensing in studying the former battlescape
Author - Michal, Jakubczak, Polish Academy of Sciences, Warsaw, Poland
Co-author(s) - Zalewska, Anna, Polish Academy of Sciences, Warsaw, Poland (Presenting author)
Co-author(s) - Myśliwiec, Tomasz, Independent Researcher, Lublin, Poland

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 Flawa and Bzura” is the scientific project, which reveals that area. The project has been 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 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 lives 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 elucidate the problems of matching the particular Remote Sensing Technique to particular environmental conditions and 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.
A view from above: GIS and LIDAR vs. trowels and spades

In the chamber of the crypt detected 8 adults burials, arranged in two tiers one above the other. The later burial of the tomb chamber. Of these, in relative anatomical order remained only one skeleton, and the rest were in a fragmented state.

Radiocarbon dating will be performed to shed light on the chronology of the burials.

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 necropolis of the ancient settlement Kulchuk.

The burial belonged probably to a woman of noble birth (priestess?). With her, perhaps, connected the specific cult vessels - stucco incense burners, large non-Black Sea sink, numerous gold objects pointing dresses, pendants, rings.

The burial included a variety of gold objects: plaques and belt details. Obviously, the people, who are represented by these bone materials, were first buried in the crypt. Later their remains destroyed, when clearing the space for the next burial. Accompanied the deceased burial items presented with beads, simple, red lacquer and stucco pottery, iron knives, rare types of fibulas, arrowheads, lead rings, pendant made of yellow metal, moon-shape amulet, plaques and belt details.

The investigated crypt was probably used during the second half of 1 c. BC - first half of 1 c. AD and refers to the late Scythian archaeological culture.

Work was carried out by the grant RFFR № 14-06-90403 “Study of underground ancient necropolises of the Western and Eastern Crimea with the help of magnetic survey”.

Innovations in hardware and software for high resolution geophysical surveys

Author - Dr. Ducke, Benjamin, German Archaeological Institute (DAI), Berlin, Germany (Presenting author)
Co-author(s) - Lüth, Friedrich, German Archaeological Institute (DAI), Berlin, Germany
Co-author(s) - Komp, Rainer, German Archaeological Institute (DAI), Berlin, Germany
Co-author(s) - Petri, Ingo, German Archaeological Institute (DAI), Berlin, Germany
Co-author(s) - Goldmann, Lukas, German Archaeological Institute (DAI), Berlin, Germany

Keywords: Data processing, Geophysical prospection, Open source GIS

Among the many types of sensors available for geological surveys, gradiometers, used to detect minute fluctuations in the Earth’s natural magnetic field caused by buried objects and structures, have established themselves as a particularly robust and efficient technology. Our contribution showcases state of the art gradiometer hardware, consisting of multi-sensor arrays of gradiometers, and its application in the fast and detailed prospection of large sites and areas of interest. Advances in sensor design and electrical shielding allow for extremely close spacing of gradiometers and achieve a data density that rivals that of LIDAR. Highly integrated sensors deliver positional and inertial (velocity and rotation) data in addition to the gradiometer readings. These can be used to derive secondary data products, most importantly accurate and high resolution digital elevation models (DEMs). In looking for a solution to process the millions of data points produced by our hardware setup, we found that existing software packages were not capable of the high performance and lossless operation that we required for developing our solution in open source GIS, leveraging the flexibility and standards compliance of that platform. The toolset we developed and integrated into GIS includes highly optimized tools for data import, error correction and interpolation. In summary, our integrated hardware and software solution allows for fast and cost-effective geological prospection at extremely high resolution with all data processing done transparently in open source GIS.

Identifying and Evaluating Neolithic Sites in Italy Using Aerial- and Ground-Based Remote Sensing

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Keywords: early agriculture, remote sensing, Tavoliere

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 photography following WWII, with more than 800 located 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 Palmarola (about 230 km eastern Crimea with the help of magnetic survey”.

Innovations in hardware and software for high resolution geophysical surveys

Keywords: Data processing, Geophysical prospection, Open source GIS

Among the many types of sensors available for geological surveys, gradiometers, used to detect minute fluctuations in the Earth’s natural magnetic field caused by buried objects and structures, have established themselves as a particularly robust and efficient technology. Our contribution showcases state of the art gradiometer hardware, consisting of multi-sensor arrays of gradiometers, and its application in the fast and detailed prospection of large sites and areas of interest. Advances in sensor design and electrical shielding allow for extremely close spacing of gradiometers and achieve a data density that rivals that of LIDAR. Highly integrated sensors deliver positional and inertial (velocity and rotation) data in addition to the gradiometer readings. These can be used to derive secondary data products, most importantly accurate and high resolution digital elevation models (DEMs). In looking for a solution to process the millions of data points produced by our hardware setup, we found that existing software packages were not capable of the high performance and lossless operation that we required for developing our solution in open source GIS, leveraging the flexibility and standards compliance of that platform. The toolset we developed and integrated into GIS includes highly optimized tools for data import, error correction and interpolation. In summary, our integrated hardware and software solution allows for fast and cost-effective geological prospection at extremely high resolution with all data processing done transparently in open source GIS.

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to the west). These data have already expanded our understanding of socioeconomic 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 unmanned 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.

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Geophysical and Archaeological research on Late Roman Iron-smelting site at Virje (Croatia)

Author - Medarić, Igor, Gehr d.o.o., Maribor, Slovenia (Presenting author)
Co-author(s) - Mušič, Branko, Gehr 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 preservation 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 (3./2, 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 BIOARCHAEOLOGICAL RESEARCH

Saturday, 3 September 2016, 14:00-18:30
Faculty of History, Room 218

Author - Van Cant, MART, Free University of Brussels, Brussels, Belgium (Presenting author)
Co-author(s) - Hunt-Watts, Holly, University of Leeds, Leeds, United Kingdom
Co-author(s) - Bäckström, Yrsa, Lund University, Lund, Sweden

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 paleopathological 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 paleodietary 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

- Interpreting 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
Co-author(s) - Van Cant, MART, Free University of Brussels, Brussels, Belgium (Presenting author)

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 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 biocultural methods in the study. Dietary patterns 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 fill in this gap, since dental calculus constitutes a primary deposition environment within the mouth and provides a record of the exact foodstuff that entered the mouth. While the material culture remains of the cultural formed. 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 multi-level biocultural approach has the potential to enrich our understanding of past dietary patterns by elucidating complementary trends at the macroscopic and the microscopic level.

THS-07 Abstract 02
PaleoNutrition, Coprolites, Dental Calculus, and the Celtic Curse
Author - Dr. Scott Cummings, Linda, PaleoResearch Institute, Golden, United States of America (Presenting author)
Co-author(s) - Konitz, 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 provide a human osteological record against which to compare the dietary proxy. The skeletal remains yielded evidence of numerous anomalies including cribra orbitalia, suggesting the possibility of iron deficiency anemia, and spinal fusion typical of ankylosing spondylitis, which may be a result of the dietary intake of this individual. Approximately 10% of the individual yielded coprolites, which were examined for pollen, phyoliths, macrofossil 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 (crocodile, 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 iron 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 relative iron loads in the tissues. First tier testing focuses on these skeletons and immediately affiliated 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 archaeologists enjoyed a complex diet that encompassed grain, vegetables, fruit, and meat, some of which was represented in the dental calculus. This study forms a base of this 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.

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 Florida, Odessa, United States of America (Presenting author)
Keywords: ancient diet, bone chemistry, elemental analysis
Presentation Preference - Oral

The theoretical basis for elemental analysis of human bone to study 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 itself. 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, 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 first studies done was on individuals from inland and coastal sites in Florida. The small amounts of variability among individuals at each site suggest little 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, milk, 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.

THS-07 Abstract 04
Estimating ?,R Variation to Develop Chronologies for Humans and Animals with Marine-Rich Diets
Author - Dr. Dru, Anthony, University of Glasgow, East Kilbride, United Kingdom (Presenting author)
Co-author(s) - Pens, Janne, Uppsala (August Corporation, Science LLC, Barrow, Alaska, United States of America
Co-author(s) - Hamilton, Derek, University of Glasgow, East Kilbride, United Kingdom
Keywords: Askanian 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 Bering period (AD 600-900) to the present day. Interpretation of the radiocarbon dates has been 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 13C3 values between -15.7‰ and -12.6‰, and high 13C2 values between -17.7‰ and -22.4‰, indicating diets that are very rich in marine protein. Radiocarbon ages from marine-derived carbon will be anomalously old if not corrected for the Marine Reservoir Effect (MRE), the radiocarbon age offset between contemporaneous marine and terrestrial carbon. Modern MRE values from the Askanian Arctic are highly varied, from several hundred to over a thousand years, due to the extended residence time of 14C in oceanic environments. It is questionable how reflective modern values are of those from the past because changes in upwelling, climate, and ocean currents will inevitably result in changes in local MRE values through time. Here we present new temporally specific MRE 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.
The Megalithic tomb of La Mina (Acubilla 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, distinctly remodelled and monumentalised, thus becoming both a ceremonial site and territorial landmark. The tomb and its artificial faunal and human remains are in the focus of ongoing investigations focussing 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 post-depositional remodelling, yet the osteological analyses still revealed decisive insights into the former community (Rindlsbacher, 2015).

Neolithic megalithic tombs in Spain and other European regions held only a select group of individuals from among the communitydied in them. In La Mina, 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 individuals born 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, pathology, δ13C and δ15N dietary data obtained in an ongoing stable isotope analysis will allow unique insights into the life histories and the health status of the people 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 current archaeological investigations are unearthing 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).

In both, Ireland and continental Europe different frequencies of Schmorl’s nodes in males and females probably indicate a sex-specific allocation of physical labour between the sexes (Šlaus et al., 2011, 586). The results from the Rathfarnham population provides a significant dataset upon which future studies that link molecular biology, geo-chemical and isotopic analysis to knowledge of past fluoride toxicity.

In this study, stable isotope analysis of human skeletons from different populations representing various regions of Lithuania (16-19th c.) was 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 and small-scale farmers had a 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.

Keywords: diet, Fluoride, Paleopathology
Presentation Preference: Oral

Diet is a key factor in the health of individuals and of communities, both ancient and modern. In studies of ancient health, termed paleopathology, most paleoethnobotanists have focused on estimates of the nutritional quality of diet across distinctive menus, comparatively evaluating quality of life across space and time. Health, however, can also be affected by environmental dietary factors, including toxic or deficient levels of minerals. We emphasize the importance of rigorous differential diagnosis in paleopathology and the multiplicity of factors that may influence an individual’s response to environmental stressors. Our example develops from observations of pathology in remains from the Ray site, a 2000 year old Middle Woodland cemetery from west-central Illinois, USA. Using a previously developed differential diagnostic scheme for an environmental condition, wherein an abundance of fluoride placed people at risk for poor health, we illustrate the importance of linking environmental, dietary, epidemiological, and physiological factors in developing a well-supported differential diagnosis. We also consider directions for future studies that link molecular biology, geo-chemical and isotopic analysis to knowledge of past fluoride toxicity.
Understanding food poverty: Lessons from the present and the past

Author - Hunt-Watts, Holly, University of Leeds, Leeds, United Kingdom (Presenting author)

Keywords: Archaeology, Epidemiology, Nutrition

Presentation Preference - Oral

Food poverty in the UK is currently on the rise and evidence from 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, but the three involved in the research behind this paper are, nutritional epidemiology, history, and archaeology. Each of these subjects has its strengths and weaknesses but there is no doubt that these three subjects have attempted to understand the historical problem of food poverty which is still so 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 past, but more focussed 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 times, 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 studies and surveys help to form an understanding of the past is indisputable, and the public is made aware of the osteological weaknesses in approaching an understanding of the historical problem of food poverty which is still so prevalent today.

Understanding food poverty: Lessons from the present and the past

This talk is the result of research as part of a doctorate focusing on 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 lipkiye (north Anatolia, Samsun region, on the Black Sea coast), Tilig höyle (south east Anatolia, Urfa region), Bademcay (south Anatolia, Antalya region), and Bakla Tepe (south west Anatolia, İzmir 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 isotope analyses have been used to study dietary habits in the EBA 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 Archaeological Institute of Hamburg 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 inter-personal 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 million years 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.
**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** - Wattez, 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 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 negative 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-floored dwellings, silos, deep pits or ochre pits). Multi-layered sites, characterised by massive accumulation of earthen building materials (i.e. mudbricks), such as the Barton and Near Eastern tell sites, often make use of different constructions and construction techniques. The presence of features such as cists, hearths, internal divisions and recess areas indicating potential specialist activities, Structure 8 shows a late change from the early to 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 was 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 make comparisons in sedimentary 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 hearth and the building. The aim of this communication is to compare the first results of spatial analyses carried out on sites set either on plateau (site of Poupry) or on slope (site of Pussigny).
Geoarchaeological portrayal of decayed dwellings at the Bronze Age settlement of Solarolo (Italy)

Author - Peinetti, Alessandro, UMR 5140, Paris, France (Presenting author)

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Keywords: Dwelling, Geoarchaeology, Household activities

Abstract

Since the University of Bologna has been carrying out archaeological researches in Solarolo, a Bronze Age village located in the southeastern part of the Po plain, in northern Italy. The preserved stratigraphy refers to the central phase of the Italian Middle Bronze Age (about 1550-1400 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.

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 pedoclimatic 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 building 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.

Geoarchaeological investigation of waste disposal practices at the Latène settlement Basel-Gasfabrik

Author - Bönningmann, David, University of Basel, Basel, Switzerland (Presenting author)

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Keywords: Geoarchaeology, Iron Age, waste disposal practices

Abstract

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 unfurthored settlement with domestic and economic structures covering an area of about 1,500 square metres and two 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.

To date, more than 600'000 artefacts and 900'000 animal bones have been recovered, mostly from infilled storage or celler 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, clays and burned bone fragments. Those dark, calcareous sediments may be clearly 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.

This question will be addressed by means of micromorphological and geochemical analysis of well-preserved settlement structures like trampled loam surfaces, stone packings, shallow depressions, probable house floors, ditches and pits in order to characterize different activities and their corresponding sediments. Initial results show that there are significant differences in sediment compositions, associated anthropogenic components and taphonomic proxies between features. Bone fragments, for example, show clear variations in preservation apparently correlated with specific archaeological features or postdepositional processes respectively. The geoarchaeological data will be supplemented by bioarchaeological and archaeological findings to get an comprehensive idea of syn- and post depositional processes at Basel-Gasfabrik.

This will permit the reconstruction of waste disposal practices, activity areas and resource management, which is essential for interpreting assemblies like the inventory of an infilled pit. Without knowledge of how (prehistoric) communities handled their resources and their waste, of what happened with used or discarded materials, with accidentally or intentionally broken objects, with fuel and organic waste, with dung and human faeces, interpretations of archaeological features must remain mostly guesswork.

Firing Divices in Tarascan Land, Zipiajo, Michoacán, Mexico: To a Mexican Geoethnoarchaeology

Author - Phd Student Stevanato, Mélaine, Paris 1 Panthéon-Sorbonne, Malakoff, France (Presenting author)

Keywords: Firing devices, Mexico, micromorphology, geoethnoarchaeology

Abstract

The firing devices study is largely developed in Prehistoric archaeology. It is obvious that they have an important place and significance, since they often are in the center of the living space. Archaeological excavations on the Matapán Prieto (2010-2014), directed by Gregory Pereira in the context of the Uacusecha Project, uncovered hearths’ remains in ritual and domestic contexts. Some of them were treated with a micromorphological approach that revealed various sedimentary facies. It show a huge diversity of hearths’ histories despite morphologies apparently simple and little diversified. This hearth’s microstratigraphy demonstrate the existence of different layouts which present traces of repetitive uses, continuous or discontinuous uses and variable intensity of use. This displays an unequal treatment of the combustion structures (in the shaping of the combustion surfaces, the maintenance regularity, in the layout quality…) suggesting various levels of reading. These certainly depend on the statute and the importance of the hearth. To have a better global understanding of them, we undertake an ethnoarchaeological project of contemporary fire devices. It will permit to develop the knowledge on the functional history and on the formation processes of the infilling, according to technical approaches shaping of the mud, application of the material… and the use of the layout (the choice the combustion atmosphere, the heating intensity, the use continuity, the function of the device and its statute).

Field operations took place in the village of Zipiajo, inhabited by Purepechas who are descended from ancient Tarascan people. Some of the inhabitants of Zipiajo still apply ancient pyrotechnical practices. Thus, some ceramic cooking devices and domestical devices were sampled with micromorphological protocol. Therefore, this paper will discuss the micromorphological results and the interest of developing a geoethnoarchaeology of firing devices using clay material.

Use of space in metalworking - Spatial analysis of working areas by systematic soil sampling

Author - Jøttuljári, Arne; Herr, Vivi; Denmark (Presenting author)

Keywords: Metalworking, Processes, Spatial analysis

Abstract

This question will be addressed by means of micromorphological and geochemical analysis of well-preserved settlement structures like trampled loam surfaces, stone packings, shallow depressions, probable house floors, ditches and pits in order to characterize different activities and their corresponding sediments. Initial results show that there are significant differences in sediment compositions, associated anthropogenic components and taphonomic proxies between features. Bone fragments, for example, show clear variations in preservation apparently correlated with specific archaeological features or postdepositional processes respectively. The geoarchaeological data will be supplemented by bioarchaeological and archaeological findings to get an comprehensive idea of syn- and post depositional processes at Basel-Gasfabrik.

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Abstract

This question will be addressed by means of micromorphological and geochemical analysis of well-preserved settlement structures like trampled loam surfaces, stone packings, shallow depressions, probable house floors, ditches and pits in order to characterize different activities and their corresponding sediments. Initial results show that there are significant differences in sediment compositions, associated anthropogenic components and taphonomic proxies between features. Bone fragments, for example, show clear variations in preservation apparently correlated with specific archaeological features or postdepositional processes respectively. The geoarchaeological data will be supplemented by bioarchaeological and archaeological findings to get an comprehensive idea of syn- and post depositional processes at Basel-Gasfabrik.

This will permit the reconstruction of waste disposal practices, activity areas and resource management, which is essential for interpreting assemblies like the inventory of an infilled pit. Without knowledge of how (prehistoric) communities handled their resources and their waste, of what happened with used or discarded materials, with accidentally or intentionally broken objects, with fuel and organic waste, with dung and human faeces, interpretations of archaeological features must remain mostly guesswork.
or by the rooms 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 thus follow these different processes going on in a workshop can be defined in detail, as well as the physical place in which they take place. Even movements of the craftsmen between the different parts of the workshop might in some cases be visible on the institute of charcoal, and the dragging of the smaller fractions of debris such as hammerstone, from the areas in which they originally have been deposited1. A number of examples ranging from the organisation of one roasting and iron smelting sites in the Iron Age to medieval smiths are presented.


TH5-10 Abstract 09

Function, environment and dating of Mesolithic sites in Champagne: malacological answers

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Keywords: malacology, Mesolithic, palaeoenvironment
Presentation Preference - Oral

In the past two years, in Champagne (France), malacological investigations have been carried out in plns 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 mollusk assemblages on these two sites has enabled to reconstruct their environment and altitude. All 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 in echelon with the malacological reference database 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 settled at approximately 8800 BP (PPNA). Beyond the study of the site itself, Klimonas and its surroundings can provide much information on the palaeoenvironment and palaeoecology of the region. Its position, on a slope formed by colluvium deposits and next to the fluvial terraces of the stream Athiaki, offers good conditions for a geomorphological study. The extra-site study on Klimonas is conducted on two scales: the first concerns the slope of the site and the second the Athiaki valley. The study of a set of samples from Klimonas has then conducted, in 2014, on 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 geomorphologists has then permitted to propose a sequence of human occupation of this domain 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 site. 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 terraces 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 be 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 11

From water to land and back: multidisciplinary researches at Marine Cave of Bergeggio (Italy)

Author - Dr. Sanna, Laura, University of Genova, Arenzano, Italy (Presenting author)
Keywords: Geomorphology, Prehistory, Submerged site and cave
Presentation Preference - Oral

In late nineteenth century, the geologist Arthur fist recognized the importance of the Marine Cave of Bergeggio (Bavona – Liguria, Italy), where he found a complete stratigraphy referring to Quaternary, with different stages of marine transgression and regression. The site is in fact known as 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 then been 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. Lithopaga bands), as well as one of the best documented marine wall grooves dated to MS 5.5 of the whole Tyrrenian 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 geomorphologists 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 terraces 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 be related to archaeological materials found during this and during earlier campaign, studied by the writer on permission of the Archaeological Museum of Florence.
Gone with the wind: huts or tree wind-throws at Late Prehistoric open-air settlements of NW Iberia

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Keywords - domestic contexts, Late Prehistory, windthrews

Presentation Preference - Oral

Until the 80’s of the 20th century, the archaeological research from Neolithic to Bronze Age in NW Iberia was focused on burial sites and rock art. Since then, several research projects and rescue excavations brought new data on housing and domestic contexts during the Late Prehistory of the Iberian Peninsula. As for the Chalcolithic and Bronze Age open-air settlements studied, together with pits, post holes, hut floors and archeological hedges, excavations have been recorded oval or circular hollows measuring 1.9 to 3.5 metres wide and 1 metre of depth, usually with an irregular section. These have been considered huts remains built on perishable materials. These structures were commonly filled with two different deposits, an organic and dark brownish layer, and another light and inorganic. From the organic deposits there has been recovered a high concentration of fungal sclerotia that have a symbiotic relationship with roots of trees or bushes. Finally, we would like to highlight that inside these openings are uncommon archaeological evidences, such as sherds or lithic artefacts.

The morphology of the holes and the lack of archaeological evidences related to these structures, together with the repeated absence of hearths inside them or in their immediate surroundings, lead us to question their anthropic origin. For that reason, new interpretations must be proposed. In fact, in terms of sedimentological events, there is a great similarity between these structures and natural features, such as wind-throw hollows (Dziegielewski 2007; Goldberg and Macphail 2008; Langohr 1993). The archaeobotanical assemblages recovered from these contexts, also can provide valuable information to interpret them as wind-throw structures. To understand the natural processes involved in their formation (Schiffer 1987).

There have been developed sedimentological and archaeological studies of samples recovered from huts inside to rock wind-throws. Their results have been compared to the supposed anthropogenic contexts. The distinction between natural and anthropic features in these open-air structures is crucial to avoid any interpretative distortions of these contexts.

References:

This poster 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 demonstrates the influence of the past human activities (700 years ago) on these micro-ecosystemic conditions. However, this “legacy effect” is not apparent on the Bronze Age (4200 years old) enclosure, which raise the question of the time required for the resilience. Another interesting result is the presence of lead inside the modern enclosures. These results reveal the soil memory effect link with ancient mining activity. Late sediment 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 (Py 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/or) metallurgical activities.
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 20 variables including element geochemically 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- or medium-inverse archaeological methodologies as drilling and 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 Doležec, Nina Zupančič, Manca Vinzavšč, Igor Mederšič, Matjaž Morji, Petia Basar)

TH5-10 Abstract 16

Tracing the ditch from Zhabotin
Early Iron Age settlement (Ukraine) using magnetometry

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Keywords: Early Iron Age, magnetometry, settlement pattern

Presentation Preference - Oral

At the end of IX – beginning of XII century BC revolutionary changes occur in the Middle Dnieper area (Ukraine), relating to Chernenkassaya culture. All settlements and villages of Chernenkassaya culture, located mainly on the first and second terraces above the floodplain 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 Zhabotin phase distinguished after etymonic and reference Zhabotin 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 Zhabotin 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. Its width on this level is not less than 10m, the width on the bottom is 1-1.2 m. From above geographical and topographic horizons is recognized reflecting different stages of its functioning and filling.

Archaeological excavations proved the ditch to be consisted of separate layers, with characteristic magnetic susceptibility, indicating main chronological stages between 8th – beginning of 6th BC. It is demonstrated that the magnetic anomaly over the ditch is formed mainly due to later buildings horizons. The width of the anomaly corresponds 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 was preceded by earlier constructions. Architect constructions and complexes synchronous to ditch were observed on both sides of it. For this reason, the purpose of 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 part 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 aiming at the understanding the basic geology of the settlement. But in recent years we took one step further, and 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. Its width on this level is not less than 10m, the width on the bottom is 1-1.2 m. From above geographical and topographic horizons is recognized reflecting different stages of its functioning and filling.

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TH5-10 Abstract 18

Resources & disposal in an island landscape: microgeoarchaeology at the Ness of Brodgar, Orkney

Author - Dr. Shihto, Lisa-Marie, Newcastle University, Newcastle, United Kingdom (Presenting author)

Keywords: geoarchaeology, 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 phytolith analysis we can detect traces of fuel use that are often missing from the charred macrobotanical record.

TH5-10 Abstract 19

Microbiological and environmental biomineralization in the Neolithic hypogaeum Hal Saflieni, Malta

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Keywords: Biodegradation, Biomineralization, Geomicrobiology

Presentation Preference - Poster

Work carried out within the tender HM22/3/2015 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 Ħaġar Qim and Mnajdra Hypogaeum 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 limestone, and for the final sculptural profile to be obtained and painted. Indeed, carvings and the uppermost exposed walls, were painted with varying rock art designs, such as honeymoons 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 hypogaeum. 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 is below the hypogaeum was studied both on traps to measure the airborne fraction, and on the sediment recently released by invertebrates on the rock surfaces. In this study, fungal communities were also detected and related to water seepage. The invertebrate communities were sampled by traps set at all the different subterranean layers. Environmental parameters characterizing circulating waters and bedrock properties were measured and monitored together with radiogenic gases.
Through electrical tomography, 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 bio-melanization and revealed ochre designs which had been obscured by recent and old incrustations and biomineralization. Finally, the surface distribution of bio-melanization, biofilm and cutane types was mapped.

TH5-10 Abstract 20
Housebuilding adaptation to the environment in the Neolithic of the south of Western Siberia

Author - Dr. Ryabogina, Natalia, Institute of the problems of Northern development, SB RAS, Tyumen, Russian Federation (Presenting author)
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-steppe 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 palynological and phtyoliths 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 steppe 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 on the Neolithic 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 tradition. We compared the archaeological and palaeocological data and focus on the structural features of the houses (presence/absence of 6 light groundhouses), 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 trassological 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 Caspian settlements in eastern Maghreb: spatial organisation of outside areas

Author - Eddergach, Wassel, Maison Archéologie & Ethnologie, René-Ginouvès, Nanterre, France (Presenting author)
Co-author(s) - Wattez, Julia, INRAP, Paris, France

Keywords: Caspian settlements, Geoarchaeology, the eastern Maghreb
Presentation Preference - Poster

The geoarchaeological research on Caspian settlements in the eastern Maghreb region is based on soil micromorphology. This research is important to understand the systems of settings of these Romanic 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 frequence degree of soils. In the outside areas, the occupation surfaces reflect differentiated spaces: areas near to the buildings or combustion structures, domestic wastes areas, passageway 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 Caspian settlements.

The aim of this communication, is to present new results about formation processes of occupation surfaces of outside areas, from several Caspian sites from Eastern Maghreb: Doukane, El houtila (Silliana-Tunisia), Kel Elzah (Kairouan-Tunisia), El Mekta (Gafsa-Tunisia) and SHM-1 (Hergla-Tunisia).

TH5-10 Abstract 22
Infering the Neolithic pits function from sedimentary record: the case of Le Pirou (France)

Author - Dr. Wattez, Julia, INRAP, Paris, France (Presenting author)
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Keywords: circular pits, Micromorphology, Neolithic
Presentation Preference - Poster

Middle Neolithic settlement on south of France are often characterised by negative features and by the lack of occupation surfaces, mainly due to post-depositional erosion. Pit clusters are usually dwelling evidence, such as in the site “Le Pirou”. About one hundred circular pits are arranged around an empty space, which its nature stays unknown. Some of these features are identified as human or animal burials but for the most of them, the primary function is under discussion: dumps because of the cultural remains diversity (potsherds, lithic, charcoal, animal bones), or storage structure due to the shape of the pits section. The pits’ infillings differ from massive to stratified deposits dealing with the question related to the function and to the rhythms of uses.

Few geoarchaeological researches using micromorphological analysis were carried out on the functional history of these pits. The research strategy applied, considers the pit as a system of activities.

In order to evaluate the cultural sedimentary record and to discriminate micromorphological indicators related to any activities (construction, use), and to post-functional processes, seven pits were sampling. Radiocarbon dating (4216 to 4714 cal BC), place these pits to Early Chassene Culture.

Geoarchaeological results indicate that the circular pits correspond to a constructed space, with activity surfaces regularly maintained and transformed by trampling. Correlation between stratigraphic and archaeological record allows us to propose a new interpretation on the functions of the pits (domestic/active area, cellar-storage) which will be presented and discussed in this paper.

TH5-10 Abstract 23
Micromorphology of combustions structures at Birnirk and Thule sites of the Cape Espenberg

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Keywords: Alaska archaeology, Combustion structures, Micromorphology
Presentation Preference - Poster

In Northwest Alaska, human societies have adapted their subsistence strategies to extreme conditions. At the coastal Cape Espenberg site, excellent conservation conditions have allowed the preservation of many cultural features (architecture, hearths, middens) within a series of aggregating beach ridges. Remains of semi-euborealine houses and associated material culture indicate the sites relate to the Birnirk and the Thule cultures. The houses associated with the Birnirk culture are in ridge E-6 and reveal a multi-room architecture and two to three occupation levels dated to the 11th-13th century. Thule and later Kaltuutine period houses are found on ridge E-5 and E-4. They show a long entrance tunnel leading to a rectangular room that contains a sleeping platform elevated above the occupation level. Unusual concentrations of archaeological charcoal and burned organic matter have been uncovered inside and outside of Birnirk houses, revealing the presence of small domestic hearths inside and firepits outside. However, Thule culture houses only have external burned areas and firepits. Ceramic lamps appear to be the sole source of light and heat inside these houses.

The variability in the form, fill, and spatial organization of combustion structures raises questions regarding their usage, status and maintenance by people who occupied these houses. To further understand fire management in the arctic tundra, and the function and status of combustion structures, soil samples were collected from combustion structures (hearths, firepits, charcoal’s concentration and soil occupation, ...) for anthracological and micromorphological analysis. This sampling protocol provides the opportunity for a multivariate, comparative and diachronical analysis of combustion structures between one Birnirk house and three Thule houses at Cape Espenberg. Our goal is to identify the diversity of fire-related activities in the excavated Birnirk and Thule houses, whether domestic (cooking, boiling water, heating, lighting, etc.) or specialized (ceramic firing, smoking and / or drying of foods, etc.). In this poster we present the results of the soil micromorphology analysis and compare the areas sampled in terms of function and spatial organization in light of prior results of charcoal analyses.
“GNU DIRECTIONS IN R-CHAEOLOGY”: INNOVATIONS IN THE USE OF FREE AND OPEN SOURCE SOFTWARE (FOSS) TO ACHIEVE AN OPEN ARCHAEOLOGY

TH5-11

Friday, 2 September 2016, 09:00-11:00
Faculty of History, Room 329
Author - Orton, David, University of York, York, United Kingdom (Presenting author)
Co-author(s) - Birch, Thomas, UCL Qatar, Doha, Qatar
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TH5-11 Abstract 01

Digital media as an effective platform to archaeological data dissemination

Author - Eng, Bórica, Natalia, Universidade do Minho, Braga, Portugal (Presenting author)
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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 data 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 1979. 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 data, a web-based back-office was developed using HTML and PHP. This technological independence enabled a constant growth of the back office, ensuring modularity, integration and customization facilities according to the user’s needs.

The designed Information System (2ArchIS) supports several modules, which range from the stratigraphy of any kind of excavations to the territory analysis and landscape characterization, connecting the alphanumeric data with images, vector graphics, cartographic documentation and bibliography. Furthermore, it can also integrate data resulting from the analysis and interpretation tasks.

The architecture of 2ArchIS also favours the data exchange with external applications. It is possible to export data to archED and ARCGIS enabling the automatic creation of a graph regarding the stratigraphic matrix and materials, that can be a valuable asset for the archaeological research.

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 archaeology. 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) acoustic 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 archaeological chronologies with radiocarbon dates. The package also features a variety of functions for plotting the resulting frequency distributions along with their associated uncertainty. Finally, there is a toolkit for determining the sensitivity of the simulation approach, and 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 settlementPolgár–Csozshalom

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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 requires new technologies and methods in the research.

The main question is, how can we interpreting 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 (9th millennium BC) settlement of Polgár–Csozshalom is a perfect case study for the archaeological adaptation of one of the widely applied open-source statistical software: R.

Through the wide range analysis 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.
Putting the pieces back together: automated refitting using open source software

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Key keywords: Automated refitting, Bixgrove, Open source software
Presentation Preference: Oral

Reflit 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 reflit analysis increases exponentially with assemblage size, while success rates decrease. Further, error rates in reflit remain untested, although inter-analyst variability in terms of experience and skill is clearly an important factor. A reflit study can rarely be considered as complete, which can create uncertainty over the extent to which past human behaviour reconstructed through reflit 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 reflitting that draws on techniques from the field of optical metrology and utilises free open source software.

Rapid, medium scale (millimetre to micrometre) high precision 3d scanning is used to produce digital models of fragmentary archaeological remains. These models are then processed using free open source software and a set of published data manipulation algorithms that dissect and compare surfaces within a given assemblage of material. This outputs probability matrices from which reflitting surfaces can be derived. This effectively automates the reflitting process and affords the researcher more time to evaluate the significance of the resulting patterns of material organisation at the analysed sites. Further development of this method has the potential to dramatically increase the scope of reflitting studies. By substantially reducing the required person-hours to conduct a reflit study whilst increasing reliability, the method could be applied to large, complex, palimpsest assemblages in their entirety, and could even be used to search for reflitting material between assemblages, thereby providing a method for directly linking episodes of human activity across the landscape.

This presents a case study of part of the OGP17 assemblage (the Horse Butchery Site) from the Lower Palaeolithic site of Bixgrove, UK, to demonstrate the new digital method of reflitting, 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/L00888X/1).
TH5-12 Abstract 02

Methodology and perspectives. Use of metal detectors in the Little Poland region

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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 hill terrain of the Little Poland Upland. This reflection will be based on the experience of the last decade of research in the area, particularly on 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 located 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 Detecting Research in Mountain Areas of Slovakia

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Keywords: Detecting, mountain areas, Slovakia

Presentation Preference: Oral

The hillfort is a typical settlement unit for mountain areas of Slovakia for a long period of time from the late Bronze Age until developed Middle Ages (12th - 13th century). A typical aspect of hillfort is in addition to building of fortification also treatment of landscape of its close economic background into a system of terraces, on which economic, agricultural and settlement activity concentrated.

We currently know about several hundreds of prehistoric or medieval hillforts with various settlement intensity in this landscape.

Other objects typical for mountain areas are various types of communications from service roads up to roads of trans-regional nature. There is a vast number of archaeological findings situated along such roads, which enable us to date the period of road usage as well as nature of goods transported on such roads or types of travellers using them.

Last but not least, mountain areas of Slovakia are rich in numerous relics of old mining activity, ranging from simple exploratory shafts through large extraction and processing areas up to abandoned mining villages. Material obtained from them enables us to learn about contents of material culture of mining communities from the oldest time to modern period.

Intensive and irregular mass detecting has been occurring during the last quarter of century not only Slovakia. It affected especially hillforts and their immediate background. Although mass detecting has brought irreparable damage to learning about the national cultural heritage (absence of knowledge about the finding site or about particular circumstances of the finding). It has also brought vast amount of information about the material culture of prehistoric and historic communities living in this area, even though such information has various informative value. Mass detecting has also brought discoveries of numerous new localities, which are exposed to biggest risks without the immediate response by archaeologists.

In the recent years, a lidar scanning and a geophysical research of the site and its surroundings was carried out, confirming 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 8th century and the mid 10th century.

In the following years, rumours of new illegal detector finds prompted the decision to complement the topographical survey of the site and, in 1999, 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 8th century and the mid 10th century.

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: M. Jan, Institute of Archaeology of the CAS, Prague, v. v. i., Prague, Czech Republic (Presenting author)

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Keywords: central places, metal detector prospection, plough-soils

Presentation Preference: Oral

Several projects during the last years were focused on the large scale prospections 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, besides traditional surface prospectations and geophysics, was conducted on the selected areas within and outside of the sites’ fortified bounds. Apart from the obvious research interest the principal aim of the survey was to remove (as much as possible) of 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 disseminated 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 04

The hilltop settlement Gradščije above Bašelj: metal detecting survey vs. archaeological research

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Keywords: archaeological research, Gradščije above Bašelj/Slovenia, metal detecting survey

Presentation Preference: Oral

Gradščije, 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 Gradščije, were unwrapped in 1906, 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 1999, 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 8th century and the mid 10th century.

In the recent years, a lidar scanning and a geophysical research of the site and its surroundings was 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: M. Jan, Institute of Archaeology of the CAS, Prague, v. v. i., Prague, Czech Republic (Presenting author)

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Keywords: central places, metal detector prospection, plough-soils

Presentation Preference: Oral

Several projects during the last years were focused on the large scale prospections 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, besides traditional surface prospectations and geophysics, was conducted on the selected areas within and outside of the sites’ fortified bounds. Apart from the obvious research interest the principal aim of the survey was to remove (as much as possible) of 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 disseminated 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.
TH5-13 Abstract 01

Environmental conditions and Mesolithic-Early Neolithic sites in the basin of Vozhe Lake (Russia)

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Keywords: Early Neolithic sites, Palaeoecmle, 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 Bogostolne 15 site is dated to middle Mesolithic period, but the Karavakha 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, animal 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 with 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 sedimention occurred. The next stage of sedimention was in the period of water level increase. The climate became warmer. The large-leaved trees were spread. The early Neolithic people occupied the Karavakha 4 site around ca.6200 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 bird prevalence on this place could be an indicator of anthropogenic factor in this context. The next stage of anthropogenic activity was in the middle of Atlantic period. The wood artifacts were dated around 5043-4885 cal BC. The amount of artifacts in this cultural layer is not too much as in a layer of beginning of Atlantic period. It could be explained by the decreasing of water level, lake eutrophicn 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

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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 over 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 underwater landscape studies were conducted using the data from the Samogitian Highland (West Lithuania) ongoing pollien, diatom and archaeological investigations, which showed that in the Mesolithic period of human living and farming conditions were different. Palaeoenvironmental situation plays a leading role in the reconstruction of the human settlement during the Early Holocene in coastal and continental area of Lithuania. Relict submerged forest vegetation composition remains confirms that the natural conditions at the time of former Baltic coastal water basin were favorable to live and succeed in farming for Early Mesolithic Kunda (Pult) and Maglimose 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 (Pult stage), and second – Maglimose settlers.

TH5-13 Abstract 04

Climate-Sea Water temperatures in northern Iberia during the Late Pleistocene and Early Holocene

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Keywords:

- Palaeoceanography, Palaeoecology, Palaeoclimates, and regions.

This session seeks to explore new micro- and macro- scale approaches towards reconstructing palaeoenvironments, palaeoclimates, and palaeoecology to answer key questions related to the impact of palaeoenvironmental and palaeoclimatic changes on past human and animal populations.
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 palaeoenvironmental investigation. Thus, molluscs recovered from archaeological shell middens sites 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 ~55 to 1 ka 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 correlation between P. vulgata estimated ST and data from the Greenland NGRIP ice core and from deep-sea sediment core MD95-2042 (located off western Iberia), suggesting that ST in northern Iberia followed a global pattern.

Presentation Preference - Oral

TH5-13 Abstract 05
Mammalian response to climatic instability over the Pleistocene-Holocene boundary in Britain

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Keywords: 3D Geometric Morphometrics, Ancient DNA, Palaeoecology
Presentation Preference - Oral

The closing stages of the Devensian glacial through to the Holocene interglacial (c. 15 000 cal BP – 11 500 cal BP) saw a series of rapid oscillations in global climate associated with major turnover events in floral and faunal compositions. Climate is known to be a primary driver of biological evolution and such abrupt climatic fluctuations are likely to have exerted strong selection pressures on species at this time. This period also associated with large-scale changes in human populations, culture and technology. This study applies a novel synthesis of ancient DNA and 3D geometric morphometrics to sub-fossil material recovered from the British zoo-archaeological record in order to investigate the tempo, scale and mode of mammalian response to this rapidly changing climate.

Britain is ideally placed to examine the question of climate-driven faunal turnover on account of its sensitivity to climate change driven by its proximity to the North Atlantic, its exceptionally rich fossil assemblages and its geographical position, formerly connected by a landbridge to the European mainland. Regional level population instability and eco-morphological change driven by its proximity to the North Atlantic, its exceptionally rich fossil assemblages and its geographical position, as well as its role as a refugium for plants, animals and humans. Changes in the environment are thought to have been driving factors behind the extinction of the Neanderthals, the rise of Anatomically Modern Humans (AMH), and later the development of the rich cave art assemblages. Carbon and nitrogen stable isotope analysis of hunted animal bone collagen from Palaeolithic levels of archaeological sites can be used to understand past environments at this time. Changes in the environment including factors such as temperature, aridity produce different isotopic signatures within plants, and the animals that consume them, and analysis of these specimen on a large scale. This research uses large scale isotopic analysis of animal bones, before making comparisons to existing zooarchaeological assemblages, to characterise how the environment changed, and human responses to these environmental changes through the Middle and Upper Palaeolithic in this archaeologically important region, at this crucial time in human evolution.

Presentation Preference - Oral

TH5-13 Abstract 07
Changing mammal communities influence Neanderthal and Anatomically Modern Human food resources

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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 database that consists of radiocarbon dates from over 450 archaeological sites and associated fossil faunas, with a geographic range of Europe limited to the East by the Urals and Caucasus and to the West by around 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 analysis, 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 PCA 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.

Presentation Preference - Oral

TH5-13 Abstract 08
Examining the potential of oxygen isotopes in human skeletal remains: a multi-tissue approach

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Keywords: bone, oxygen isotopes, palaeoecology
Presentation Preference - Oral

The oxygen isotope composition of precipitation is largely a function of local temperature, and therefore varies geographically as well as seasonally at the same location. In light of this, and the correlation between the oxygen isotope composition of animal tissues and water consumed, the oxygen isotope analysis of archaeological skeletal material has the potential to investigate past geographical origins and climatic conditions. In archaeology, the oxygen isotope analysis human tooth enamel (often paired
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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 from two different 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 (e.g., 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 isotopic values from these geographically distinct sites constitute the first step in addressing questions of how different environments shape the development, spread, and ultimate divergence of different animal husbandry strategies.

TH5-13 Abstract 11 Revisiting the impacts of coastal sand movement in prehistoric Scottish Islands

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Keywords: aeolian sand, geoarchaeology, Scottish islands

Presentation Preference - Oral

Islands and their coastlines have long been important landscapes for settlement, resource procurement and structuring social interaction. Such environments have also proven fruitful in exploring environmental change and its impacts on human activity. Coastlines are by their nature dynamic and locally-variable. Manifestations of environmental change such as flooding, erosion and sand movement can have immediate and visible impacts on coastal activities and geomorphology. Historical sources provide a detailed view of environmental deterioration and its far-reaching effects on coastal populations throughout Britain, particularly during the Little Ice Age. One notable impact is that of coastal sand movement and inundation, leading to the marginalisation and abandonment of agricultural land in response.

The presence of blown sand horizons at coastal archaeological sites attracts to similar movements in the prehistoric period across northwest Europe. However, the nature of impact and response in the prehistoric record is less clear, with environmental proxies often proving ill-defined. Prehistoric archaeologists face the challenge of reconciling temporal scales provided by the environmental sciences with scales that are archaeologically-meaningful to explore similar human-environment relationships at deeper timescales.

This paper will introduce a doctoral research project which aims to catalogue and characterise episodes of coastal sand movement in the prehistoric period using the Northern and Western Isles of Scotland as a case region. A mixed-methods approach has been taken to this research, combining archaeological evidence with geoarchaeology and historical analogy. The project also utilises geophysical survey and luminescence dating to investigate the nature, source and chronology of sand movement on archaeological sites and landscapes. This will then be placed within the wider socio-cultural context of a region where suggested ‘buffering’ responses such as mobility and diversification can be reviewed. Selected multi-period sites in Orkney and the Outer Hebrides are being used to explore the ways in which this complex archaeological and environmental record can be approached.

TH5-13 Abstract 12 Anthropic impact on the changes in landscape in the tract “Adzhiel” in the Eastern Crimea

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Keywords: antiquity, Crimea, landscape

Presentation Preference - Poster

The connection between location of ancient settlements with the conditions of the environment and agricultural potential is obvious. It is equally obvious, the dependence of the choice of location for the settlement with the landscape. In this connection, great interest is the analysis of the historical situation in a particular area in the presence on it of one or more dominant objects of human impact on the environment. In our case, that is the territory of the tract Adzhiel. The tract occupies part of the territory of the Eastern Crimea adjacent to the Sea of Azov, is located 45 kilometers west of the eastern point of Crimea, and covers an area of about 40 km. In the name of this area connected with Azhiel gutch, located here. As a result of studies of the XX century, there are discovered many barns and more than a dozen ancient archaeological sites of other types. For detection the relationship the provisions of the identified objects of natural-geographical and landscape features of the tract, GIS has been prepared, including layers, describing the geology, soil properties, topography and hydrology of the area. On a large part of Tracts Azhiel, with modern agriculture field, there are no traces of settlement structures, that says, that in ancient times these territories were not built up, but could also be used for agriculture. Settlement structures are located primarily along the boundaries of the modern fields, in areas with less fertile soils. The territories occupied by modern fields as underlying those in the middle and lower Pissone rocks - sand, clay, iron ore, shelly limestone; rocks of Motsia tier of Upper Miocone - shelly limestone, Ectopocra reefs, clay. Quaternary rocks represented by aeolian-talus deposits, with material composition - loam-like loam and loess. Soils, occupying a significant part of Tracts - southern micelian-carbonate black earth, are one of the most fertile soil types on the Kerch Peninsula. There is a spatial matching soil types and underlying pre- Quaternary rocks, which in turn is likely to determine the features of talus formations of the Quaternary period, directly acting as a soil-forming grounds.

In this sense, conclusions about the possible nature of the territory of the tract in antiquity, based on the absence of archaeological material in the territory of modern fields correspond to the conclusions made based on the analysis of geological and soil conditions of the area - the types of soil in the tract Azhiel determined by soil-forming rocks, and are not associated with anthropogenic or other influences, and it can be assumed that in ancient times they were the same, i.e., highly suitable for agriculture.
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 Nr 1799).

TH5-13 Abstract 13
Geomorphology and early Neolithic migration routes into the Transylvanian Depression

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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 Someşul Mic River and its right side tributaries. Starting with Starčevo–Criş III, 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 Someşul Mic 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 nelly 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 Brâgiv 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: Why Someşul Mare – Some Valleys seems to had been avoided by the early Neolithic communities? Were the Carpathians crossed only along the Mureş 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 of abandoned paleomeanders, extended wet zones, isolated fluvial relics, low fluvial terraces? The authors acknowledge financial support from projects PN-III-PD-2012-3-0547, PN-III-PD-2014-4-1993, PN-III-PD-2013-1-0057, financed by UEFISCDI Romania.

TH5-13 Abstract 14
North Atlantic and Labrador seasonal climate: isotopic evidence from micromilled bivalves and wood

Author - Timisch, 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 reconstructions of intra-annual environmental and climate 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 Early Holocene (10,650 to 7,600 cal yr BP) exhibited the most persistently warm summers, with maximum summer temperatures ~2°C higher, and with greater seasonality then during the subsequent cooler Neoglacial Period (7,600 to 4,750 cal yr BP). The Neoglacial Period was a relatively stable cold period, with the lowest summer maximum temperatures, as well as the lowest seasonality during the Holocene. Sporadic warm periods and increased seasonality are observed in the record after 4,500 cal yr BP, when maximum summer temperatures reached between ~7 and 9.5°C. The highest reconstructed temperatures of the entire record occurred during the Roman Warm Period at ~2,000 cal yr BP.

Three centuries of subannual/annual climate data were retrieved from the δ18O and δ13C values of tree-ring cellulose in the temperature-sensitive region of central-coastal Labrador, Canada. A large cookie of a white spruce (Picea glauca) tree was micromilled to retrieve multiple samples per year and/or early and late wood that were subsequently analyzed for δ18O cellulose and δ13C cellulose values. The coastal Labrador region is a climatically dynamic region that is influenced by ocean-atmosphere interactions and thus has excellent potential for studying both, terrestrial and marine climate variability. We found a good agreement between reconstructed mean-annual temperatures and major climatic trends and events, including multidecadal warm and cold climate episodes, historical meteorological measurements collected by the Moravian missionaries, modern mean-annual temperatures and salinity anomalies in the NW North Atlantic Ocean, as well as cooling trends induced by major volcanic eruptions such as Lakagigar in 1783-84, Tambora in 1815, and Krakatoa in 1883. Persistent cold intervals are found from 1790 to 1810, 1875 to 1895, and 1950 to 1970, while the warmest intervals are found during the mid-18th and 19th centuries. Moreover, continuous transform wavelet analysis was used to analyze δ18O cellulose and δ13C cellulose periodicities and suggest that their interannual and multidecadal periodicities are similar to those of the NAO.
HUMAN LAND USE AND SUBSISTENCE HISTORY OVER THE HOLOCENE

Thursday, 1 September 2016, 09:00-18:30
Faculty of Philology, Room 92
Author - Whitehouse, Nicki, Plymouth University, Plymouth, United Kingdom (Presenting author)
Co-author(s) - Morrison, Kathy, University of Chicago, Chicago, United States of America
Co-author(s) - Bauer, Andrew, Stanford University, Stanford, California, United States of America
Co-author(s) - Wandsnider, LucAnn, University of Nebraska-Lincoln, Lincoln, United States of America
Presentation Preference - Workshop

We bring together archaeologists and palaeoecologists working on land use and land cover history over the Holocene, for any area or region of the world. Land use is inferred from settlement patterns, artifact scatters, plant and animal remains and off-site palaeoecological records. We especially wish to consider the range and intensity of subsistence activities at a regional and spatio-temporal scale. Land cover may be inferred from complimentary palaeoecological data. A long-term focus, examining changes ~8000 cal BC to ~cal AD 1500 (10,000 BP – 500 BP), will allow progression towards a global overview of how subsistence and land cover has changed as a consequence of hunter-gatherer and agricultural activities across different regions of the world.

We would like to concentrate especially (but not exclusively) on the following periods: the early Holocene (~8000 cal BC), the impacts and consequences of agricultural production (~4000 cal BC) and intensification (~2000 cal BC). More recent periods, focusing on areas outside of Europe, are also welcomed, as the chronology of activities are substantially different to Europe. As we will take a global perspective, we expect diverse regional land use and subsistence practices to be explored. Papers that cover all or parts of these periods and contributions that synthesize understanding of subsistence practices and implications for land usage are welcomed. This session will form part of activities of the PAGES-funded LandCover6k project (http://www.pagesigbp.org/en/exp/landcover6k/intro), an international and inter-disciplinary 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 01
Towards a global history of human land use over the Holocene
Author - Prof. Whitehouse, Nicki, Plymouth University, Plymouth, United Kingdom
Co-author(s) - Morrison, Kathy, Department of Anthropology, University of Chicago, Chicago, United States of America (Presenting author)
Co-author(s) - Madella, Marco, Department of Humanities, University Pompeu Fabra (UPF), Barcelona, Spain
Co-author(s) - Galllard, Marie-Jose, Department of Biology and Environmental Science, Linnaeus University, Kalmar, Sweden
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/exp/landcover6k/intro), an international and inter-disciplinary working group dedicated to reconstructing global Holocene land use and land cover. The goal of the project is to provide relevant, empirical data on global past anthropogenic land-cover and land-use change to climate modelers. The LandCover6k working group infers land-use data from fossil pollen records (lake sediments and peat deposits), and cross-references these with archaeological and palaeoecological records (including pollen, wood and plant micro/macromaines). We focus on regions of the world where humans have had a significant impact on land cover during the last 6000 years (6k) calendar years (in some regions earlier than 6k ago) through deforestation and diverse agricultural practices.

We outline why land-use change is important for understanding climate forcing and why its effects on climate remain poorly understood. Among the effects of land-cover change on climate, the best known is biogeoclimatic effects, in particular the influence on the exchange of CO2 between the land surface and the atmosphere. The biogeochemical effects are less well understood. Moreover, the net effects of both biogeochemical and biogeophysical processes due to land-use change are still a matter of debate. The pollen-based reconstructions of past land cover use pollen-vegetation modelling approaches, with mapping of pollen-based land-cover change using spatial statistics; historical and archaeological data are upscaled and summarized on maps of major land-use categories. The results of both activities will then be used to revise existing Anthropogenic Land-Cover Change (ALCC) scenarios, which presently use models to reconstruct human impacts (e.g. Kaplan et al. 2009; Kaplan et al. 2009; Kaplan et al. 2011).

Our major focus is on the reconstruction of land-use history; the goal is to ensure that interpretations are archaeologically robust, well-informed by current understandings of human land use history and useful to the archaeological community, as well as the climate modeling community. We present initial results from our land categorization work and consider some of the challenges and opportunities associated with these efforts. These include some of the assumptions around the nature of hunter-gatherer human impacts, early farming and ongoing land use activities and ongoing impacts of landscape change.

References:

TH5-14 Abstract 02
Land Use 6k: A First Assessment of South Asia
Author - Bauer, Andrew, Stanford University, Stanford, United States of America (Presenting author)
Co-author(s) - Morrison, KD., University of Chicago, Chicago, United States of America
Co-author(s) - Madella, M., Universitat Pompeu Fabra, Barcelona, Spain
Keywords: Climate Change, Land Use, South Asia
Presentation Preference - Oral

This paper will review the current state of archaeological evidence for human land use in South Asia in the middle to late Holocene. The review forms part of a larger effort of the PAGES-supported LandCover6k and LandUse6k project (http://landuse.uchicago.edu/about) to reconstruct global land use and land cover datasets for the purpose of improving models of anthropogenic land cover change being used by climate scientists. Here we will present archaeological and palaeoecological data from different regions of modern day India, Pakistan, and Bangladesh in an effort to identify significant changes in agricultural, pastoral, hunting and foraging land use and anthropogenic land cover changes between ca. 6000 BP and 3000 BP. As we will detail, during this period there was an intensification and expansion of agricultural and pastoral land use across many regions of South Asia that significantly affected land cover and other environmental conditions.

TH5-14 Abstract 03
Long-term patterns of Human Land Use in the Temperate Woodlands of Northeastern Mississippi, U.S.A.
Author - Professor Peacock, Evan, Mississippi State University, Mississippi State, MS, United States of America (Presenting author)
Keywords: Holocene, 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 against the changing selective environment over the last 10,000 years in the study area.

TH5-14 Abstract 04
North American Land Use from 6k Onward: A First Look
Author - Prof. Wandless, LucAnn, Univ of Nebraska-Lincoln, Lincoln, NE, United States of America (Presenting author)
Co-author(s) - Foster, Thomas, Tulsa University, Tulsa, OK, United States of America
Keywords: collaborative research, land use, North America
Presentation Preference - Oral
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 populations of Central Europe. 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 characteristics 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.

TH5-14 Abstract 05

Intensity of human impact inferred from pollen and-cover reconstruction and archaeological models

Author - PhD Dreslerová, Dagmar, Institute of Archaeology of the CAS, Prague, Prague 1, Czech Republic (Presenting author)
Co-author(s) – PhD Abraham, Vojtech, Department of Botany, Faculty of Science, Charles University, Prague, Czech Republic
Keywords: archaeological modeling, Reveals, vegetation cover

Recent global change accelerates the need for understanding of human-climate relationship and for quantification of anthropogenic 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 PALYVČ 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 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 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:

TH5-14 Abstract 06

Animal subsistence in the Eneolithic period from South-East Romania

Author - PhD Balaseacu, Adrian, National Museum of Romanian History, Bucharest, Romania (Presenting author)
Keywords: Eneolithic, Romania, Zooarchaeology

This research was supported by the Czech Science Foundation grants No. 13-111935 and 16-10100S.

TH5-14 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

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 Longspur-Police Complex (included to the so-called Danubian Neolithic) disappeared. In that period a new archaeological phenomenon appeared and was gradually spreading; it was the south-eastern group of the Funnel Beaker culture (SE TRB). In this paper, we present a cross-validation of 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 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 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:

TH5-14 Abstract 08

High resolution record of land use, vegetation and erosion history from Lake Skogstjern

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Keywords: land use, vegetation, erosion, lake, ice age

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 chronologic-cultural sequences (e.g. Cernavoda) help us to confront the opportunity to reconsider the changes in the livestock and hunting activities. Regarding the livestock activity, cattle and sheep/goat prevail; shows highly significant variation among by region. The slaughtering curve study reflects the rate that the cattle are grown for milk while sheep/goat is bred for meat. In this matter, 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, the absence of specialized herding implies that the sheep/goat is grown for meat and milk, and not for wool. Our results also show that the cattle and sheep/goat are used for meat and milk, respectively, and not for wool. Our results also show that the cattle and sheep/goat are used for meat and milk, respectively, and not for wool. Our results also show that the cattle and sheep/goat are used for meat and milk, respectively, and not for wool.
In connection with two rescue excavation projects in Southeastern Norway, the Vestfoldbaneprosjektet and the project E18-Rugtvet-Dalen, a cooperation between the Museum for Cultural History, University of Oslo, and the Graduate School “Human Development and Evolution and Climate” was established, to extract and analyze a core from Lake Skogstjønn, Bamble, Telemark. The aim was to supplement archaeological excavation results, mainly traces of coastal settlement dating to the Mesolithic and Neolithic periods, with knowledge on vegetation history. From the comparison of archaeological and palaeoecological material questions of human impacts on the vegetation during the Mesolithic as well as the process of neolithisation, with the introduction of agricultural practices and animal husbandry in Southeastern Norway, can be discussed. While the latter contributes with important data to an ongoing discussion, the former is a new field of research.

The core site Lake Skogstjønn provides pollen analytical investigations with a high temporal resolution of 12 to 38 yr/cm, showing a detailed picture of landscape development in a long-term perspective. Complementary techniques of non-pollen palynomorphs- and microscopic charcoal analysis as well as loss-on-ignition and determination of geochemical element distribution were also employed on its sediments, allowing the consideration of the palaeoecological interactions, climate, and human influence for more than 10500 years. Lake Skogstjønn has, due to its rather small size, an extra-local signature.

The pollenanalytical data shows that first evidence of human activity emerges already during the Mesolithic, reflecting small-scale openings of the forests by the assistance of fire. First traces of agriculture occur during the Early Neolithic. Those are, however, signs of rather small scale ‘cereal cultivation’ and of only limited animal husbandry. During the following periods, there are again and again traces of agriculture, nevertheless, human impact remains on a more or less low-level and does not generate any significant palaenviroenvironmental changes. The palaeoecological record evidences some intensification in animal husbandry only during the second half of the Bronze Age, involving slightly higher degree in landscape openness and the utilization of wet meadows for grazing purposes. Crop cultivation, however, plays a minor role even up to the pre-Roman Iron Age.

According to the pollenanalytical data the establishment of a full farming community is taking place exclusively in the centuries AD, characterized by a general expansion and intensification of the land-use as verified by extensive forest clearances and fires, crop cultivation on permanent fields and the presence of open pastures as well as associated therewith advanced soil degeneration and increased erosion rates.

These results both support as well as challenge the archaeoecological discussion on the relationship of human and surroundings and from a mobile to a sedentary way of life.

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**TH5-14 Abstract 09**

A varve preservation record of climate change and human impact from Lake Tieler See (NE Germany)

**Author** - M. Sc. Dräger, Nadine, GFZ Potsdam, Potsdam, Germany (Presenting author)

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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 Tieler See in NE Germany provides such an archive for an integrated multi-proxy study based on high-resolution sediment analyses.

Lake Tieler See was formed during the last glaciation and is part of the Klocksin Lake Chain, a subglacial channel system that crosses the Pomeranian terminal moraine. Coating campaigns at the deepest part of the lake (82 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 microtectures analyses using thin sections, µ-XRF analyses on split sediment cores, geochemical analyses of bulk samples, diatom and cladoecia analyses 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 Tieler 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 and human activity 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 Tieler 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.

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**TH5-14 Abstract 10**

Early agriculture and landscape evolution in the Middle Mediterranean

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**Keywords:** Agriculture, Neolithic, Sustainability

**Presentation Preference** - Oral

The Maltese Islands – a small, relatively isolated archipelago of only 316 sq. km. – have been exploited by successive agricultural civilisations since 5000 cal BC. At around 3000 cal BC there was a cultural fluorescence that saw the construction of elaborate communal hypogea, distinctive forms of figurative art, and unparalleled megalithic architecture. Through interdisciplinary work in palaeoarchaeology and the archaeological sciences, the ERC-funded FRAGSUB is currently investigating how small island communities managed to sustain such a precocious economy and culture in such a restricted ecological setting. New archaeological and zooarchaeological data have revealed the widespread importance of cereal agriculture and domesticated livestock in prehistoric Malta. Modelling the potential for soil erosion has revealed that technical mechanisms to manage the environment were developed by prehistoric agriculturists. But were there failures in the agricultural system, and what impact did this have? Shortly after 2400 cal BC, for example, there was an episode of cultural change – was this a consequence of social-economic reorganisation, environmental collapse, or a combination of factors? An overview of this research is presented in this paper, acknowledging the challenges that exist when comparing archaeological events with environmental data lacking chronological resolution.

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**TH5-14 Abstract 11**

Environmental changes and agricultural systems in NW Iberia during the Middle and Late Holocene

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**Keywords:** Agricultural systems, Environmental changes, Middle and Late Holocene, Northwest Iberia, Carpathy

**Presentation Preference** - Oral

Interpretative approaches gathering archaeological and carpological data with broad palaeoecological data can provide relevant insights on the relation between environmental changes and the evolution of human societies and their agricultural systems. Northwest Iberia stands as a good study-case since abundant palaeoenvironmental studies allow us to understand the major trends in climate, vegetation, erosion events and even atmospheric pollution during the Middle and Late Holocene. This diverse and profuse array of information provides an excellent data set to contrast with the regional archaeological and archaeobotanical records.
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, including 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 demography, among 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 climate and forest 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 undermending 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.

TH5-14 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 paleo-environmental 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 1st 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.

TH5-14 Abstract 13
Human-environment interactions in the Alps: Archaeological and palaeoenvironmental approaches
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Keywords: Alps, Bronze Age, Pastoralism
Presentation Preference - Oral

Our understanding of high altitude (European) alpine landscapes and the economic practices that developed therein has improved radically over the last 15 years, nevertheless there are still many challenges, and numerous geographical areas where little or no research has been carried out.

One of the issues facing archaeologists and palaeoenvironmental scientists working in these areas (between c. 1600 and 2600 m asl) is the patchy nature of our various datasets, moreover, human-environment interactions operate at many spatial and temporal scales, and the integration of problematic. Archaeological and palaeoenvironmental evidence are proxies for human-environment interactions; in some instances, we can identify broad categories of economic activities, such as pastoralism and arable agriculture. In other cases, we can identify actual practices, such as pasture creation via forest burning, or the exploitation of specific animal species or the creation of structures for penning animals.

In this paper, we will consider evidence for the development of high altitude pastoralism in the French Alps during the Late Neolithic and Early Bronze Age via the integration of data-types that operate at different spatial and temporal scales; archaeology, palaeoecology, and sedimentary DNA. Within the context of the Alps, we argue that these seemingly disparate data allow us to assess a specific and significant form human niche construction (i.e. pasture) during the Late Neolithic and Early Bronze Age. This can be considered a form of coevolution; the intensification and extension of pastoralism, which included high-altitude summering in the Alps. This was part of a process where a form of agriculture, and not domestication, was the result of the interaction between the extension of the lactose persistence gene via increased consumption of dairy products - a key stage in the evolution of the high profile and globally recognised alpine landscape. Human manipulation of this specific landscape category also intersects with the continued domestication of animals.

This contribution will present an integrated review of archaeological, palynological, archaological and sedimentary DNA from two areas of the French Alps. We will also consider the evidence for phases of landscape destabilisation and the relative importance of climatic and human impact on these sensitive landscapes, a story which starts just before 2000 BC.

TH5-14 Abstract 14
Chalcolithic-EBA farming, soil loss, and the development of a karst landscape in western Ireland
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Keywords: Chalcolithic, Early Bronze Age, land use
Presentation Preference - Oral

The limestone karstic landscape of the Burren in western Ireland has evidence for human habitation from the Mesolithic onwards. The Chalcolithic and Early Bronze Age periods, however, seem to have been periods of particularly intensive and extensive farming on the Burren. Survey and excavation on Roughan Hill, in the south-east Burren, has documented a dense concentration of habitation enclosures, field divisions, and ritual monuments dating to between c. 2300 – 1500 BC which appear to relate to a particularly intensive phase of farming activity on the Burren. This paper investigates whether this Chalcolithic – Early Bronze Age activity can be related to significant karst development on the Burren (through correlations with palaeoecological and palaeoecological records) and also looks at whether contemporary climatic shifts might have played a role. This informs both our understanding of prehistoric farming practices and also the role of human activities in the formation of karstic landscapes.

TH5-14 Abstract 15
Seeing Beyond the Site: Later Prehistoric Landscapes of southeast Ireland
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Keywords: archaeology, Ireland, palaeoenvironments
Presentation Preference - Oral

In this paper we outline the initial results of an integrated palaeoenvironmental and archaeological study from southeast Ireland, funded by RESTI (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, archaeological data from ‘Celtic 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 the 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

Presentation Preference - Oral

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 economy and land use patterns. The landscape of Brittany (North-Western France) during the Second Iron Age (HSO-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 reconstruction 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 try to 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 subdrainage 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.
We have hypothesized that such disturbances as forest clearing, burning, ploughing, grazing, and trampling on small watersheds in the forest-steppe transition zone can lead to a rapid and substantial increase in the surface run-off, mass transfer, and accumulation of colluvium in closed depressions and gulches within the catchment areas. Depopulation of the catchment area would, in contrast, cause the surface stabilization and either grassland or forest soil formation. The combination of pedological, ichnological, palinological, and anthropological studies was utilized to reconstruct the history of human occupation of 6 small watersheds on the East European Plain.

The sites with a good archaeological record were used to form “training sets” for our study. From 4 to 8 cycles of erosion and accumulation occurred in our study sites during that chronosequence.

Each cycle began with fires, leading to the increase in run-off and accumulation of colluvial fan deposits, and ended with the stabilization of the surface as a grassland or forest was reestablished and an immature soil was formed. The cycles were correlated with the periods of human occupation of the catchment area known from the archaeological surveys and radiocarbon dated using the soil charcoal.

Sand and gravel size fractions of soils and colluvial deposits contained charcoal of trees and shrubs, herbaceous char, charred seeds and bone fragments, heated mineral aggregates, and insect and animal feces. Eight type assemblages were described in association with various types of forest fires, swidden cultivation, permanent fields, woodland pastures, and open (frequently burned) pastures. Some criteria were proposed to discern the utilization of gulges as roads and droveways. The assemblages were compared with the pollen spectra from the same samples and trace fossil from the same soil horizons/ depositional layers to define a multi-proxy signature of each land use type.

Only a few of the multiple fire occurrences could be attributed to the natural forest fires, the others were associated with the land use practices. According to the radiocarbon dating of charcoal from the type assemblages, a combination of fire and grazing has triggered wide deforestation of potentially forested areas within the forest-steppe zone during the warm climatic phase of the middle Holocene (IV to III millennia BC, the Chalcolithic/Bronze Age). Small-scale deforestation associated with the swidden cultivation is dated here by VII-XII cent AD. Frequent burning of potentially forested areas as means of maintaining grazing grounds did not begin until ~X cent AD. The widespread advance of pine in the Late Medieval time could be a direct result of the co-action of herbivory and linear erosion due to overgrazing. Signs of long-term cultivation (plough fields) appear in various regions of the forest-steppe in XII cent. AD. Both the Medieval Warming and growing networks of open fields contributed to the large-scale deforestation of the forest-steppe in X-XII cent. AD. That entailed a considerable expansion of home ranges of burrowing rodents, typical steppe inhabitants.

The results can be applied to reconstruct the land use history in areas with poor archaeological data, and determine when certain land use practices came in use.

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### TH5-14 Abstract 21

**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 trade in 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 those with in modern pine forest age curve also became more expressed, and much younger trees started to be used, even for high social status buildings like Grand Duces’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.

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### TH5-14 Abstract 22

**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 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 existence 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-XXV 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.

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### TH5-14 Abstract 23

**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 morphology development in Narva-Luga region at the Russian-Estonian boarder (south-east of the Gulf of Finland) in Middle and Late Holocene (5000-2000 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 isotope systems for the provenancing of humans, complementing the existing systems: strontium (Sr), oxygen (O), hydrogen (H) and lead (Pb). The addition of another isotope 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 successfully been 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 isotope analysis was not possible. We report the optimisation of chromatographic methods to separate Nd from bio-apatite. Sub-microgram amounts of neodymium were analysed using a latest generation thermal ionization mass spectrometer (TRITON-Plus) equipped with 1013 (t) 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.
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-analytical scale and is known 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, δ18Oc & δ18Oop) 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 calibrated on the animal’s lifetime. 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 previous archaeological samples that could otherwise be obtained solely through destructive sampling. The versatility of the μXRF and Laser Ablation ICP-MS methods opens up a wide range of applications for trace element analysis in archaeology.
All glasses were soda-lime-silica in composition, with natron as a flux. Strongly coloured glass was coloured with Cu, Cu and Mn. Pale coloured glass has varying Mn, up to 1.9%, suggesting that it was intended to be colourless. Coloured glasses can be divided into three groups: Mn-, Sb- and mixed Mn-Sb-decoloured glass. All Mn-decoloured, pale and strongly coloured vessels have closely similar base glass compositions to glasses from the tombs excavated, suggesting local production and working. The Sb-decoloured glass was made from a different sand source with higher SiO2 and lower AI2O3 and GaO. Mixed Mn-Sb-decoloured glass has intermediate compositions, suggesting they are the result of recycling. Sr and Nd isotopic analyses confirm the different primary origin of the Sb-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.

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**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 Levantinka 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 Vastland-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 assemble 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 alloy 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 show that copper extracted from southern European ores was trafficked to Finland, instead of relying on more regional, e.g. Scandinavian raw material sources, as has been traditionally 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. The conclusive evidence for a common origin of copper from different regions of ferrous and non-ferrous metal production was analysed to assess the potential of Pb isotopes for ancient artefacts.

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**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 expansion 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., whereas elemental analyses were used for ferrous metal tracing). However, current interest in elemental and isotopic methods shows 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 57Fe/54Fe and 56Fe/54Fe were measured using a Multiple Collector Inductively Coupled Plasma 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 by 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 isotopes analyses.

Our first results show that the isotope process does not induce Fe isotopic fractionation, i.e., the signature of metals and slags reflect that of their corresponding ores. Moreover, Fe isotopes 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 the more classical tracers related to involving trace elements or Po isotopes analysis could allow to refine previous provenance hypotheses of ancient metals.

**References:**


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**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 artefacts and to determine its geographical origin, more questions than answers have been posed. The 3-year research project launched by UnirNet centre based at the University of Aarhus is facilitating the collaboration of geologists and archaeologists 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 (Swahili coastal sites, presenting the potential for both, local and imported material. The artefacts are subjected to petrographic, metallographic, elemental and isotopic analyses in order to determine the validity of methods and the feasibility of further analyses. Theoretical experiments 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.

**References:**

are able to detect elements in traces; these data, in prehistoric archaeometry, have been used not only to understand the composition of a prehistoric alloy, but even to understand which ones have been exploited to obtain the metal. These 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 to 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.

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**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 inhabitance

**Presentation Preference:** Poster

In 2013 an archaeological investigation of the first habitation 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 Dūkštilės 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 palaeoobotanical and geochemical data on Dūkštelės Lake bottom deposits indicated at least two episodes of human inhabitation of 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 distribution of the finds (fire 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 flotation 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, 20 cm 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, Ce, Cr, Cu, Fe, Ga, Mg, Mn, Na, Ni, P, Pb, Ra, Sr, Ti, Zn, S was done using energy-dispersive x-ray fluorescence Spectro Xepos equipment and the Turboc quantitative calibration method for pressed pellets. Also samples were dried at the temperature of 110º C; then heated at 550º C and 950º 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 tree diagram was created for 24 variables. It was possible to group them respectively.

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**TH5-16 Abstract 01**

### Forging a Fenland framework: contextualising palaeoecology & environmental change in UK Fens & beyond

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**Keywords:** Contextualising wetlands, East Anglian Fens, Environmental change

**Presentation Preference:** Oral

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 more than just the local (wetland) site level, environmental data sets need to be compared across various wetland and dryland 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.
This presentation reports on the results of multiproxy palaeoenvironmental investigations carried out in association with archaeological survey and excavation of later 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 palynological work emphasised the significant effect 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 three 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 macrofossils, peat humification and pollen data. The testate amoebae, plant macrofossil and humification-derived bog surface wetness (BSW) records show broad agreement, but comparisons with recently published regional palaeoenvironmental 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 milled peat production bogs provide a key opportunity to examine the complex interactions between both autogenic and pedogenic 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: Lacustrine record, Multi-proxy, South Greenland
Presentation Preference - Oral

We propose here a synthesis about the Holocene environmental history of South Greenland, with a focus on the last millennium. Well dated lacustrine records and a suite of biological and physical proxies (pollen, moss, palynomorphs, diatoms, chlorimons, magnetic susceptibility, grain size distribution, C and N isotopes and molecular markers) were used to examine the evolution of Holocene environment and then the legacy of Norse farming activities (985-1450 A.D. - Medieval Warm Period) in South Greenland. From 8000 to 4000 cal BP, vegetation was characterized by a juniper and willow covering growing on poor soils. Increase in coprophilous fungi (Sporormiella, Stereumella, Coprinus, Podospora...) suggests grazing herivores, probably caribou, in the surrounding area. From 5000/4000 cal BP, wetter conditions favor dwarf birch development. This change in vegetation is related to a decrease in coprophilous fungi: evidence of grazing herivores remains scarce until the settlement of Norse people in the last years of 10th and the 11th century AD. Settlers arrived in a landscape dominated by birch and willow. Clearance and new occurrences of coprophilous fungi spores, correlated with a rise in fecal markers (DOC), related to hertivores are the first evidences of settlement. The presence of Norse settlers and livestock is clearly recorded from the 11th to the 13th century A.D. with increasing frequencies in non-indigenous plants, coprophilous fungi, fecal molecular markers and soil erosion. This settlement phase is followed by a period of decreasing human impact. From 1300 A.D., the cooling of Little Ice Age results in reduced soil erosion and pastoral activities, a change in Norse diet and a progressive abandonment of South Greenland. The regrowth of willow and birch and the disappearance of anthropogenic indicators between the 15th and 19th century demonstrate the abandonment of settlement, until the development of contemporary agriculture in the 20th century. Recent agricultural activities (1920-1980 AD) had the same impact on the landscape.

However, the biological and sedimentological response to the last 30 years of modern sheep farming is marked, with drastic changes in diatoms and chironomid taxa, fecal molecular markers and C and N isotopes.

TH5-16 Abstract 05
Insights into crannog occupation phases from National Sites and Monuments Records
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Keywords: multi-isotopic analysis, cattle management
Presentation Preference - Oral

Crannogs are man-made islands that are ubiquitous on the north-western fringes of the British Isles. Over 1500 have been identified, but their function is not that well understood, with some crannogs apparently simple workshops, while others were royal occupation sites. They were built mainly during the Iron Age and Medieval Periods, but there is evidence that this tradition started in the Neolithic and some sites were occupied into the 17th Century.

In this paper, the potential drivers for crannog construction are examined, by analysing the distribution of crannog dates both chronologically and spatially. For this purpose, a database of crannogs was constructed from the sites and monuments records of Scotland, Ireland and Northern Ireland. Two types of analysis were performed on the database: a probability density function and the allocation of crannog dates to time intervals, which might be compared by comparing the distribution of crannogs to known climatic events, the theory that low lake levels might have contributed to their expansion can be explored. The spatial distribution of crannogs is also compared to the probable extent of nearby kingdoms and the timing of political events, such as the impact of the outcome of the Battle of Moira in AD 637, to gain a deeper understanding of the defensive and or status properties of these sites. To assess whether local wealth may have been a factor in the construction of the sites, the distribution of crannogs has been compared to major transport networks in the late Prehistoric and Medieval periods.

This study can be used to support the archaeological interpretation of the individual sites and attempts to develop a large scale understanding of crannog construction and occupation.
TH5-16 Abstract 06
The Early Iron Age ‘lake village’ at Black Loch of Myrton

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Keywords: crannog, lake village, iron age, scotland

Presentation Preference - Oral

The discovery 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 late 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 built lakeside 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 multidisciplinary palaeoenvironmental techniques used by the Celtic Crannogs project.

TH5-16 Abstract 07
Investigating Iron Age lakeside settlements within their palaeoenvironmental context

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Presentation Preference - Oral

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 lakeside 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, ecocategories (e.g. feae), characteristic of decomposing floor litter layers and less than salubrious living conditions. Chironomidae from 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 sites.

The results of the work form part of a larger project that uses, survey, palaeoecological, biogeochemical and aDNA analyses to study crannogs 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.

TH5-16 Abstract 08
How could Crannogs impact on lake environments?

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Keywords: crannog, sediment, wetland

Presentation Preference - Oral

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 isotope, and high-resolution Sr isotope concentrations. The results will be compared to crannog construction and use, and in one of the sites, Lough Yoan, diatom assemblages to 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.

TH5-16 Abstract 09
From the lakeshore: settlement and technology in the later Mesolithic

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Keywords: Lough Kinale; crannog; beetles

Presentation Preference - Oral

Excavations undertaken under the aegis of the Discovery Programme, Dublin (www.discoveryprogramme.ie) between 2013 and 2016 on the shores of Lough Kinale, Co. Longford, Republic of Ireland, uncovered a well preserved Late Mesolithic (c.5000-4500 cal. BC) platform crannog. This lake-side site is one of very few wetland archaeological occupations 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, with up to five different occupation phases. Within these layers there are a variety of archaeological features, including upright stakes, wooden ‘planks’, hearths, and abundant lithics (Friedengren, 2010).

Bioarchaeological investigations of the site have been undertaken as part of a DEL NI-funded PHI research project. Results from fossil beetles 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 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-managed site occupied on a seasonal or re-focusing 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.
References

TH5 Science and multidisciplinarity in archaeology

TH5-16 Abstract 11
Lake sediment DNA to trace past landscape 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 on the variations of processes at the origin of the sediment formation. Moreover, depending on the geological, 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 variety of 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 metabarcoding 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.

TH5-16 Abstract 10
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 Myrtos, 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 within the ecosystem, which reveal overall changes in aquatic productivity. The extent to which these changes can be attributed to the addition of nutrients from human and animal waste and changes in land use practices is currently being investigated by quantifying sterols, a group of biomarkers that are characteristic of faecal matter input.

In addition, a suite of lipids biomarkers taken from a sediment core from within the roundhouse provides insight into Iron Age activities by using pyrolytic polycyclic aromatic hydrocarbons to reveal fire regimes, n-alkanes to suggest changes in the surrounding vegetative landscape and cropping practices, and faecal sterols and bile acids to indicate the presence of animals within the roundhouses. Changes in the intensities of these activities and the amount of human faecal input reveal how the wetland village dynamics and uses altered over time. Combining these organic geochemical analyses with archaeological investigations provides a more holistic site interpretation and, when compared with other Celtic Iron Age sites, helps to build a clearer picture of societal functioning and change over this time period.
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 major 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 scale population migrations and replacements, responsible for shaping major parts of present-day demographic structure in both Europe and Asia. We find genetic evidence for the expansion of the Yamnaya culture from the Pontic-Caspian 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

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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 Paleolithic 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 steppe ancestry arrived in Central Europe ~4,500 years ago, as Late Neolithic Corded Ware individuals, with a high proportion of steppe ancestry. This ancient DNA shows evidence of a significant genetic change that occurred in the Yamnaya population, which is consistent with the spread of the Yamnaya culture into Europe and the subsequent spread of the Indo-European language family.

TH5-17 Abstract 03

The story told by Mireasa (Constanța) Bronze Age barrow – interdisciplinary approach

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Keywords: Bronze Age, Yamnaya, 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 records 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 with the Mireasa (Constanța) 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, 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 data 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 Evidence for the Study of Interconnected Structures (GENESIS): A Biomolecular Journey around the Carpathians from Ancient to Medieval Times. (CNCSIS-UEFISCDI_PNII_PCCA_1153_2011).

TH5-17 Abstract 04

Scandinavian Bronze Age rituals, and their Indo-European background

Author - Prof. Anders, Kaliff, 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, but it could be assumed with almost certainty. According to the hypothesis I try to test in my research, essential features of mythology and ritual was also spread in this communication, 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 alloforms, 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 paradigms 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 equipped 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.
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 B.C. 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-Caspians steps, and to try to find traces of cultural influences. A new DNA discoveries will be used as well.

**TH5-17 Abstract 10**

Visitors from the Steppes. The Scandinavian perspective

Author - Prof. Randborg, Klæs, University of Copenhagen, Copenhagen, Denmark (Presenting author)

Keywords: Neolithic, Scandinavia, Steppe contacts

Presentation Preference - Oral

The archaeological interest in the Steppes has deep roots, including hypotheses about an eastern origin of the Corded Ware Culture, supposed migrations of the same, and even the introduction of the Indo-European languages, as suggested by G. Childe in the 1920s and later on elaborated by M. Gimbula (Gimbutas, among many others). Recent ancient human genome studies (DNA) have added new dimensions to the old debate.

By suggesting that the Indo-European languages in Europe were introduced from the East, at the latest by 2500 BC, a number of concommitant issues need to be considered concerning cultural origins and processes. A particular problem is the rise of Indo-European languages in Western and Northern Europe, as well as the status of the Indo-European languages in the Mediterranean.

C. Renfrew's viewpoint of the 1980s was that the first Indo-European languages arrived with and developed in Europe from the first people carrying Neolithic farming and rearing of domesticated animals (Renfrew 1987). This idea has a ring of simplicity about it when correlated with the basics of archaeology: Neolithic expansion from the Near East and Anatolia to southeast Europe extended to Central Europe and later on to the North, with a parallel Neolithic expansion from Anatolia to the Mediterranean and on to Western Europe.

The paper examines the archaeological elements of possible Steppe origins in Scandinavian Neolithic and how these correlate with the aDNA findings.

**TH5-17 Abstract 11**

The introduction of Indo-European in the later South Scandinavian Neolithic

Author - Prof. Iversen, Rune, University of Copenhagen, Copenhagen, Denmark (Presenting author)

Co-author(s): Kroonen, Guus, 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 role 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 in the first 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 about 2800 B.C.E early Corded Ware (Single Grave) 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 extinct language we refer to as "Proto-Urnicent". Did this unknown language for instance contribute to the rise of the Proto-Indo-European language family? How did it come 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?

**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 methodological questions 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 B.C. and sees agriculture as the main factor in the spread of the Indo-European languages; this hypothesis, however, finds very little support among historical linguists. A competing view, the “steppe hypothesis”, puts the homeland in the Pontic–Caspian steppe around 4,000 B.C. While the scenario preferred by many historical linguists, and also by a few prominent archaeologists. At the same time, 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 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 wavering 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.

**TH5-17 Abstract 13**

The canonical Indo-European model and its underlying assumptions

Author - Prof. Demoule, Jean-Paul, University of Paris 1, Paris, France (Presenting author)

Keywords: genetics, historiography, Indo-European

Presentation Preference - Oral

Throughout the 19th century, resemblances and correspondences between Indo-European languages formed the foundation of modern linguistics. At the same time, these resemblances and correspondences were explained, from the start, by the postulated existence of an original people (Urolik) who spoke an original language (Urosl), in an original homeland (Urheimat), 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 wavering 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.
DNA Analysis of Late Bronze Age Funerary Context from Eastern Romania

Author - Professor Bolohan, Neculai, Alexandru Ioan Cuza University of Iasi, Iasi, Romania (Presenting author)
Co-author(s) - Ciorpac, Mitic, Alexandru Ioan Cuza University of Iasi, Iasi, Romania
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Keywords: aDNA, Eastern Romania, Late Bronze Age

Presentation Preference - Poster

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 Tâmăa, Bacău 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 sustains 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 Năoua 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 database and haplogroup assignation. The T72 sample shows 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.

Circadian rhythms, moods, and Neanderthals: testing a biological explanation for behaviour

Author - Pazan, Kyra, Ann Arbor, United States of America (Presenting author)

Keywords: energetics, genetics, Neanderthals

Presentation Preference - Poster

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 TIES THAT BIND, RELATIONSHIPS BETWEEN THE MOVEMENT OF RAW MATERIALS AND THE MOVEMENT OF ARTISANAL KNOWLEDGE ACROSS EUROPE 2000-1500 BC**

**Saturday, 3 September 2016, 14:00-18:30**

*Faculty of History, Room 214th*

**Author:** Olausson, Deborah, Lund University, Lund, Sweden (Presenting author)
**Co-author(s):** Andersson Brandt, Eva, The Danish National Research Foundation’s Centre for Textile Research, Copenhagen, Denmark

**Co-author(s):** Cutter, Joanne, McDonald Institute for Archaeological Research, University of Cambridge, Cambridge, United Kingdom

**Keywords:** artisanal knowledge, raw material, skeuomorphism

**Presentation Preference – Regular session**

Recent developments in proveniencing methods, in particular analyses of stable isotopes, have provided new insights into the movement of materials such as copper ore, wool and amber on the European continent during the dynamic 21st – 16th centuries BC. Today we are able to demonstrate that materials moved from A to B, but the maps fraught with arrows tell us little about what happens in the receiving context. In this session we would like to explore the implications of raw material movement from the perspective of the local artisans. How does the introduction of a new and previously unknown raw material, or objects made from that raw material, affect local artisans, who in many cases lack knowledge about how to manipulate it? One response visible in the archaeological record is skeuomorphism, where local artisans, lacking adequate access to the new material, imitate foreign forms in locally available raw material. This is often interpreted as an attempt to block the influx of new materials seen as a threat by local artisans. Another possible response for the local artisan is to gain the necessary knowledge in order to be able to manipulate the new material him/herself. A third possibility is that the new raw material is accompanied by artisans who are already familiar with its properties. As raw material movement affects the whole continent, we hope to attract scholars from north to south and from east to west. We would like to gather concrete examples of the three possible responses we outline above, but welcome other possibilities as well.

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**TH6-01 Abstract 01**

**The introduction of metals and metalworking in Sicily**

**Author:** Vianello, Andrea, Sheffield, United Kingdom (Presenting author)

**Keywords:** artisans, Italy, metals

**Presentation Preference – Oral**

Metallurgy was introduced very late in southern Italy, with copper becoming present in the archaeological record with some regularity only in the local Middle Bronze Age. There is a very slow process of introduction of metals that started during the Copper Age, when metallurgy was already developed in northern Italy. Evidence of metalworking is exceedingly rare, with few sites yielding any such evidence until the Middle Bronze Age. There are few mines in the area, mostly in nearby Calabria and only one possible in Sicily. Chemical analyses carried out with a pXRF have demonstrated that the early metals were copper and bronze alloys made with the content of natural ore of copper mines and only later tin was introduced. The limited evidence has been poorly studied, with the main theory remaining for long that artisans from the Aegean developed metals.

In this presentation I aim to assess the development of local metallurgy, focusing on alloys and any technological clue present in the archaeological record, in order to understand the role of local artisans in introducing metals in the region. The preliminary results show that the lack of raw material locally could have played some role in delaying access to the new material, but the most likely reason is some form of control of the new technology, which may be deliberate or accidental. There is no evidence of travelling artisans that could spread the technology or produce demand for the new material by making it known, and Sicily being a large island at short distance from the mainland, it ended up fully embracing the technology unusually late in spite of the raw material circulating and being mined not far from it. This case study therefore reveals how the movement of artisans, and their technological know-how, was far more important than the availability of the raw materials in the vicinity: you cannot make metal artefacts if you do not know how.
Production of Encrusted Ceramics in the Carpathian Basin

The Settlement Agglomeration in Mikulovice, Eastern Bohemia

Age cultural groups in the Carpathian Basin.

this variation in terms of small-scale responses to a wider regional aesthetic - how to make the colour white - in a range of Bronze production at sites where encrusted ceramics have hitherto been considered imports. This paper considers the implications of

repertoire of several prehistoric groups throughout Europe but are particularly prevalent in the Carpathian Basin where they form

Keywords: amber, manufacturing, Mycenaean culture
Presentation Preference - Oral
Among the findings of the Mycenaean culture archaeologist record several thousand objects made of amber. Raw materials for their production (succinite) in the vast majority came from Northern Europe. Issues that still provoke a lively discussion among researchers are the reasons of this phenomenon and its dynamics. An equally important matter is the perception of amber as a raw material and items made from it in the Mycenaean World. In this regard, it is difficult to talk about the "processing/manufacturing of amber" in the Mycenaean culture. We should rather talk about the "usage of amber". It seems that this raw material is very easy to work with, therefore, we should be able to find a specific types of amber products as well as its production residues characteristic for the Mycenaean culture. Despite many decades of research on the history of amber in the Mycenaean culture, dating back to the time of H. Schliemann and his excavations in Mycenae, none of this have been found. In the proposed paper I will address the reasons for this surprising state of research.

The issue regarding the interregional and long-distance connections, networks, exchange, trade and mobility of people and objects in the Bronze Age has been intensively discussed throughout Europe. The newly excavated Early Bronze Age inhumation cemetery with approximately 100 graves in Mikulovice (eastern Bohemia) at which 30 % of the graves contain imported "exotics" and highly valued commodities such as Baltic amber in hundreds of pieces, sea shells, gold, bronze, is positioned directly on the important long-distance route, the so-called "Amber Road". Extraordinary in the context of the EBA period is a single female cemetery with approximately 100 graves in Mikulovice (eastern Bohemia) at which 30 % of the graves contain imported "exotics" and highly valued commodities such as Baltic amber in hundreds of pieces, sea shells, gold, bronze, is positioned directly on the important long-distance route, the so-called "Amber Road". Extraordinary in the context of the EBA period is a single female.

In addition to a complex analysis of the cemetery, a hypothesis should be verified, that the analyses of skeletons and artefacts from the cemetery situated on the "Amber Road" should reflect the anticipated greater mobility, long-distance contacts and a higher living standard of the members of the local population. Without doubt, this site offers an opportunity for a comprehensive study of the significant settlement agglomeration along a prominent long-distance route and gives us chance to join actively the highly current discussion.

Encrusted ceramics are a visually striking group of objects characterized by the use of white inlay. They are found in the material repertoire of several prehistoric groups throughout Europe but are particularly prevalent in the Carpathian Basin where they form an important, long-standing tradition that transcends individual cultural units. However, although encrusted ceramics ostensibly look similar, our recent analyses have revealed significant variation in the production of inlays. They have also demonstrated local production at sites where encrusted ceramics have hitherto been considered imports. This paper considers the implications of this variation in terms of small-scale responses to a wider regional aesthetic - how to make the colour white - in a range of Bronze Age cultural groups in the Carpathian Basin.

What/who moved? Amber in Mycenaean World

What's new? The first bronzesmiths in southern Scandinavia

Understanding Bronze Age Life– from an Artisanal Perspective

Transmission and transition, relationships between craft-knowledge and textiles across Europe

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 artisans and crafts knowledge". By analysing the 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 craftspeople 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 artisans 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 and techniques in the Late Bronze Age. I use and widen artisanal knowledge to interpret artefacts based on my own tacit knowledge as an educated professional. 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.
TH6-01 Abstract 08
The interplay between technology and geography in the development of trade networks

Author - Prof. Rivers, Ray, Imperial College London, London, United Kingdom (Presenting author)
Co-author(s) - Evans, Tim, Imperial College London, London, United Kingdom
Co-author(s) - Knappett, Carl, University of Toronto, Toronto, Canada
Keywords: geography, networks, technology

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 elided 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 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.

TH6-01 Abstract 09
Copper ore: the path from the Tien Shan to the South Urals in the Late Bronze Age

Author - Dr. Shcherbakov, Nikolai, Laboratory of Methodology and Methods of Humanitarian Research BSPU, Ufa, Russian Federation (Presenting author)
Keywords: bronze production, Late Bronze Age, West-Asian metallurgical province

Widespread of bronzes production in the BashkirUrals 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 bronzes production in the region (waste products, casting molds, copper drops and ingots, particles of copper ore, containers with traces of waste products) and also numerous products made of bronzes (knives, chisels, aels, holdtlasts for vessels, sickles, ornaments and so on). E. Chernyh 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 Dema 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 consisted of five simultaneous settlements - Usmanovo I-VII, settlements Muradyumovo I-VII, VI-VII and S7 Kazburun barrows was examined. Radioncing dating (Beta Analytic: 1990 – 1700 BC) proved chronological unity of these barrows and settlements. Numerous traces of bronze production were also found on the territory of Kazburun district. In Bashkir Urals, close to Kargaly mines, there are 770 mines for the extraction of copper sandstones. V. Lunkev (Laboratory of Naturally Scientific Methods, Institute of Archeology, RAS, Moscow) and M Radivoevich (Jesus College Research Fellow McDonald Institute for Archaeological Research) carried out a complex of analyses of all bronze material belonging to one of the large settlements - Muradyumovo settlement (Kazburun archeological district). Metal was worked on this site – refining, melting, casting. The primary (Cu) metal could have been imported from other regions as raw ingots (bars) artefacts. The provenance analysis imply that the metal worked in the site of Muradyumovo settlement was likely acquired from the ores exploited in the Tien Shan mountains. The UCL and RAS analyses show that there is a significant number of pure copper artefacts that represent stock, ingots, working debris. 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 (Kargaly 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 16379 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. Chernyh about the unity of West-Asian Metallurgical Province.

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TH6-03 Abstract 01

Early farming and the transmission of ceramic traditions in the western Balkans

Author - Dr. Manel, Sebastian, 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 ERO EUROFARM project focuses on the processes of cultural transmission associated with the spread of farming across Europe. This is investigated through comparisons, within and between both streams of neolithisation, of four technological innovations: farming practices, landscape use, pottery and lithics.

Farming practices diffused across Europe following two main routes, inland and maritime. The inland stream initially correspond to the Starčevo-Crič complex across the Balkans from 5800 cal. BC onwards, and then expanded across continental Europe as the Linearbandkeramik culture. The maritime stream is associated with the Impresso-complex in the Adriatic and Tyrrhenian seas, and the French Mediterranean coast, and then with the Cordial culture across the western Mediterranean Basin.

The EUROFARM research area is the western Balkans where the two streams are discernible and the only one where they are present in such close geographical proximity. The project focuses on two aspects. Both inland and maritime streams involved an initial phase in their respective core areas. Did both streams follow similar trajectories? These secondary episodes of farming expansion seem to correspond to the meeting and mixing of both inland and maritime streams. How can we account for this in terms of cultural transmission?

Differences between the streams are marked in terms of pottery assemblages. Cultural transmission is the process by which information is passed from individual to individual through social learning. It is well recognised to be the mechanism by excellence underlying cultural change. It raises the question of the signal of cultural transmission in the archaeological record.

TH6-03 Abstract 02

The Neolithic Volga-Kama pottery as a source of reconstruction of cultural interactions

Author - Prof. Vybomov, Aleksandr; Samara State Teachers Training University, Samara, Russian Federation (Presenting author)
Co-author(s) - Vasil’eva, Irina, Samara State Teachers Training University, Samara, Russian Federation
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 Priyamsky 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) radiocarbon dating, and 3) technological analysis of pottery (Bobrinskii, 1999). 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 Priyamsky region (Vybomov, Vasil’eva, 2013). Flat-bottomed pricked pottery is present in the Middle Povolzhye in the Early Neolithic period (5500 cal BC). It is made of silty clay when still plastic.

Round-bottomed comb-ornamented pottery of the local Kama culture is present in the Middle Priyamsky in the Early Neolithic period (3300 cal BC). It is only made of clay tempered with chamotte. The raw material was milled in a dry form. Comb-ornamented pottery was introduced from the Priyamsky 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 (Mariylskoye Povolzhye, Primokshanye, and Posypay). 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 Priyamsky 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 Priyamsky, 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 Priyamsky 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 pottery. In addition, each new generation had contacts with communities with other technological traditions of pottery making (Bobrinskii, 1978). Thus, the study of the Neolithic pottery technology and its radiocarbon dating allows us to reconstruct the important processes of cultural character.

The work is performed for the project 33.1195.2014/k
Keywords: Neolithic, pottery, variability

Presentation Preference - Oral

The Nabó and 2kère are two nearby rivers in the Alto Ribatejo region, in the hinterland of Central Portugal. The Nabó is a tributary to the west of the 2kère, and not far from their meeting point where they enter into the Tagus River. Despite their proximity, they are passing geologically different landscapes: while the Nabó is cutting through limestone hills, the 2kère passes through the acidic terrain of the Central Iberian Massif and ends up in the fluvial terraces of the Tagus. This diversity has been reflected in the archaeological studies of the region. The caves around Nabó are considered as the easternmost representatives of the Neolithic group of Estremadura, a group whose roots are in the Cerdial pottery tradition. However, another two very important features occur in these assemblages: hybrids and the presence of carelessly, roughly finished products. The paper focuses on social aspects of these phenomena: do they suggest mixing of people with different group identities? Do they indicate changing relations between the teachers and apprentices in the craft? Does the variability of ornamental techniques and design motifs imply lack of social pressure in learning frameworks? And finally, do the roughly finished products suggest the presence of inexperienced artisans or newcomers away from usual traditions?

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TH6-03 Abstract 05

Mixed assemblages and social relations in the Neolithic transitional period of the Central Balkans

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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 feature occurs in these assemblages: hybrids and the presence of carelessly, roughly finished products. The paper focuses on social aspects of these phenomena: do they suggest mixing of people with different group identities? Do they indicate changing relations between the teachers and apprentices in the craft? Does the variability of ornamental techniques and design motifs imply lack of social pressure in learning frameworks? And finally, do the roughly finished products suggest the presence of inexperienced artisans or newcomers away from usual traditions?

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TH6-03 Abstract 06

Transforming traditions behind the gloom: 6th millennium BC pottery styles of Transdanubia

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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 Central Europe during the 6th millennium BC. Current scientific analyses of the research team focus on four broadly contemporaneous sites in three different microregions. Balatonaszőlős-Kis-everdő lies on the southern shore of Lake Balaton, while Tolna-Mősz is located at a distance of 80 km to the southeast closed to the right bank of the Danube. Szederény-Kukorica-dukk and Versend-Gőlenca 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 Balatonaszőlős 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-Mősz and Versend-Gőlenca. In contrast, the vast majority of the pottery material from Szederény can be hardly distinguished from the early Vinča ceramic style, but rather/like style pottery – probably the earliest manifestation of the Bozot 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 mapping 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 within the entire settlement system.

The various pottery styles that existed partially or wholly coeval in the very same microregion or even within a settlement, raise several questions in terms of the categories of typochronologics 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.

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TH6-03 Abstract 07

Cultural and technical identities through Middle Neolithic paste recipes in the Paris Basin

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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 powerful, the question of population to occupy all the lands 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 Chasséen, Michelberg, Groupe de Noen and Groupe de Spire cultures. The use of organic tempers (bones and plants) during early Middle Neolithic in Roessen and Carny cultures has long contratraacted with a main use of greg 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.

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TH6-03 Abstract 08

Fuzzy Boundaries, Permeable Borders: challenges in the interpretation of ceramic assemblages

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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 social patterns, which complicates change, in most cases, several generations of people and societies into single phases. Thus arises the issue of entangled 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. 5400-4300 BC), concepts of interaction, and ethnoarchaeology.
TH6 Archaelogy without borders

Do ut des: pottery "imports" and imitations in Romanian Neolithic-Eneolithic

Author: Stefan Cristian Edvard, "Vasile Parvan" Institute of Archaeology, Bucharest, Romania (Presenting author)

Keywords: Neolithic-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 Neolithic-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 unearthed from Neolithic sites. This was a helpful tool for the early stage of prehistoric archaeology and contributed to the understanding of particular regional 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 much more extensive beyond the proposed geographical frame. 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, artefacts 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 Potoc, 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: Gabriela, 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 millennia cal BC) contain pottery identified as Halaf and/or 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 specialised technological know-how, these practices were probably transferred from 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.

TH6-03 Abstract 11

The Comb/Navra interface in the E. Baltic: pottery form and function in the dynamic 4th mill. BC

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Keywords: eastern Baltic, hybridisation, pottery

Presentation Preference: Oral

In the 4th millennium cal BC the eastern Baltic region experienced various striking developments that occurred more or less simultaneously and are likely to be inter-related. Thus, a wide exchange network emerged at this time, involving a coast-to-inland flow of Baltic amber, complemented by a transfer of lithic materials. At the same time, the indigenous tradition of shell-and organic-tempered ceramics, representing what is known as the 'Navra Culture', encountered the starkly contrasting Comb Ceramic tradition of northern Europe, densely ornamented pottery - evidently an intrusive phenomenon that arrived from neighbouring areas to the north. Hybridisation is a concept frequently employed to characterise the ceramic assemblages of this time, exhibiting mixed-temper fabrics along with decorative elements and designs that seemingly imitate Comb Ceramic ornamentation but at the same time, the indigenous tradition of shell-and organic-tempered ceramics, representing what is known as the 'Navra Culture', encountered the starkly contrasting Comb Ceramic tradition of northern Europe, densely ornamented pottery - evidently an intrusive phenomenon that arrived from neighbouring areas to the north.

In this presentation we try to review so-called "imports" and imitations found in archaeological record in the Romanian Neolithic-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 12

A Technological Study of Pottery from the Archaeological Site Gradiste-IDjos in Serbian Banat

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Keywords: Neolithic, pottery technology, Tisa, Vinca communities

Presentation Preference: Oral

The archaeological site of Idjos (Gradiste IDjos), situated in the south-central Hungarian plain, in the Serbian Banat region, had been occupied for over 5000 years, from Europe’s first Neolithic farmers to the Late Bronze Age period. Its scale and character have made it to be a site of great cultural importance and national heritage. The on-going archaeological research (BORDERLAND: ARISE project) explores three chronological key phases of its prehistory, consequently yielding large amounts of ceramic material. One of the main focuses of the project is to investigate social boundaries between Neolithic communities characterised by “Tisa” and “Vinca” style pottery. The expansion of Tisza material culture from the core area of its development in the middle portion of River Tisa began in the period when the Vinca phenomenon was already fully developed in the northern Banat. On several sites in the Serbian Banat the evidence of mixed assemblages and the presence of hybrid vessels, exhibiting typical style of both communities, was recorded.
Very interestingly, the results of the previous archaeological research conducted on Idbš revealed that materials characterised by both “Iaza” and “Vinča” styles could be found in the same contexts, for example in the house excavated in 1954 in Gradilice Idbš. Therefore, Igd 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 workshops or operators and could reflect different occupational traditions. 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 Idbš 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 Boržób-Plain, Vojvodina:** Contextualisation and technology

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Keywords: mixed assemblages, Neolithic Vojvodina, pottery analysis

Presentation Preference: Oral

During the Neolithic, due to their geographical position, Vojvodina and Banat formed a contact zone between several cultural zones - the Late Neolithic Balkans and Transylvania. This is manifested, among other things, in settlement structure, architecture and material culture. In a group of sites in the Tisza valley, in the West of this area, Vinča and Tisza pottery styles occur together in the same settlements. We are studying this phenomenon at the spatial scale of two large Late Neolithic settlements and a local plain with a size of 11 km² which is situated close to the town of Novi Bečej.

To understand the socio-economic implications of this and similar phenomena, we are contextualising 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 on 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)**

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Keywords: Okhta 1, Podolje 1 sites, Neva-Ladoga basin, potteries, IRF, 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 Pol’-Combure. Changes in the landscape and the climatic conditions around 3200-3000 BC made this area attractive for habitation. In this period, the coastal zone has the houses, fishing constructions, areas of the Grozdorean Plan, the Central Balkans and Transylvania. Ianga is found with the Typical Combure ceramics, tempered with feather and asbestos. Okhta 1 is the area of the Okhta river 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 Combure pottery (5000-4400 BC) and Typical Combure ceramics (4400-3000 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. Research on ceramic has expanded our knowledge of cultural traditions and chronology of the ancient societies that occupied the Priozerskaya lowland territory during 5000-3000 BC.

**TH6-03 Abstract 15**

**Corded Ware Culture in the North-West of Russia: mix of traditions**

Author - Tkach, Evgenia, Institute for the History of Material Culture RAS, St. 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 pille-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 III mil. BC on the pille-dwelling settlement Usvatskoye (Palov region). I want to describe the settlement – layer a settlement Seretye 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 wett cord ornamentation this is a main additive. On the other hand, technique of “blade and awl” was wide 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 lines of 2-twisted cord and as admixture in the molding dough was used gruss. Possible, that newcomers (CWC inhabitants) were mixed with local inhabitants and we trace now some new archaeological tradition, new archaeological culture.

**TH6-03 Abstract 16**

**Making pottery on the Neolithic settlements in the north of the Sozh river basin (Eastern Belarus)**

Author - Tkachova, Maryia, Institute of History NAS of Belarus, Minsk, Belarus (Presenting author)

Keywords: technology, Neolithic pottery, Upper Dnieper culture

Presentation Preference: Poster

This study is based on the ceramic material from the main Neolithic sites of the in the north of the Belarussian Pesožhno (Eastern Belarus). The study was conducted by V. Tretyakov in 1974. In 1975 A. Kalechyts excavated here an area of 140 m². The presented poster discusses the results of the study of 1612 Neolithic potsherds from more than 100 vessels. The Rudnia 1 settlement is situated on the first terrace of the left bank of the Sozh river (Eastern Bolarus). The site was discovered by V. Kopilin in 1994. In 2007-2008 A. Kolosov excavated here an area of 300 m². The presented poster discusses the results of study of the 2042 Neolithic potsherds from more than 100 vessels. The Staryi Dzeniz 4 settlement is situated on the first terrace of the left bank of the Oster River. The site was discovered by A. Kolosov in 2006. In 2006, 2010 and 2012 A. Kolosov excavated here an area of 232 m². The results of the study of 1782 Neolithic potsherds from more than 80 vessels will be presented. Ceramic material is presented following three main parameters: technology, morphology and decoration. This allows a division of the pottery into several groups, which should reflect peculiarities of cultural situation in the northern Belarussian Pesožhno region during the Neolithic period.

Group 1 is represented by slightly shaped vessels with inverted upper part and or slightly bent rim. Pottery of group 1 is the earliest on the settlements and is similar to pottery from the sites of Mahilo-Rahačo region (the Dnieper river basin). The clay body contains organic temper and comb impressions form dense or sparse horizontal, diagonal and vertical rows. Group 2 is represented by vessels with inverted upper part or with slightly bent rim. The vessels were tempered with organic and coarse-grained crushed stone. The dominant ornamental element is called “tjapka”. Ornamentation is dense – with closely spaced rows of prints. These types of ceramics are similar to those from the sites of the Dnieper river basin. Group 3 is represented by vessels with shoulder, wide neck, narrowed upper part and everted rim. These vessels have complex zonal ornamentation; elements of decoration are varied. This group represents the last phase of the Upper Dnieper culture. In addition the pottery features with the Pit-Comb ware culture and the Middle Dnieper culture is also found at the site.

The results of the analysis indicate the presence of several traditions in the pottery making on the Neolithic settlements in the north of the Sozh river basin. Location of these sites in the upstream of the Sozh river and their proximity to the area of Dneba culture has played a key role in the formation of these traditions.
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 Dubčiščiai 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 Dubčiščiai pottery type were also found. The latter type is most probably a result of a local development of the Dubčiščiai pottery in the western part of Prypiat-Neman culture area. Sub-Neolithic pottery is represented by pottery of Lyssajgaard/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 Lyssajgaard/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.

Sub-Neolithic pottery from the territory of Belarusian Pabužža

Author: Tikhau, Aleh, Institute of History NAS of Belarus, Minsk, Belarus (Presenting author)

Keywords: technology, Neolithic pottery, the Prypiat-Neman culture

Presentation Preference: - Poster

The first group consists of Dobry Bor pottery types with numerous see-through elements and numerous parallel lines. The second one is Dobry Bor pottery types with parallel lines and a variety of linear elements (straight or curved). These two groups can be understood, and how a change of these cognitive elements in the case of occasional examples, when affecting appearance or the circumstances of deposition/disposal, might be detected.

Sometimes typology is a last resort for the archaeologist: where the concept of (material) culture seems to fail, one frequently hopes that artifacts that look the same invariably act and react according to similar regularities, and thus may be used as a single unit, a reliable building block for interpretations. Through a couple of examples from sites with culturally mixed situations in the Late Neolithic of the Carpathian Basin I would like to show how misleading this might be, how different similar-looking vessels from diverse potters and for users in different situations could have been. The examples from the settlements of Poljikő-Csőszhalom and Puszátásköy-Ledence show how the background concept and/or social function of certain vessel types might be understood, and how a change of these cognitive elements in the case of occasional examples, when affecting appearance or the circumstances of deposition/disposal, might be detected.

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 Ljubic cave is situated in southern Istria (Croatia) near the village of Mačanče 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 Muzej 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.
ENTANGLED MIGRATION.

THE MATERIALITY OF DIASPORA COMMUNITIES
IN THE MEDIEVAL AND EARLY MODERN WORLD

TH6-04 Abstract 01

Ireland and its medieval diasporic communities

Author - Ó Óigíónn, Russell, University of Cambridge, Heidelberg, Germany (Presenting author)
Co-author(s) - Linaa, Jette, Mosegaard Museum, Odder, Denmark (Presenting author)

Keywords: Acculturation studies, Migration, Postcolonial theory

Presentation Preference - Oral

For a region traditionally associated in recent centuries with its migrant diasporic communities, Ireland has had a long and complex relationship with external migrant communities. In fact, the main strands of the nationalist mythos formulated during the flourishing of Nationalism were constructed in the context of - and often in contradiction to - the outcomes of these episodes of migratory activity. While recent scholarship has focused on the Irish diaspora, the medieval Irish diaspora is often neglected. This paper aims to discuss how far the archaeological material reflects the everyday lives of the immigrants who lived in Ireland in the medieval period. The paper will discuss the evidence of material culture and the impact that the immigrants had on the host communities. The paper will also discuss the impact of the immigrants on their own lives and the identity they developed in their new homes.

TH6-04 Abstract 02

Jugs and pots - beer and stew? “Hanseatic” impact on medieval and early modern Bergen (Norway)

Author - Dr. Linaa, 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. Increasing 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 to 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, political 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 projects 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 03

Urban Diaspora - Entangled diaspora communities in Early Modern Scandinavia

Author - Dr. Linaa, Jette, Mosegaard Museum, Odder, Denmark (Presenting author)

Keywords: Diaspora, Migration, Urbanity

Presentation Preference - Oral

Urban Diaspora is focused on Scottish, German and Dutch diaspora communities in Scandinavian cities. Urban Diaspora is based on the materiality of consumption reflected primarily in ceramics, ecocultures 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 Hanseatic 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 04

Migration in Early Modern Scandinavian towns. The Nya Lödöse case

Author - Dr. Rosén, Christina, Statens Historiska Museer, Göteborg, Sweden (Presenting author)

Keywords: Early Modern, Migration, Scandinavia

Presentation Preference - Oral

The town Nya Lödöse 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.

TH6-04 Abstract 05

Acculturation in the Nordic regions

Author - Dr. Rosén, Christina, Arkeologerna SHMM, Töllsjö, Sweden (Presenting author)

Keywords: Early Modern, Materiality, Migration

Presentation Preference - Regular session

Acculturation is a hot topic, but not a new one: Diaspora communities are well-known in the medieval and early modern past. The question is if the otherwise of the migrants was as a hindrance or a resource in their new life. In this session we aim to take on this question by approaching links between individual identity, community and host- and homelands.

The session brings together three research areas: the study of migration, urban development, and the study of the formation and expression of group- and individual identity through materiality. The examples are many: The medieval Hanseatic migration was followed by refugees and economic migrants in Europe and beyond from the 18th century onwards, and the migrants were entangled in complicated networks of marriage, kinship and business relations in host- and homelands. This entanglement gives rise to series of core questions in the interpretation of the archaeological record. 1. How do we identify immigrant identities? 2. How do we assess social or other differences within the immigrant community? 3. How do we assess reactions of the host land to the immigrants? 4. How do we separate diasporic identities from those of overlapping communities cutting across ethnicity, e.g. occupation, social and economic status, age, gender and race.

The session takes its starting point from the ongoing Danish-Swedish research council project Urban Diaspora, that focus on Scottish, German and Dutch diaspora communities in Scandinavian cities. Urban Diaspora is based on the materiality of consumption reflected primarily in ceramics, ecocultures 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 Hanseatic communities or in those of refugee Dutchmen, German craftsmen, Scottish traders, Portuguese merchants, Italian artists or something else in Europe and beyond.

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TH6-04 Abstract 05

Early Modern Immigrants: The City of New Lüdöse in the Historical records

Author: PhD Larson, Daniel, University of Gothenburg, Göteborg, Sweden (Presenting author)
Keywords: Early Modern, Immigrants, New Lüdöse
Presentation Preference: Oral

The city of New Lüdöse 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 Gøteborg. In the research project Urban Diaspora – Diaspora communities and materiality in early modern urban centers, New Lüdöse 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 Lüdöse, no written document has been found that makes it possible to identify owners of excavated plots or to study individual patterns 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.

TH6-04 Abstract 06

Archaeological excavations of Dutch settlements from the 16th-17th century in Elsinore, Denmark

Author: MA Appel, Liv, Museum Nordjylland, Hørgsholm, 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 not only from the point of view of the archaeology of the wealthy Dutch immigrants in the 16th-17th century. Since 1429 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 a population growth due to a steady birth rate and decreased mortality. 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. The magnificent borough of Elsinore, situated on the narrow Sound between Denmark and Sweden, is of special interest. The amount of preserved historical records differs for these three cities. For New Lüdöse, no written document has been found that makes it possible to identify owners of excavated plots or to study individual patterns 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.

TH6-04 Abstract 07

Can an animal bone assemblage indicate a diaspora?

Author: Dr. Enghoff, Inge, University of Copenhagen, Copenhagen, 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, i.e. the Sands, got an abrupt end due to the Swedish attack in 1658. The traces of foreign food and beer traditions bear witness of a multi-ethnic town, with populations of traders maybe 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 homeland.

TH6-04 Abstract 08

Tracing ethnicity in food consumption - the case of Nya Lüdöse

Author: Målzin, 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 Lüdöse (1473-1624), Sweden. The town was situated at the Swedish west coast, and was characterized by a multiethnic 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?

TH6-04 Abstract 09

Foreign beer and gruel traditions in late medieval town Nya Lüdöse, 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 Lüdöse, and may linked the local burgers of German 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 root vegetables stands out as foreign in relation to local tradition. It represents a imported foodstuff not atres in late medieval Sweden, maybe 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 homeland.

TH6-04 Abstract 10

Plant finds and migration in early modern (15th to 17th century) Aalborg

Author: MA Jensen, Peter, Mosegaard Museum, Hojbjerg, Denmark (Presenting author)
Keywords: Consumption, Ethnicity, Post-medieval Archaeology, Renaissance, Stone Tiles, Immigration
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 is 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?

TH6-04 Abstract 11

Freezing Danes and Strangers - The Tile Stove Heating in “Dansk” and “Strangers” Households

Author: Assoc. Prof. Dr Alatbach, Rainer, School for Culture and Society, Højbjerg, Denmark (Presenting author)
Keywords: Court Culture, Ethnicity, Post-medieval Archaeology, Renaissance, Stone Tiles, Immigration
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 Lüdöse (1473-1624), Sweden. The town was situated at the Swedish west coast, and was characterized by a multiethnic 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?
In the houses of urban strangers?  

**Author:** Historian Ørnbjerg, 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 houses and homes 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.

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A newcomer’s burial: anthropomorphic graves in medieval Transylvania (12-13th c.)  

**Author:** Dr. Istrate, Angel, Braşov, 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 early 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 Middle Ages) 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.

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.

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Adieu Hallstatt! Adieu La Tène! Revisiting old ideas  

**Author:** Prof. Emeritus Collis, 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 very 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 Déchelette) with ideas of building chronologies on ‘attributes’ and sequences of ‘horizons’ signalled by single innovations or mutations in material culture. The concept 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 construe chronological and cultural boundaries, and it can also affect basic things like the way in which we publish archaeological excavation reports.

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Bringing down the Wall or How precise independent chronologies facilitate negotiation of boundaries  

**Author:** Dr. Hamilton, Derek, University of Glasgow, East Kilbride, United Kingdom (Presenting author)  
**Keywords:** boundaries, chronology, Iron Age  
**Presentation Preference:** Oral

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 Eutin 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.

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Later prehistoric Europe has traditionally been studied in relation to a series of boundaries. These include the bounded chronological horizons which divide Late Bronze Age and Early Iron Age communities; geographical boundaries created through the development of separate national traditions of archaeological research; boundaries between perceived ethnic groups such as the Celts, Iberians, Veneti etc; and disciplinary divisions which separate ‘humanities’ from ‘scientific’ approaches. In recent years however this picture has begun to change. New research agendas seek to break down chronological horizons, with particular attention paid to transitional periods; more nuanced understandings of cultural identity are promoting cross-border collaboration, with a focus on zones of interaction between communities traditionally viewed as monolithic and bounded; interdisciplinary research frameworks are demonstrating the benefits of integrating scientific with more traditional approaches; and increasingly collaborative projects are fostering relationships and knowledge exchange on an international scale.

This session will draw on a number of papers from the ENTRANS Project; a HERA-funded collaborative project between the Universities of Bradford (UK), Ljubljana (SLO) and Zagreb (CRO), which explores cultural identities and encounters across the Late Bronze Age and Iron Age transition in the East Alpine region- a zone of interaction and encounters between Mediterranean societies and their traditionally perceived ‘barbarian’ neighbours. We also invite papers which seek to break down chronological, geographical or disciplinary boundaries within other parts of later prehistoric Europe (broadly, the Bronze and Iron Ages).
Boundaries provide an exciting and dynamic place to be doing archaeology, but they can also be fraught with troubles. Working across national borders often requires realignment of classificatory schemes for both ‘cultures’ 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 exacerbated 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, Philp, Zavod za varstvo kulturne dedištva Slovenije, Center for preventivo 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 balance, the importance of the LBA and the diminishing intermediate class of the Iron Age. This is reflected in the adoption of iron technology, new forms of elite expression and the aggregation of centres of power that accompanied the transformation of the LBA Ljubljana group and gave rise to the EIA Dolenjska 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 Palaeslovenian 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 diverging settlement patterns, the two areas represent the Western and North-Western borders of the Palaeslovenian 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 Minchio river, records the presence of Etruscan finds - a bronze double axe and a funerary statue, one with an inscription - it seem to record a probable presence of high status figures (magistriates?) among the Palaeslovenian 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 (Palaeslovenian) 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-Carnicenses intrusion that led to a profound change and reorganization of the considered archaeological landscape. Connections between the analyzed areas and the Celtic one, North of Alps, are recorded by finds since the end of VI-V century BC and interpreted by Bondini (2009) 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 this phase. Complex is generally the definition of the Palaeslovenian 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, Oppedeano and Mantua leading to a contraction of the Palaeslovenian polity.

TH6-05 Abstract 05
Iron Age Burial Customs and Cultural Dynamics Between Eastern Alps and Southern Pannonia
Author - Prof. Potrebica, Hrvoje, University of Zagreb, Faculty of Humanities and Social Sciences, Zagreb, Croatia (Presenting author)
Co-author(s) - Kriz, Borut, Dolenski Muzaj, Novo Mesto, Slovenia
Keywords: burial customs, Kapot, Lower Carniola
Presentation Preference - Oral

The classical approach to the study of this period applied to data distinguished between three phases of identity change during the Iron Age: the UmfelCulture – the Hallstatt Culture – the La Tène Culture. In addition, the identity of individual communities has been based mostly on the typology of the material culture, and the identity change has been perceived as a direct reflection of the physical change in the population.

Although we should not entirely deny large shift of population, mobility was far greater and more intensive at the level of individuals and small groups than at the level of whole communities. Regardless of the size of mobility, it could cause significant changes in identity of individual communities. Since the link between the burial ritual and the definition of identity of cultural groups in the Early Iron Age is far too often taken for granted, we believe that the issue of identity of the Iron Age cultural groups should be analysed at the level of individual communities. A comparative analysis of contemporary and conceptually similar grave inventories discovered in different burial contexts and belonging to different cultural groups show that there are different kinds of identity at the level of a community, cultural group or a wider unit. In the same time we have to pose question is that traditional historical approach to different forms of social identity is justifiable and is there actually any model which could be universally applied.

The results of research of the large necropolis of Kapiteljska Njiva in Lower Carniola carried out in recent years will illustrate the chronological axis of expression of identity in grave contexts. At this site, one can distinguish among three main burial phases, which are also physically different. The first consists of a typical graveyard of the Umfel Culture, containing distinctive incineration burials in pits; the second phase is a Hallstatt graveyard with monumental urns enclosing multiple radially-set skeletal graves; and the third is a La Tène-period graveyard, which once again consists of flat incineration graves in pits. However, at this site, all three burial phases are present in the same location, and they reflect certain spatial complementarity, at least during the transition periods. In addition, grave-good inventories clearly demonstrate great similarity of the material culture of the last graves belonging to one burial phase and the earliest graves of the following phase, regardless of the drastic difference in the grave structure. The spatial area of relation between burials and identity will be demonstrated through comparison between the Lower Carniola burials and burials in the Kapot area. The inventories of those graves show certain similarities regardless of the fact that burial ritual and local dynamics of cultural change are significantly different in these two areas.

TH6-05 Abstract 06
ArkeoGIS: a multilingual free online tool to transcend borders
Author - Dr. Bernard, Loup, Université de Strasbourg, CNRS UMR 7044, Strasbourg, France (Presenting author)
Keywords: ArkeoGIS, multilingual, open
Presentation Preference - Oral

Originally developed in the Rhine Valley in order to gather together French and German archaeological data from the Bronze Age to the Early Medieval period, ArkeoGIS now aggregates more than 60 datasets covering an area of 50,000 objects. It is now a Europe-wide scale. Its efficiency for trans-border archaeological and paleo-environmental studies has convinced us to move from version 3 to 4: the latter will offer the possibility to add new languages and chronological systems from summer 2016 onwards. The presentation will also focus on several, now redundant, trans-border problems and explain the solutions that have been chosen by the team of archaeologists, geographers involved in the project, and the ways in which the tool can be useful for any future cross-border project.
Crossing the borders of the La Tène “world”

Author - Dr. Daniela Grum, University of Bordeaux Montaigne, Pessac Cedex, France (Presenting author)

Keywords: Mobility, Rejection, Alien, Iron Age

This paper will be examined, in its geographical context, with archaeological and scientific data provided.

The link between southern Pannonia and Donja Dolina is particularly important during the Late Hallstatt and Early La Tène periods, when some parallels within the material culture indicate that the communities occupying these regions shared a very similar cultural identity.

In the early Iron Age, some apparently separate groups seem to have been integrated into larger regional complexes, which may have been influenced by external factors (e.g., political events or trade networks). This process of integration resulted in the emergence of a new identity that blended elements from different cultural traditions. The material culture of the early Iron Age in southern Pannonia displays parallels with other regions of Europe, such as the Balkans, the Baltic area, and the British Isles, indicating a degree of cultural exchange and interaction.

The study of mobilization in the Iron Age highlights the importance of understanding the social and economic structures that allowed such mobility to occur. The evidence suggests that long-distance trade networks and political alliances played a crucial role in the movement of goods and ideas across Europe.

Exchanging rough materials between North and South of Europe at a time of transition

Author - Dr. Filip Ignjatovic, University of Zagreb, Faculty of Humanities and Social Sciences, Zagreb, Croatia (Presenting author)

Keywords: Mobility, Rejection, Alien, Iron Age

This paper will address the topic through some specific examples collected all throughout Iron Age Europe, and even on its margins.

The intention of this paper is to investigate the mobility of material goods and ideas between different regions of Europe during the Iron Age. The study of these exchanges provides valuable insights into the social and economic structures of the time.

The link between southern Pannonia and Donja Dolina is particularly important during the Late Hallstatt and Early La Tène periods, when some parallels within the material culture indicate that the communities occupying these regions shared a very similar cultural identity.

In conclusion, the study of mobility in the Iron Age highlights the importance of understanding the social and economic structures that allowed such mobility to occur. The evidence suggests that long-distance trade networks and political alliances played a crucial role in the movement of goods and ideas across Europe.
TH6-05 Abstract 11

Textile Cultures of Iron Age Central and Mediterranean Europe: breaking down the boundaries

Author - Dr. Giaja, Margarita, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Co-author(s) - Buckberry, Jo, University of Bradford, Bradford, United Kingdom

Keywords: culture, Iron Age objects in the south-east Alpine region using a range of new technologies. This is a part of a broader programme aimed at breaking down boundaries between typological/ arthistorical 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 sylta art, classically defined as figural repoussé decorated sheet bronze objects, as well as belt buckles, helmets and occasional other objects. However, both figural and geometric decoration is 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.

Presentation Preference - Oral

Keywords: ceramic vessels, residue analysis

Beyond the vessel: residue analysis and the understanding of identity in Early Iron Age Europe

Author - Dr. Babos, Bertalan, University of Bradford, Bradford, United Kingdom (Presenting author)
Co-author(s) - Vincze, Márta, University College Cork, Cork, Ireland

Keywords: ceramic vessels, Early Iron Age, Organic residue analysis

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, aiming 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 alcohols and fats and lipid organic residues in Slovenia and Croatia. The principal aims are to study 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 considered, by identifying how the vessels were used and the specific resources selected for storage in them.

This paper also demonstrates how organic residue analysis can show patterns of change and encounters during later prehistory.

Presentation Preference - Oral

Keywords: cremated remains from the Late Bronze Age/Early Iron Age transition

The cremated dead: investigating cremated remains from the Late Bronze Age/Early Iron Age transition

Author - Nicholls, Rebecca, University of Bradford, Bradford, United Kingdom (Presenting author)
Co-author(s) - Koon, Hannah, University of Bradford, Bradford, United Kingdom
Co-author(s) - Buckberry, Jo, University of Bradford, Bradford, United Kingdom

Keywords: cremation, ENTRANS, Results

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, examining the Late Bronze Age and Early Iron Age cultural encounters and community alliances from Central and Mediterranean Europe. 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 research 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 site. It is also the time of excavations of the grave, in which the remains are considered, by identifying how the vessels were used and the specific resources selected for storage in them.

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 symbolical 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 research 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 site. It is also the time of excavations of the grave, in which the remains are considered, by identifying how the vessels were used and the specific resources selected for storage in them.

This paper also demonstrates how organic residue analysis can show patterns of change and encounters during later prehistory.

Presentation Preference - Oral
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 multidetector 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.

TH6-05 Abstract 16
Open-minded access to Late Bronze Age societies in southern Carpathian Basin

Author - Lozneri Dizdar, Daria, Institute of Archaeology, Zagreb, Croatia (Presenting author)
Co-author(s) - Radovil, Sinisa, Croatian Academy of Science and Arts, Zagreb, Croatia
Co-author(s) - Rajo Dinkaj, Petra, Institute for Anthropological Research, 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 (KR-17-2013-5327), funded by Croatian Science Foundation, combines archaeology, anthropology and archaeozoology in 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 biases, 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 anthropologist and archaeozoologist are less biased by the existing models in archaeological literature in their interpretation. This "bottom-up" approach is based on more credible evidences which occasionally do not correspond with existing hypothetical models of past societies.

Observed treatment and disposal of bodies, selection of grave goods and overall deposit, 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 mast as offering of food, and various sets of vessels as containers for 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.

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 AréTHIS, 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 "Rhône-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 ciparex opératoires, 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 complementary approach to artefacts' morphology to understand transition mechanisms.

TH6-05 Abstract 18
There is Power in a Cohort. Between Myth and Reality in the Development of Warfare in Scandinavia

Author - MA Kolberg, Are Skarstein, Freelance/independent, Oslo, Norway (Presenting author)
Keywords: Iron Age, Viking Age, Warfare and tactics
Presentation Preference: Poster

When you hear the word Viking Age, there is a high likelihood that you will associate it with a dark and lawless age, set in Ultimo Thule, in which individual warriors fought for personal glory, perhaps even doing so in a drug induced state of fury. Inevitably, the berserkers spring to mind, sometimes aided by images of warriors in horned helmets, reflecting the imagery presented to us in various mass media. This type of imagery can at least be traced to the Victorian era, probably helped by 18th century Swedish natural historian Samuel Odmann who, by drawing analogies to Siberian shamans, hypothesised that the berserkers were in fact in a state of trance induced by eating mushroom. In my paper I wish to go beyond the myths and fiction in order to convey a more nuanced picture of the development of early Scandinavian warfare with an emphasis on Norway and the Viking Age. The archaeological evidence suggests a highly organized society in which justice and equality did matter, a tale supported by the written sources and the historic record. Although some of the early sagas in fact do mention berserkers and men clad in wolf and bear pelts, this is most likely to be ascribed to origin myths and warrior cult. My idea is that there is a distinction to be made between the realms of mythology and actual warfare. The latter may have been very much inspired by Roman warfare. Battles were fought in closed formations; lines divided into cohorts, and with standardised equipment. Going on individual rampages would probably not help you win a battle; there was power in a cohort. As for the realm of myths and warrior cult, this does not rule out organised warfare as mythology and traditions always have been important. This was certainly important within the Roman legions, some types of legionsaries would actually dress up in animal pelt (remember that the wolf was an important animal, connected to the very birth of Rome as well as to the god of war Marz). Myths and traditions still matter in modern day society. In fact, as I'm arguing, the roots of social organisation and the Viking Age/early medieval proto states in Scandinavia and Norway may be traced back to the Younger Iron Age, if not even earlier. I will induct my theory from a host of different sources ranging from early texts to archaeological finds, among which standardised arms play a major role. One of my arguments is that a high numbers of specific arms dictate specific tactics. One of the oldest laws in Norway states that a battle able man should be equipped with a spear, a sword or axe, and a shield. This is clearly meant for closed formations. Furthermore, there has been a lot of renewed focus on the high degree of social organisation in Viking Age Scandinavia, but warfare seems to some extent to be neglected.

Keywords: There is Power in a Cohort. Between Myth and Reality in the Development of Warfare in Scandinavia
**TH6-06**

**“DUSTY” ARCHIVES AND ARCHAEOLOGY: OLD INFORMATION – NEW PERSPECTIVES!**

Friday, 2 September 2016, 09:00-16:00
Faculty of History, Room 332

Author - Heino, Neumayer, KAFU, Berlin, Germany (Presenting author)
Co-author(s) - Derschaw, Nina, Römisch-Germanische Kommission des Deutschen Archäologischen Instituts, Frankfurt am Main, Germany

**Presentation Preference** - Oral

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 der östlichen 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 archaeology” 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 preparation 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.

**Keywords:**

- KAFU - A network for archive studies
- Archives in libraries, archives and museums
- Archival studies
- The “archival archaeology” paradigm

**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

**Presentation Preference** - Oral

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 östlichen 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.

**Keywords:**

- Sources and research from the archives
- Cultural heritage management
- Cultural heritage science

**TH6-06 Abstract 02**

**The Sources of the „Archival Archeology“ in the Carpathian Basin**

Author - Dr. Proházková, Petr, Archeological Institut of the Slovakian Academy, Nitra, Slovakia (Presenting author)
Keywords: Archival Archeology, Archivars, Carpathian Basin

**Presentation Preference** - Oral

The Carpathian Basin is as a venue of people from the prehistory. A multifarious archeological material is characteristic for it. The Carpathian Basin is an important territory of the archeological research in Europe. But about a large part of the artifacts and sites are not enough data available. Although the archeological research in the Carpathian Basin has nearly two hundred years of history, but since centuries come threeme, hoards, graves and artifacts to light. About these are data in official files, which are in the archives. From the 19. centuries amateur archeologist conduct research and they corresponded about their discoveries and finds with the museums and scientists. A part of the artifacts comes to the museums in Hungary and abroad. These old finds composed the basic of the modern archeology in Europe. The „archaeology archive“ plays an increasing role in the international research. Its meaning is in gathering and publishing of all the written sources, locating the unknown, unprocessed and unpublished. With help of these written sources and reports it is possible to enlarge and precise the knowledge about older sites, archaeological contexts and to reconstruct the finding entities. These records are unknown, unprocessed and unpublished. With help of some examples I would like to present the potential of the „Archival Archeology“ for the today research.

**TH6-06 Abstract 03**

**Reichs-Limeskommission and WHS Upper German-Raetian Limes – Sources and research from the archives**

Author - Dr. Hüsses, Claus-Michael, German Archaeological Institute, Frankfurt / M., Germany (Presenting author)
Keywords: cultural heritage management, Reichs-Limeskommission, Upper German-Raetian Limes

**Presentation Preference** - Oral

The Limesarchiv of the Romano-Germanic Commission (RGK) 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 the Danube. The scientific results were edited by E. Fabricius in the series “Der Obergärmanisch-Raetische Limes des Römische Erbe” (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 RGK. 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 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-Württemberg. 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 workups 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 - Prof 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

**Presentation Preference** - Oral

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
photo collections, reflected archaeological investigations in the entire Russian Empire. Fortunately throughout the following reconstructions in Soviet times Commission has not been eliminated, and the archives were preserved well. Moreover remarkable materials and sources from scientific societies and different organizations (for example, Moscow and Russian Archaeological Societies, Petersburg Archaeological Institute, Libraries of Emperor Nikolai II and Great Princes Konstantin Nikolauoch and Konstantin Konstantinovich), from personal collections of outstanding archaeologists, architects, restorers, orientalists, alpinists and other researchers.

Nowadays the Scientific Archive of IHMC RAS contains 107 record groups and 79 photo collections of researchers and organizations which unity about 700 thousands documents. These documents cover age from the 18-th century to the present day. The value of these materials for the research on the ancient topography and of the archaeological potential of an area is considerable. The documents provide a unique opportunity to get knowledge about the development of the science and the history of the field.

The documents on archaeology of European countries mainly relate to the period up to 1917 and stored in the collections of organizations and in private collections of scholars. All these materials can provide new documental resources for the history of European archaeology. Archival heritage of IAC, Russian Archaeological Society, Moscow Archaeological Society and personal collections of A.A. Spitsin, B.V. Farmakovskij, A.A. Bobrinskij, V.I. Smirnov are most interesting in this regard. All these materials can provide new documental resources for the history of European archaeology.

International cooperation could give the opportunity for their best attribution and introduction to the world science.

TH6-06 Abstract 07

Architecture of tumuli in Kosovo

Author - Dr. Ass. Baraliu, Sedat, Faculty of education, Pristina, Kosovo (Presenting author)
Co-author(s) - Aqiq, Prentim, Institute of archaeology, Pristina, Kosovo

Keywords: Grave, Kosovo, Tumuli

Presentation Preference - Oral

In this study will be treated the architecture of tumul and relation with funeral ritual. Characteristic of tumuli in Kosovo, especially during the Iron Age when their number has increased, is building variety. There are even cases when in one necropolis are noticed various types of tumuli. Tumuli in the territory of Kosovo are built with stones and soil; however, there are cases when the tumuli are built only with stones, while the soil is used as an additional element. Moreover, when the tumuli are built with soil, the stones have served for building architectural parts, such as: surrounding ring, grave constructions, cover and tumulus caim.

The forms of grave construction are not the same in all necropolises. Based on the construction, the graves can be classified as of rectangular shape, oval, elliptical circular, semi-circular as well as graves with simple pit. Each type of grave will be treated separately.

Rituals and funerals ceremony will be also elaborated in this paper taking into consideration that during the ceremony and burial are followed a number of rituals and funeral ceremonies starting by building the tumulus, opening the grave and the burial process. Furthermore, in even the cases of cremation are followed a range of rituals and ceremonies.

TH6-06 Abstract 08

The Prussia-Museum in Königsberg/Ostpreußen. New archaeological research on an old archive

Author - Dr. Elsbracht, Heidemarie, Museum für Vor- und Frühgeschichte, Berlin, Germany (Presenting author)
Co-author(s) - Dr. Krueger, Michal, Adam Mickiewicz University in Poznan, Poznan, Poland (Presenting author)

Keywords: pre-war archive, reconstruction of the archaeological landscape, research in former East Prussia

Presentation Preference - Oral

Up to World War II the famous Prussia-Museum in Königsberg kept a comprehensive archaeological fund which had been brought together during more than 150 years of research from the end of the 18th centuries onwards. The fund included findings from excavations as well as documentary record covering the entire region of the former province of East Prussia. After the war, almost all collections were regarded as being lost but big parts have been rediscovered unexpectedly after the turnaround of 1989/1990 in Berlin, in Kaliningrad and in other places. The materials that remained are mainly fragmented and incomplete but still bear witness of the intenseness of the pre-war archaeological research as well as of the richness and diversity of the historical landscape in the south-western Baltic region. Since 2012 the “Academy of science and literature in Malz, Germany” realizes a huge project on the reconstruction of the archive materials from the Prussia collections, conducted by the Centre for Baltic and Scandinavian Archaeology in Schwerin and the Museum of Prehistory and Early History in Berlin. The project aims at supporting contemporary archaeological research by making the old data available once again. The paper introduces the goals of the project and describes the specific needs, selected methods and first results of this process: How and to what extent can we reconstruct the ‘archaeological landscape’ in former East Prussia before 1945 and thus create a basis for modern investigations and research in this part of Europe?
TH6-06 Abstract 09
Roman Iron Age princely graves
Author - Prof. Schuster, Jan, Archaeology, Lodz, Poland (Presenting author)
Keywords: Archaeological data, Princely graves, Roman Period
Presentation Preference - Oral

Rich Roman Iron Age graves, equipped with Roman imports, are interred 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 princely 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 posses 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 magazines of 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 Lubusky type.

TH6-06 Abstract 10
The Oscar Almgren’s Archive.
At the Roots of the Roman Period Archaeology
Author - MA Szter, Izabela, Museum für Vor- und Frühgeschichte, Berlin, Germany (Presenting author)
Co-author(s) - Chiifiske-Früboes, Agata M.A., Instytut Archäologii Uniwersytetu Warszawskiego, Warsaw, Poland
Keywords: archive, Roman Period, Oscar Almgren, Swedish National Heritage Board in Stockholm
Presentation Preference - Oral

Oscar Almgren was one of the most famous archaeologists who dedicated his work to issues concerning the Iron Age. His PhD thesis Studien über norddeutsche Fibelformen der ersten nachchristlichen Jahrhunderte mit Berücksichtigung der provinzialromischen und südrussischen Formen was a milestone in the archaeology of the Roman Period. It was defended and published in 1897.

The significance of Almgren’s work results not only from an in-depth analysis of fibulae but also from a wide territorial range of his research. In the end of the 19th c. this Swedish archaeologist studied finds present in at least 117 museums placed all over Europe. The private archive of Almgren is an important result of those studies. Currently it is held in the Swedish National Heritage Board (riksantikvarieämbetet) in Stockholm.

Our paper will be one of the fist presentations concerning the legacy of Almgren. His archive is a rich and diverse set of documents. Among others it contains press cuttings, letters, notebooks, manuscripts, as well as personal photographs. Emphasis will be put on presenting a card file (among other things so called Fibulensk), which is the largest and the most compelling part of the whole archive. Its content can be estimated at over 6000 of sheets with artifacts fine pencil drawings and information. It is also worth mentioning that Almgren collected data concerning not only fibulae but also on other finds (e.g. Roman imports, weapons, bracelets, necklaces or buckles and belt fittings), which is an important contribution to chronological and regional studies. Materials present in the archive are of very high scientific value and importance. For many archaeological objects lost during the Second World War it is often the only surviving documentation.

TH6-06 Abstract 11
The finds of the Przewors and Wielbark cultures in the archives of Herbert Jankuhn
Author - Dr. Cieśliński, Adam, University of Warsaw / Institut of Archaeology, Warsaw, Poland (Presenting author)
Keywords: Eastern Prussia, Herbert Jankuhn, Przewors and Wielbark cultures
Presentation Preference - Oral

The famous German archaeologist Herbert Jankuhn died at the beginning of his career with the south-eastern Baltic litoral 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. These files are kept now in Archäologisches Landesmuseum in Schleswig. In the archives there are information about artifacts from Prussia Museum in Königsberg, which were destroyed or dispersed during World War II. The paper presents materials from sites of the Przewors and Wielbark cultures in the area east of the lower Vistula.

TH6-06 Abstract 12
The Herbert Jahnkuhns scientific legacy – an old archive as a source for modern research
Author - Prof. Nowakowski, Wojciech, Institut of Archaeology, Warsaw University, Warsaw, Poland (Presenting author)
Keywords: Archives, East Prussia, Jankuhn
Presentation Preference - Oral

Herbert Jahnkuhn, one of the greatest, albeit most controversial characters of the 20th century German archaeology, is known primarily as a researcher of Hallstatt empire (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 Jahnkuhn 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.

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 isn't 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 this card file 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 Mazaurian cemetery in Miejske (former Migningen), Scandinavian 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 archives 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”.

TH6-06 Abstract 13
The cemetery of Linkuhnen (Rževskoe): A case study on the potential of archival archaeology
Author - Dr. Jahn, Christoph, Museum für Vor- und Frühgeschichte Berlin, Berlin, Germany (Presenting author)
Keywords: Archival data, East Prussia, Prussia collection
Presentation Preference - Oral

In the last 20 years, colleagues from Germany, Poland, Russia and Lithuania have collectively worked on the reconstruction of the archaeology in former East Prussia before WW II. The re-evaluation of archaeological research before 1945 in the region between the Vistula River in the west and the Nemunas River in the northeast remains a puzzle with many pieces missing but is of great importance to the modern archaeological research in Poland, Lithuania and the Kaliningrad Oblast due to the extremely dense distribution of archaeological finds.

One of the “lost” archaeological sites is the cemetery of Linkuhnen at the Nemunas River, which was excavated between 1928 and 1939 by the Prussia Museum in Königsberg (Kaliningrad), with a large number of finds from the Roman Iron Age, Migration Period and the Viking Age. The results were never properly published and all objects were considered to be lost after 1945. With the re-discovery of the Prussia collection and archives in Berlin in 1990, colleagues from different countries established a scientific network to open up archival sources for international research. The cemetery of Linkuhnen can serve as an example of the potential that still lies within the archaeological and archival material that survived at different institutions all over Europe.

The reconstruction and analysis of the original field documentation and other archival sources show the importance of Linkuhnen for the very first time: the cemetery was used for over 1000 years from the Roman Iron Age and the Migration Period to the Viking Age with almost 500 burials and 5000 grave goods. With over 150 swords from the Viking Age, Linkuhnen is the biggest site of Viking Age sword weaponry in the Baltic and Scandinavia. We also know of nine swords with Ulfberht initials, what makes Linkuhnen 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.
The cemetery of Wiskiauten is located at the south-western corner of the Curonian Lagoon, close to Zelenogradsk in the Russian Oblast Kaliningrad. 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, Olztyz, 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 archeological interest in the site is unbowed. Since the 1870s, at least 12 different excavation teams from Germany, Sweden and Russia have worked on the grave mounds of Wiskiauten and the archeological 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 in 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.
is especially vividly observed in the scattered archival materials by K.V. Salnikov, A.P. Shokurov and R.G. Kuzeev. Also, scientists' separated depending on the scientists' workplace location, often there were no conditions for heritage storage. In Bashkir Urals it the archives and document funds often results in loss of archaeological documents. Part of the archaeological archive materials was Such diversity of the archives led to fragmentation of archaeological materials and sometimes even to their loss. Reorganization of the Regional Statistic Committee, since 1867 it became the Provincial Museum (at present - the National Museum of the Republic Library: Manuscripts). Archaeological information about the territory of the Bashkir Urals began to be collected in 1834, on the basis of 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 Archæological Congress in Russia and the memoirs of Adalbert Bezzemgerber. 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. Virze, Ingrīda Līga, 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 localised. 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 disparity 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). Archaelogical 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. Reorganisation 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 Urals region, led to the exchange of archaeological information with the European scientific elite. In the fund by E.H. Minns (Cambridge University Library: Manuscripts) a fragment of correspondence between A.Pashkova, the owner of Voskresensky 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.

Archaeology without borders

Archaeology without borders

Archaeology without borders

Archaeology without borders

Archaeology without borders
The Forum of MERCI (Medieval Europe Research Committee) is an annual meeting held at EAA to promote active archaeological 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 MERCI, which views itself as in academic partnership with EAA. The purpose of the forum is to:

- 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 conjoin 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 Tja, Dr. Gitte Hansen, Dr. Salty Foster and Dr. Katarina Predovnik.

**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. Shirouhalov, Roman (Vilnius University, Lithuania)
- Cultural resilience and adaptation at the frontier: Klaipeda and Žarde pottery analysis. PhD student Ubis, Edvinas (Klaipeda University, Lithuania)
- Future archaeologires of the "Great Wilderness": Crusading, depopulation and colonisation in the frontiers of Lithuania. Dr. Pluskowski, Aleks (University of Reading, United Kingdom)

**Keywords:**

- Holguin, Leah, University of Southampton, Southampton, United Kingdom
- Oral

**Presentation Preference:**

- Oral

**Resource/Conduit-Agent:**

**Water and the Development of the Human Geography of Central Asia**

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-steppes 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 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 ponds, 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/geoaarchaeology, simulation or papers that emphasize the social aspect of hydrology, including ethn archaeology 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 hydro social 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 place 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 geoaarchaeology, 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 transitional regime 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 “island” 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 interaction between alluvial and aeolian 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 hydro-social resources. Analysis includes Loss on Ignition, Particle Size Analysis, geochemistry and micromorphology, which in conjunction with satellite imagery will help to elucidate differential aeolian encroachment and locally variable alluvial processes.
TH6-08 Abstract 02

Preliminary results of the paleochannels network of Margiana on the basis of remote sensing analysis

Author - Anciero, Roberto, Leiden University, Leiden, Netherlands (Presenting author)

Keywords: Central Asia Archaeology, Remote Sensing, Water Management

Presentation Preference - Oral

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 southwards shift of the center of the settlements at the end of the Late Bronze Age (1950-1500 BCE) and the beginning of the Iron Age (1300-900 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 Topgul 1, Adj Kui 1 and the nomadic site area of Site 1211-1219 and Ojakly. The aim is to analyze the different water management strategies of both sedentary and nomadic settlements and their possible interaction.

TH6-08 Abstract 03

The water management in the Iron Age and landscape taphonomy of the Serakhs oasis (Turkmenistan)

Author - MA Bulewka, Nazarî, Institute of Archaeology, University of Warsaw, Warsaw, Poland (Presenting author)

Keywords: Iron Age, Serakhs oasis, Central Asia, Water management, landscape taphonomy

Presentation Preference - Oral

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-II 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 approach is based on the deeper analysis of the context of the sites with use of Geographic Information System environment. The ArcGIS database, which gathers satellite imagery, digital elevation data, topographic maps, the vector data related to hydrology, ancient and recent occupation are used as a tool to discuss many questions related to settlement pattern of the oasis.

The analysis of mentioned data, presented in the paper, makes it possible to investigate the water management system in Yaz periods in the Serakhs oasis. Here the topographic maps, high-resolution satellite imagery made in different periods of time and SRTM derived leves are used followed by deep analysis of landscape taphonomy of Serakhs oasis. The paper concentrates on the water management in the Yaz I-II periods, which is especially important for understanding how water management changed in comparison to the later periods. The future areas of study are also indicated.

TH6-08 Abstract 04

Examining Holocene Socio-Hydro Landscapes in the Gobi Desert, Mongolia

Author - Holguin, Leah, University of Southampton, Southampton, United Kingdom (Presenting author)

Keywords: Holocene desert hydrology, Human-Environment Interactions, Mongolian Neolithic

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 (3000-2000 B.C.E.) contracts 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 (3500-2100 B.C.E.), nomadic pastoralism was adopted as the dominant subsistence strategy and these sedentary communities were abandoned. This unexpected reversion 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 Gobi Desert of Omnogovi province, Mongolia. By examining this Holocene socio-ecological landscape, it may provide clues to how the changing hydrological system may have influenced resource availability, which in turn, may have affected local subsistence strategy choices.

TH6-08 Abstract 05

The archaeology of water management in context of west Khurasan, Tapeh Damghani, Sabzevar city

Author - Garazhian, Omar, Neyshabour, Iran (Presenting author)

Keywords: Bronze Age excavation, northeastern Iran water resources

Presentation Preference - Oral

Located on the edge of an alluvial fan near Sabzevar city in Iran, Tape Damghani is an archaeological site containing late Chalcolithic and early Bronze Age evidence. The surveyed site is 100 hectares, and excavations were conducted on the 6-hectare core of the site, at the end of the slope towards the Kal Shur river.

The excavation was conducted over two seasons. During the second season, the excavation concentrated on four workshops. The northern ones, workshop II and III, revealed a series of brick walls. These walls were buried under two meters of natural deposits caused by floods from the 2nd millennium BC, leading to excellent preservation. The context and architectural construction suggest that these walls are the remains of water resource management structures: preliminary dams for controlling river flooding, obtaining surface water, and redirecting water to channels.

This research will examine evidence from Workshop II and III of Tape Damghani in the context of site location, landscape and environment that suggest adaptive methods of water control.

The excavations are supported by the City Museum of Sabzevar, which is planning to develop an open-site museum by the Tehran-Mashhad highway.

TH6-08 Abstract 06

The Spread of Fruits along the Silk Road

Author - Dr. Spengler, Robert, Washington University in St. Louis, Lancaster, United States of America (Presenting author)

Co-author(s) - Dr. Frachetti, Michael, Washington University in St. Louis, Lancaster, United States of America

Keywords: Agricultural Spread, Archaeobotany, Silk Road

Presentation Preference - Oral

The Great Silk Road was the largest commerce network of the ancient world; it linked the disparate ends of the vast Eurasian supercontinent and in doing so connected the imperial centers of East and southwest Asia. While organized trade, including military outposts and government taxation, along the Silk Road dates back to the Han Dynasty (206 BC–AD 220), the exchange of goods, ideas, cultural practice, and genes, through the thousands of kilometers of desert and mountainous expanses comprising this region dates back to the third millennium BC. Over the past two millennia, the ebb and flow of cultures directly shaped the trajectory of human history in myriad ways, including by spreading agricultural practices and crop varieties. Among the many goods that moved along the Silk Road were a wide variety of plants, including many of the fruits that are familiar to us today. Archaeobotanical research at the Ta什hakar archaeological site (ca. A.D. 900–1200) is studying the importance of these crops in Central Asia during the height of Silk Road exchange, during and shortly after the Tang Dynasty (A.D. 618–907). The site was occupied by people in the Karashand Khanaat (A.D. 840–1212) and was likely a high-elevation mining town. Preserved plant remains near the central square of the ancient occupation site paint of picture of the types of fruits and grains available in markets along the Silk Road. Archaeobotanically tracing the path that plants followed on their long journey across Central Asia, provides us with a map laying out the early routes these foods took to ultimately reach our dinner plates today.
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
Co-author(s) - Grass, Florencia, Universidad de la Basque Country, Vitoria Gasteiz, Spain (Presenting author)
Co-author(s) - Greil, Erinco, 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 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 have recently increased in Europe in terms of quantity and quality, and some studies have attempted to connect all these types of artifacts founded 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 ancients societies, the formation of elites and their recognisability, in terms of a 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 ancients 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 - Michałek, Katarzyna, University of Gdańsk, Gdynia, 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 quality (a state of preservation) and quantity of artifacts found there (pottery, flints, fragments of stone tools and grain remains) allow us to distinguish two main types of activity zones interpreted as possibles 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 to 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 emphasize a possible limitation of recognition of activity zones because of long-term deposal process and the overlapping of various activity zones that can be problematic during analysis of the domestic artifacts 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

Author - Post doctorale Chiquet, Patricia, Muséum d’histoire naturelle, Geneva, Switzerland (Presenting author)
Co-author(s) - Burri-Wyser, Elana, Etat de Vaud, Sipal, Archéologie cantonale, Lausanne, Switzerland
Co-author(s) - Wringer, Ariane, Etat de Vaud, Sipal, Archéologie cantonale, Lausanne, Switzerland
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 Cortaloidal. 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

Author - PhD Főlgy, Szilvia, Hungarian National Museum, Budapest, Hungary (Presenting author)
Co-author(s) - Serlegi, Gábor, Research Centre for Humanities of HAS Institute of Archaeology, Budapest, Hungary
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 scenes 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 quantitative and qualitative 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

Author - Researcher Toscano Raffa, Alessio, CNR-IBAM Catania, Messina, Italy (Presenting author)
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-II centuries. B.C.

The structures 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 of later 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 tanks 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 accessorized with hobs, tables and docks 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
Women to the front! Women to the front?

Author - Bauer, Anna, Wien, Austria (Presenting author)

Keywords - female soldiers, Gender, woman and war

Presentation Preference - Oral

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 be 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 S-3 Century BC in the Asiatic/Russian area.

In general woman had no access to political or social power so the stereotyped of 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 21st 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 where left alone with their troubles and trauma.

Women's war contribution is often not considered in the research. 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 2400 solidi were paid for a baby girl and 600 solidi for a baby boy from this forced marriage can be deviated. 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 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 S-3 Century BC in the Asiatic/Russian area.

An escape by divorce was for the womenfolk mostly not possible due to laws or social grounds. Girls were engaged very early to the family and 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 S-3 Century BC in the Asiatic/Russian area.

The grap for the weapon must have been for some women or girls the exit from a forced marriage.

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will continue to focus on sites occupied for a large amount of time. By studying the tell marks on archaeological charcoal, we will try to reveal the chaîne opératoire and the socio-professional organization of wood cutting and fuel production. Afterwards, a dendrochronological approach led 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)

Author - López Rider, Javier, University of Córdoba, Córdoba, Spain (Presenting author)
Co-author(s) - Cordero de la Llave, Ricardo, University of Córdoba, Córdoba, Spain
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 the arts. 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 Hispanic metallurgy, to know the types of existing charcoal, 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 anthracological approach
Fuels and craft in NW Mediterranean (1st-18th c. AD)

Author - Dr. Vaschakos, Christophe, ISEM UMR 5554/LA3M UMR 7298, Montpellier, France (Presenting author)
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, archeological 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 main 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 choose 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 looks into account the constraint imposed by thermal and technical necessities (i.e. concentration of fire, or, on the contrary, circulation of fire in the kilna). Indeed, the choice of fuel does not always rely on the choice of a taxa for itself but on other criteria such as morphology, caliber, humidity level, etc. Furthermore, we propose a different interpretation of anthracological data. Generally, anthracologists 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 competencies between different crafts from a 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 anthropological data with medieval and modern texts, 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

Author - Dr. Chevaller, Alexandre, Royal Belgian Institute of Natural Sciences, Bruxelles, Belgium (Presenting author)
Co-author(s) - Thomas, Nicolas, Laboratoire de médiévistique occidentale de Paris – Université Paris 1, Paris, France
Co-author(s) - Verbaek, Marie, Service de l’Archéologie, Service Public de Wallonie (SPW), Namur, Belgium
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 the 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 boilermakers, 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 “Grosen” site, dated to the 7th century. The copper metallurgy boom around the beginning of the 12th century in both Dinant and Bouvignes is due to several causes. Although the Meuse region lacked copper 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 copper supplies and with London for tin supplies, overcame these natural limitations. 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 mortars. 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 defalted 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. Theses excavations uncovered several coppersmiths buildings, with their workshops and domestic spaces. We will present the results of wood charcoal analyses from four different sites – Bouvignes Porte Chevalier, Dinant Obiats, Dinant Rateau and Dinant Churchill – that represent 13 different coppersmith workshop spaces dated 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.

TH6-10 Abstract 05
The use of coal in “la chaîne opératoire du fer” to late Middle Ages in the north of France

Author - Jagou, Benjamin, Imap, Achicourt, France
Co-author(s) - Dr. Arribet-Daron, Danielle, Université Paris 1 Panthéon-Sorbonne, Paris, France (Presenting author)
Keywords: coal, Flanders, smithy
Presentation Preference - Oral

Since 2008, preventive archeological operations in northern France, mainly carried out by the National Institute for Preventive Archaeological Research (INRAP), have enabled to highlight the use of coal as a fuel for the “chaîne opératoire du fer” as from the 13th century. Studies about almost ten sites allowed developing various issues related to this kind of fuel from a technical, but also environmental and commercial point of view. These lines of research allowed implementing a project of thesis in 2014 under the direction of A. Joubert and tutoring of D. Arribet-Daron of the University of Paris 1 Panthéon Sorbonne. Referring to existing archeological, archeometrical and text studies, the goal of this thesis is to answer the questions related to these discoveries. Therefore, it will help to understand the environmental and commercial reasons of the late transition between charcoal and coal compared to the rest of France, and also to figure out the impact of coal on the “chaîne opératoire du fer” and its technical processes. Eventually, it will show that the use of this fuel lead to the development of commercial exchanges between the area of study and some close European countries during the late Middle Ages. By taking part to this symposium, I would like to present more specifically all these issues as well as the results of my first two years of work.

TH6-10 Abstract 06
Wood supply strategies in a sparsely wooded area?
The case of Limousin region in the 19th century

Author - Dr. Paradis-Grenouillet, Sandrine, Eveha, Condat sur Vienne, France (Presenting author)
Co-author(s) - Rous, Romain, GEOLAB UMR 6042CNRS, Limoges, France
Co-author(s) - Crouzevialle, Rémi, GEOLAB UMR 6042CNRS, Limoges, France
Keywords: fuel consumption, Limousin, Woodland
Presentation Preference - Oral

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Archaeology without borders
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.

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**SETTLING WATERSCAPES IN EUROPE: THE ARCHAEOLOGY OF NEOLITHIC AND BRONZE AGE PILE-DWELLINGS**

Saturday, 3 September 2016, 09:00-18:30
Faculty of History, Room SP1

**Author** - Hafner, Albert, University of Bern, Institute of Archaeological Sciences, Bern, Switzerland (Presenting author)
**Co-author(s)** - Doleubnova, Ekaterina, The State Hermitage Museum, Saint-Petersburg, Russian Federation
**Co-author(s)** - Mazurkevich, Andrey, The State Hermitage Museum, Saint-Petersburg, Russian Federation
**Co-author(s)** - Pranckėnaitė, Elena, Klaipėda University, Klaipėda, Lithuania

**Keywords:** Neolithic-Bronze Age, settlement archaeology, wetland archaeology

**Presentation Preference** - Workshop

The workshop will bring together scientists who are involved in the research of pile-dwellings within largely expanded boundaries in Europe. The organizers invite contributions with a focus on human-environment interactions, origin and (dis)continuity of European pile dwellings, regional methodological distinctions and regional peculiarities of pile-dwellings sites. This workshop will also examine possibilities and limits of interpreting cultural remains of the pile dwellings from multidisciplinary perspectives.

The number of multidisciplinary research of recent years has provided new data about anthropogenic influence on the landscapes of Neolithic-Bronze Age pile-dwellings, which allows to characterize the lifestyle of inhabitants, peculiarities of the ecological niche and human and environment interaction in more detailed ways.

The widely discussed phenomenon of European pile-settlements suggests such approaches on their origin and evolution as a reaction on natural changes or new symbols of changing societies, as well as underlines existence of specific architectural forms and other evidences in culture (art, weaponry, adornments, utilities etc.).

In the huge area where pile dwellings have been explored for decades, different ways, methods, even schools of underwater and peat-bog excavation techniques as well as data analysis has been formed under the influence of different traditions of practice in separate countries. These and other factors can create limits of our understanding the past, but on the other hand may suggest wider possibilities for interpretations.

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**TH6-11 Abstract 01**

**Settlement history of the wetland site Luokesa 1 (Lithuania): an interdisciplinary approach**

**Author** - Dr. Pranckėnaitė, Elena, Klaipėda University, Klaipėda, Lithuania
**Co-author(s)** - Pollmann, Britta, Federseemuseum, Bad Buchau, Germany (Presenting author)
**Co-author(s)** - Ismail-Meyer, Kristin, University of Basel, Basel, Switzerland

**Keywords:** Late Bronze-Early Iron Age, palaeoenvironment, pile-dwellings

**Presentation Preference** - Oral

An interdisciplinary research of the Late Bronze/Early Iron Age lake-dwelling Luokesa 1 (Molėtai region, Lithuania) combines archaeology, archaeobotany and micromorphology. This single phase wetland settlement was fortified with a double palisade, and built on the lake shore shallow place. At least the houses of the investigated center of the settlement were constructed with elevated floors. The evaluation of the site topography, taphonomical processes, archaeological records and the palaeoenvironment enabled to reconstruct the settlement history. Thus, the interpretation of this data gives an insight of processes from the period before, during and after settling the lake shore site and presents possible wetland habitation models.

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**TH6-11 Abstract 02**

**Archaeological excavations from the past with new interpretations**

**Author** - Reis, Maili, Estonian National Heritage Board, Tallinn, Estonia (Presenting author)

**Keywords:** neolithic, pile dwelling, wetland archaeology

**Presentation Preference** - Oral

So far, the remains of pile dwellings have been confirmed in only one lake in Estonia – Kooriküla Vaigjärv in South Estonia. The lake hides remains of piles and other archaeological finds from three different time periods. The oldest settlement traces originate from Neolithic Period and the younger traces from the Pre-Viking and Viking Age.
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
Author - Charnauiusk, Maxim, Institute of History NAS of Belarus, Minsk, the Republic of Belarus (Presenting author)
Keywords: Kryvina peat-bog region, Late Neolithic - Bronze Age, Northern Belarus (Lakek region)
Presentation Preference - Oral
Kryvina peat-bog is an archaeological microregion located in Vitebsk region of the Republic of Belarus (south of Belarussian Lakeland geographical region). To date, there are 10 archaeological settlements of Neolithic - Bronze Age period. 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 area are present by the materials of 3rd - first half of 2nd millennium BC which belongs to Usvyaty and North-Belarusian cultures. 9 monuments preserve organsics 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 Charniausk and Maxim Charnauiusk. 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) allows 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 copred 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) - Regert, Martine, UMR 7264 UNS - CNRS, CEPAM, Nice, France
Co-author(s) - Mazuz, Arnaud, UMR 7264 UNS - CNRS, CEPAM, Nice, France
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 valley floors with peat soils and mud soils; 2) moraines plabeaux with predominantly clayey soils covered by broad-leaved trees; 3) glacioluvial outwash plains with sandy-podzolic soils. The combination of these three types of landscape made possible a hunter-gatherer economy and strongly contributed to the settlement system at this time. Decrease (period?) of lake water level and development of fluvial system in places can be also supposed. Only specific types of landscapes with high geochechen were chosen for settlement, whereas the rest of the region was uninhabited. It also explains the long duration of pile dwellings in one place. The archaeological and zooarchaeological records indicate the year-round procurement of meat and fur animals as well as fishing. A variety of natural resources were used, besides hunting and fishing: different berries, hazelnuts, water chestnuts, acorns etc. Also bones of domesticated animals, as well as tools for agricultural activity and grains of Cereals in pollen diagram, were found. However, the latter did not play a major role in the economic system. A range of food resources used could be also evidenced through the chemical analysis of organic crust on the pottery. Different types of wood were used for tools’ making, dwellings’ construction and for fire-places. Different raw materials’ resources availability was estimated with the use of GIS-techniques.

TH6-11 Abstract 05
Pile dwellers in the Sukhona basin?
New Russian-German research at Veksa, Northern Russia
Author - Dr. Pleazonka, Henny, German Archaeological Institute, Berlin, Germany (Presenting author)
Co-author(s) - Dr. Nedoromilina, Nadzhda G., Vologda State Museum, Vologda, Russian Federation
Co-author(s) - Dr. Hauffner, Karina, German Archaeological Institute, Berlin, Germany
Co-author(s) - Prof. Dr. Kirkes, Wiebke, Institute of Pre- and Protohistory, Christian Albrechts University Kiel, Kiel, Germany
Co-author(s) - Prof. Dr. Lorenz, Sebastian, Institute of Geography and Geology, University of Greifswald, Greifswald, Germany
Co-author(s) - Dr. Wieczorkowska-Lüh, Magdalena, Institute of Pre- and Protohistory, Christian Albrechts University Kiel, Kiel, Germany
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 northeastern Russia. Extending along the left bank of River Vologda in the Sukhona basin, the site is located by 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 cultural, typological and economic developments and their links to environmental history 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 archaeobiology, palaeogeography 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 3500 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 have found 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. Gusevetsova, Tatiana, Scientific and Research Institute for Cultural and Natural Heritage, Saint Petersburg, Russian Federation (Presenting author)
Co-author(s) - Sorokin, Petr, Institute of Material Culture Russian Academy of Science, Saint Petersburg, Russian Federation
Keywords: Neolithic sites, Early Metal Age, wooden construct
Presentation Preference - Oral
The Neolithic sites 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 Age periods – from 4000 to 2500 BC. The cultural layers of the prehistoric settlements are situated under alluvial sandy sediments 1-1.5 m thick, which lie 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.

The pile dwelling settlements were situated at the boundary of different landscape types that provided the basis of a productive hunting and gathering economy, and supplied as a resource for different wood, plant and bone material, raw materials for pottery making. It remained the typical settlement pattern for over a millennium. The inhabitants of such settlements left a unique material culture with a particular toolkits and pieces of art.
The lower cultural layer contains 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 or near the settlement’s waterlogged layers, as well as on the data set derived from the detailed documentation of finds and artifacts. The excavation of wood as raw material in several related tasks, is based mainly on extensive sampling of the structural elements preserved in the settlement’s waterlogged deposits of several prehistoric settlements. Anarghiri IXb is a settlement inhabited since the early 5th millennium BC, was oval in shape and approximately 2.8 hectares in size, in the central part of which the archaeological layers are almost 4 m thick. According to the so far unearthed evidences, the earliest occupation’s structures were built in immediate spatial relation to water with matching building chothes adopted by the Neolithic settlers, while during the subsequent Neolithic periods (c. 4700–3300/3200 BC) the settlement became a dried site characterized by successive layers of burnt structures. The large scale project of the last three years has resulted in the completion of the excavational research of the cultural deposits at the periphery of the settlement, covering an area of approximately 7,000 m². The study of the various construction techniques implemented by the neolithic builders, especially concerning the exploitation of wood as raw material in several related tasks, is based mainly on extensive sampling of the structural elements preserved in the settlement’s waterlogged layers, as well as on the data set derived from the detailed documentation of finds and artifacts. The spatial organization, the form, structure and internal arrangement of the houses, together with thousands of clay, stone, wooden tools related to the productive, gardening and domestic activities, 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.

TH6-11 Abstract 10

Ups and downs. Studying structural wood from the prehistoric lakeside dwelling Anarghiri IXb (Greece)

Author - PhD Candidate Giagkoulis, Tryfon, University of Bern, Florina, Greece (Presenting author)

Keywords: Architecture, structural wood, Prehistoric lakeside dwelling Anarghiri IXb, Western Macedonia, Greece

Presentation Preference - Oral

The Rescue Excavations Project of Florina’s Ephorate of Antiquities at the cockmining zone of Public Power Corporation S.A - Hellas (Amindon, Western Macedonia, Greece) has so far yielded substantial new evidence for the cultural development - from Early Neolithic to Late Bronze Age - of this region characterized by the presence of four lakes. Among the numerous finds there are a considerable great number of wooden elements belonging to structures preserved in the lower waterlogged deposits of several prehistoric settlements. Anarghiri IXb is a settlement inhabited since the early 5th millennium BC, was oval in shape and approximately 2.8 hectares in size, in the central part of which the archaeological layers are almost 4 m thick. According to the so far unearthed evidences, the earliest occupation’s structures were built in immediate spatial relation to water with matching building chothes adopted by the Neolithic settlers, while during the subsequent Neolithic periods (c. 4700–3300/3200 BC) the settlement became a dried site characterized by successive layers of burnt structures. The large scale project of the last three years has resulted in the completion of the excavational research of the cultural deposits at the periphery of the settlement, covering an area of approximately 7,000 m². The study of the various construction techniques implemented by the neolithic builders, especially concerning the exploitation of wood as raw material in several related tasks, is based mainly on extensive sampling of the structural elements preserved in the settlement’s waterlogged layers, as well as on the data set derived from the detailed documentation of finds and artifacts and their spatial integration in the excavational grid with the use of GIS tools. Although the study is still in an early stage, the preliminary processing of data and the categorization of the wooden elements in different types according to their preservation, in-layer arrangement, physical and technical features etc. provide useful information concerning the construction and organization of space at the periphery of the prehistoric occupation. Yet, the large scale of the excavation, some particular differenciations in
A research project focusing on Lake Degersene 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 explorations suggest new settlement sites and human impact dating back to the 6th millennium (see contribution of Mainberger, this session). Within the tri-national project ‘Beyond Lake Villages – BELAVI’ palaeoecological on-site and off-site data from the Western Altgäu region are synthesised with archaeological records. The chronological basis and with the regard to the question of plant macrofossil and pollen analyses on the cultural layers at Degersene, we expect to provide further evidence of changes in subsistence strategies and landscape management in responses 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 Degersene 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 specificity of potentially selected construction timber, to gain a more complete picture of wood resource usage. Geoarchaeological investigations lead 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.

TH6-11 Abstract 14
The Neolithic Landscape of Westallgäu Region – first results of BELAVI in Southern Germany
Author: Dr. Mainberger, Martin, Landesamt für Denkmalpflege Baden-Württemberg, Staufen, Germany (Presenting author)
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, palaeoeconomic and palaeoecological 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 Degersene Lake in South Western Germany. The Degersene project followed not only a whole series of new discoveries, but also the design of the tri-national Regard Lake and 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 wooded landscapes 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.
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 architectural 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 Burgäschi! 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 Landsedelienamit Baden-Württemberg and University of Vienna, funding: SNSF-DFG-FFW). 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 Burgäschi, a small water body in the central part of the Swiss Mittelsands. 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-dwelling research. A special focus will be put on new archaeological and palaeoecological 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 mine relics are fundamentally different from the objects we know from wetland and underwater sites in terms of taphonomy, functionality and above all research history. Those hot handles, lightning tapers, buckets, mining timber, axemnets 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 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 bog, wetlands and water bodies as certain materials that decay underwater are preserved in the mines. Furthermore the Hallstatt salt mines offer important early Iron Age find inventories. This is of major importance on two levels (i) the evolution of organic material culture from the Bronze to the Iron Age can be observed; (ii) organic finds are far more rare in the European Iron Age than during the Bronze Age.

TH6-11 Abstract 18
News from prehistoric lakeside settlements in Austria

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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 the 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 programme 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: Contexts, 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 ‘crannogs’ 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-landscape interaction 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 we can 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, Université 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 homogeneous 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 overspill the often-oversimplified 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 this, the paper first tries to examine why the analysis of these boats appears to be usually conditioned by the ethnohistorical 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 prehistoric 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 in 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 dwellings sites and waterways in the prehistory of the Alpine region, but in a wider area. Considering navaligraphy and navalarchaeology 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 ancient boat-type.

TH6-11 Abstract 21

Pots, pans and dishes to understand food in a pile-dwelling Neolithical 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 et al. 2008). Nevertheless these methodologies are rarely combined due to the high fragmentation of pottery and to the impossibility to link ceramic content with specific shape.

The corpus was first classified based on morphological and morphometric criteria. Chemical analysis of the lipids preserved into pottery walls or into carbonized surface residues were then carried out using an analytical strategy combining chromatographic (HT GC), spectrometric (HT GC-MS, NanoESI MS and MS/MS – Mirabaud et al. 2007) and isotopic (GC-C-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 Neolithical people living at Clairvaux XV in the first half of 4th millennium BC. First, a clear difference is observed between cooking pots and serving vessels. Dairy substances were significantly used in all category of ceramics but small individual vessels seem to be especially dedicated to the consumption or transformation of these high value products. The surprising low representation of fish and vegetable products may be due to the significant use of fruits and nuts eaten directly off the vine or at a mixed state according to the type of analysis.

The paper takes up the idea of the ‘genetic code of cities’ to look into network patterns of Neolithic and Bronze Age lakeside settlements. It explores the influences these specifically designed structural solutions required for life at, on, in or above water and marshlands had on human movement and interactions. Did these settlements under such environmental conditions follow the same spatial growth laws as modern cities? And, can such micro-economic and socio-cultural network analysis be a tool for interpreting cultural remains or functions of pile dwellings?

TH6-11 Abstract 23

A new look to late Neolithic plant economy from the site of Parkhaus Opéra (Zürich, Switzerland)

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Keywords: archaeobotany, GIS, sampling strategies

Presentation Preference - Oral

Archaeobotanical research in the Alpine Forsthas a long tradition. Abundant quality data have been produced since the seventies of the XIXth century. The Horgen period (ca. 3400 - 2900 cal BC) has been particularly well investigated, especially since the excavation of Arbon Bleiche 3. It was after this project that researchers realized that the representative sampling of lakeshore settlements with paleoecological aims (e.g. characterizing past agriculture and gathering practices, as well as diet) was only possible through the systematically-taken surface samples of large volume (ca. 5 L).

New methods have been developed for sampling, following the sequential excavations of Late Neolithic layers of the site of Zürich- Parkhaus Opéra. Layers 13 and 14 date to the years around -3160 BC and -3090 BC respectively. Layer 13 was preserved over a surface of 3000 m². Layer 14 was documented in more or less good preservation in a smaller area of around 1000 m². A systematic sampling strategy was conducted and a new method of analysis was developed for the analysis of the samples. These large samples were subsampled before sieving, producing one large-volume (sieved with 8 and 2 mm sieve fractions, for the recovery of large- sized seeds and fruits) and one small-volume sample (sieved with 2 and 0.35 mm sieve fractions, for the recovery of the small-sized grains). 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 Bachwiesen I (Bad Buchau, Kr. Biberach) located at the Federsee fen in Baden-Württemberg, excavated in the years 2005 and 2011, can be assigned to the Late Neolithic Schussenried 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 necessary 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 Neckar area 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 Shumassrold Culture?

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 first 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 moraine amphitheatre, but also in the lakes of the inner areas of the Barcis and Euganean hills. This period is therefore characterised by strong cultural changes and radical reorganization of settlement patterns and socio-economical systems. Some recent excavations allows us to follow the technological and cultural evolution of the communities living in the area and to identify the development of the architectural techniques. This presentation shows long distance interactions and cultural relationships with Western, Central and Eastern Europe. Interesting is the connection between Varesse 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 a lot 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 setailed down agriculture and breeding farming. Craftmanship becomes more organized and integrated in the communities only starting from Middle Bronze Age. Subsistence economy mainly bases on cereals agriculture; hunting and fishing constitute a part of the diet, integrated with harvesting of spontaneous fruits. The abundance of cornels, hazelnuts and acorns shows how the inhabitants of the pile-dwellings intensively exploited the areas around the villages.

TH6-11 Abstract 26
Osseous artifacts from the prehistoric lakeside settlements of Amideon, 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 Amideon basin that date back from Greek Early Neolithic (~ 6800-5800 BC) to Greek Middle Bronze Age (~ 2200/2100-1800/1600 BC).

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 Seretya II (remnants of pile dwelling settlement from the 3rd mill BC) is situated in the floor of a Holocene post-lake basin and archaeological structures occur within cohesive-detrital gyttja at the depth of approx. 80-150 cm bgl. 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, fragmentarity of artifacts, and homogenous distribution of material within the cultural layer.

Other particular layers and other organic remains were uncovered at the site Seretya I, with fishing constructions synchronous to Neolithic pile-dwellings. Thin interlayers, fulfilled with small branches, leaves, and reed remains were uncovered, which were deposited in the zone of ancient lake shore line. Accumulation of branches is recorded in the marginal part of the Seretya I site, also in the buried lake shore zone.

TH6-11 Abstract 28
Geophysical prospection of submerged Neolithic settlements in Lake Semnica (Pakoš Oši, NW Russia)

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Keywords: geophysics, Neolithic, Semnica
Presentation Preference - Poster

First archaeological sites on the bottom of Lake Semnica (<13 km², ~148 m a.s.l.), located in NW Russia on the border with Belarusia were uncovered in the 1970s. These lacustrine sites, dated to the 4th-3rd mill BC, were located along the shoreline 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 variometer 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 archeological structures and 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 paleolocret, precise distribution of ancient stone and wooden constructions on the sites and to define 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’s always connected both with practical issues and with the sacred and social views. The ability to follow the example of the sections of the Baikal coast features of the organization of different types of archeological 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 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, contoured shaft 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. Stabilized 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 6.5h5.8 to 10 m. The total area of houses from 50 to 80 square meters.m. In the south-western part of the home is fixed entrance, decorated 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 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, contoured shaft 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. Stabilized 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 6.5h5.8 to 10 m. The total area of houses from 50 to 80 square meters.m. In the south-western part of the home is fixed entrance, decorated 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
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 Speian Mountains, however, suggests that, despite these dramatic cultural changes, there is a remarkable degree of spatial continuity between 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.

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**TH6-12 Abstract 02**

**Viking-Age landscapes in the longue durée: change, continuity, and perceptions of place**

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**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 timesframes, 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 slight change the coastal areas, though does treatment of other Romano-British structural appears to differ so widely? Drawing upon a range of supporting evidence such as place-names and environmental data, and looking at the artifactual 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 transferred.

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**TH6-12 Abstract 05**

**Processes of Mendicent Settlement in Cities:**

**The Example of the Diocese of Clermont 13th-15th c.**

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**Keywords:** History of land-use, medieval archaeology, paleoenvironment

**Presentation Preference:** Oral

In 1962, the American historian R. Emery (p. 5) defined the French 13th century as “the golden age of the [mendicant] friar”, a hypothesis developed later by the French historian J. Le Goff (1968) in a programme dealing with the relationships between Mendicent Orders and medieval cities. Archaeological and historical surveys and archaeological studies in other particularly in Bretagne (Martin, 1979) or in Alsace and Lorraine (1985) since provided numerous and varied clues allowing a renewal of the problems linked to the settlement and building of Mendicent convents. Recent historical and archaeological analyses concerning the north (Voll, 2003) or the south of France (Caby, 2012) enabled to improve the knowledge on the different ways the Mendicents could settle in towns in terms of political, ecclesiastical or material support and integrated spatially and institutionally the city. Nonetheless, the questions of natural constraints, of a pre-established “urban” landscape in the vicinity of the mendicent convents still remains difficult to answer in most cases.

The paper aims at putting emphasis on the phenomena of change and continuity in the settlement of Mendicent Orders in urban spaces through the example of the cities in the diocese of Clermont (Auvergne, centre of France) during the 13th-15th centuries. This is a multidisciplinary approach based on a cross-checking of archaeological, architectural and historical data. It focuses on the reasons why the Mendicents decided to install in specific places in close to the city, particularly for political, economical and social reasons but also due to topographical constraints. It also demonstrates the prevailing reasons for settlement could change according to periods, cities and established urban landscape (e. g. re-use of religious buildings). Thus, this paper sheds light on the study of long-term religious urban landscape in medieval cities.
Can humans change their spots? Site location patterns in Mid-to-Upper Paleolithic Cantabrian Spain

Author: Javier, Ordoño, 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, 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, Chapter of the paper will be focused on the Cantabrian and Basque 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 mixture 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

Author: Dr. Matteazzi, Michele, Catala Institute of Classical Archaeology, Vicenza, Italy (Presenting author)

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 unfill 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 socioeconomic status of the city reaches its peak starting from the Thetrarchic period: as a matter of fact with the imperial agenda, firstly in relation with the Danubian limes patrol but most of all as a bridge-head for the northern and eastern sociopolitical, cultural and administrative complementarity in respect of the capital. Her new role granted her a primary importance spot within the territorial agenda, firstly in relation with the Danubian times patrol but most of all as a bridge-head for the northern and eastern trade routes. This prosperity echoes in the urbanistic evolution both from the point of view of public and private dwellings. Two centuries after, all of this was not there anymore and the town itself was reduced to a third of its original size. Moreover the new city wall (of the half of the VI Century AD) excluded not only the forum but also the harbour that was the symbol of its past role. How did it happen? Clearly the temptation of giving all the blame to the barbaric invasions and mainly to the supposed conquest of the town by Attila (5th AD) is strong, but with this paper I will go beyond these simple events trying to track those long endure factors that lead one of the greatest Italian cities of late antiquity to become little more than a village. Even its own name was recalled in the sources just in relation with its diocese or as a moment of the unpredictability of fortune. These factors have been both natural (mainly the decrease in the flow rate of the river Natiso) and anthropic (mainly the changes in the power balance of the Roman Empire) - the transfer of the capital to Ravenna in 402 AD.

The rise and fall of the big harbour town of Aquileia

Author: Michelin, Lucia, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)

Keywords: Aquileia, discontinuity, Late Antiquity

Presentation Preference: Oral

The aim of this presentation is to track the rise and fall of the harbour town of Aquileia. The town, founded in 181 BC around 10 km away from the Adriatic sea on a meander of the Natiso river, stands as a perfect example of a once really strong and powerful town that fell into nothing after the end of the Roman Empire. The socio-economic status of the city reaches its peak starting from the Thetrarchic period as a matter of fact with the Dicollanet and Constantian reformation she received officially the title of capital of the Venetia at Mestia region. Moreover, her proximity with the newly Imperial Capital (Mediolanum) put her in a political circuit of primary importance; providing her a role of cultural and administrative complementarily in respect of the capital. Her new role granted her a primary importance spot within the territorial agenda, firstly in relation with the Danubian times patrol but most of all as a bridge-head for the northern and eastern trade routes. This prosperity echoes in the urbanistic evolution both from the point of view of public and private dwellings. Two centuries after, all of this was not there anymore and the town itself was reduced to a third of its original size. Moreover the new city wall (of the half of the VI Century AD) excluded not only the forum but also the harbour that was the symbol of its past role. How did it happen? Clearly the temptation of giving all the blame to the barbaric invasions and mainly to the supposed conquest of the town by Attila (5th AD) is strong, but with this paper I will go beyond these simple events trying to track those long endure factors that lead one of the greatest Italian cities of late antiquity to become little more than a village. Even its own name was recalled in the sources just in relation with its diocese or as a moment of the unpredictability of fortune. These factors have been both natural (mainly the decrease in the flow rate of the river Natiso) and anthropic (mainly the changes in the power balance of the Roman Empire) - the transfer of the capital to Ravenna in 402 AD.

The rivers promised not to deluge the country: the Arno and Serchio lower valleys

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Keywords: coastal pragレーション, North Etruria. Water management

Presentation Preference: Oral

In North Western Tuscany (ancient Etruria) landscape dynamic transformations, due both to natural and anthropic factors, and of phenomena of persistency, resilience and change are studied in a long-term perspective. In this district multidisciplinary researches provide evidence of coastal pragレーション and erosion, palaeo-environmental changes, water management practices, rural and urban landscapes, manufacturing activities. Significantly, the complex hydrogeological evolution of the Pisa-Lucca territory and the long term human actions aimed at optimizing the rivers regime were already perceived by the ancients, as documented by Strabo after his sources (5.2.5, 222C). In the Roman Late Republican period the critical phases are to be connected with protracted intense rainfalls and with the impact of anthropic activities on the territory (e.g. the Roman colonization in the 2nd and 1st cent. B.C., the upkeep or collapse of the countryside drainage systems, etc.). A period characterized by sea level rising and by the absence of drastic climatic changes, the coastal evolution was most probably due to anthropic causes. Among these, the main elements were the construction of new towns and settlements, deforestation and increased agricultural and manufacturing activities connected with the deforestation of colonies in the early 2nd cent. B.C. and in the late 1st cent. B.C, in particular with the organization of their territories (panturial and land allotments). The continuous natural transformation of the
litoral and the hydrologic evolution affected the North Western Etruria 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-medicinal 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 Biecht, who built a few windmills in order to raise the level of the soil. The coastal progadation came to end around 1830, the Arno-Serchio rivers sold transport being diverted from their destination to the sea in swamp filling areas in the frame of the systematic land reclamations pursued by the Lorena.

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, cause di colmate and the building of canals to deviate flood waters.

Dynamics of Settlement in Ljubuški (Bosnia and Herzegovina)

In what circumstances, the culture of past societies was determined by such factors as vertical (inter-generational) and horizontal 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 Małopolska Loess Upland, the upper Vistula valley, the Carpathian Foreland, 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 particular test areas), space (communication factors in inter-population transmission), environment, with its natural and anthropic 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 stage must cover establishing the network of identified correlations and identification of potential causal relations.

This way we will explore whether cultural diversity is similar - as proposed by the cultural-news 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 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?

Comparing cultural transmission patterns in southern Poland during the Bronze and Early Iron Age

Several well-investigated settlement regions in southern Poland, intensively occupied for a long time and representing various ecological zones and landscapes (Western Małopolska Loess Upland, the upper Vistula valley, the Carpathian Foreland, and the West Carpathians), were chosen to test the role of these factors.

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Pastoral Nomads’ Use of the Semi-Arid Syrian Landscape

c. 1810-1760 BCE: A GIS Projection

The project aims to illuminate the social and economic dynamics between pastoral nomads and settled people in this period, with the focus on the forms of land using, based on the economics of food-producing, exchange, trade, migration and routes such as caravan escort and mercenary. Not only are the connections between these groups of person 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 carraiges, corrals, kites) registered in the Syria-Norwegian Palmyra project that I have been a part of. The structured location of several hundred Bronze Age carraiges, distributed on strategic highpoints and wash outlets, in the mountain range outside the ancient trading centre of Palmyra in Syria, indicates that in addition to have been burial chambers these carraiges 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, migration patterns etc.
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 to adopt a broad contextual appreciation of this question by considering if and how road 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 differently received within different Middle East contexts. In this presentation, in fact, I will compare medieval Anatolians and medine Syria and 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?

TH6-12 Abstract 14
It’s always the same old story… or not?
The ‘changing’ landscape of Cappadocia (Turkey)

Author - Dr. Turchetto, Jacopo, University of Padova, Padova, Italy (Presenting author)
Keywords: Cappadocia, Turkey. Local scale vs. macro-regional scale. Road networks and settlements’ patterns
Presentation Preference - Oral

During the course of the centuries, and especially from the Greco-Roman period to the Seljuk times, Cappadocia represented one of the most important hubs and crossing-points of the Anatolian peninsula. Within that chronological framework, it acted as a cultural, economic and political bridge between East and West of both the classical and the medieval world. For those reasons, taking into consideration the interactions occurred between man (with different needs in different periods) and the landscape (which remained almost the same through time), Cappadocia offers a great variety of ‘food for thought’.

In this paper, I will focus on three different geographical sectors of Cappadocia, each one characterised by its own specific natural features: a) the semi-flat belt between Colonia Archelais/Aksaray and Casearea/Keşteş, next to the course of the Kızılırmak river, b) the area comprised between Colonia Archelais/Aksaray and Tyana/Kemerhisar, with the volcanic groups of the Melendiz Dağları, Hasan Dağ and Göllü Dağ, and the fertile plain surrounding them; c) the mountainous area between Tyana/Keşteş and the lake of Göreme, at the foot of the Taurus chain.

In this context, archaeological and topographical evidences point towards the existence of settlements’ choices and itinerary patterns of longue durée. However, when examining the matter at a more local scale, what clearly emerges is that (in certain areas, at least) some changes took place through time. Towns or villages were abandoned and replaced by other ones; stretches of routes were no more maintained and fell into disuse; previously exploited areas were left for more favourable regions.

Trying to recognise those changes and understand the different reasons (of cultural, economic, political, military/nature) which subtended them will allow to better appreciate the historical evolution of the Cappadocian landscape and the role it played during the course of the centuries.

TH6-12 Abstract 15
Archeogeography of a border: the roman Limes system in south Romania (frontier, roads, landscape)

Author - Fajon, Philippe, Ministère de la Culture, Rouen, France (Presenting author)
Keywords: archeogeography, longue durée, roman times, south Romania, Olt valley
Presentation Preference - Oral

How to consider the meaning of “border” in archeogeography? (beyond the joke about the title of the session) First, it’s useful to consider the different criteria of the limit between 2 territories, based on the thoughts of sociologists and philosophers. Before to be geographical, evidences, frontiers and associated road networks are first, an intellectual constructions of societies, second, a mark of the politics, and third a sign for populations. Therefore, this analysis allows to consider the frontier as a geographical concept because of its “longue durée” meaning.

In the territory of the actual Romania, after the Trajan conquest, at the very beginning of the second century A.D., the new limit of the Roman Empire is on the northern side of the Danube. In the Wallachian plain, archaeologists consider two different limits named Limes Alutanus and Limes Transalutanus. The first one is on the western bank of the Olt river, the second one is on the eastern plateau in the Boian plain. These two limits may represent a chronological distinction, a functional difference, or both.

Using in the same time many data from different sources (topography, geology, hydrology, morphology, topology, village and road network, archaeological settlement), we’ll try to explain that none of these proposals is the right one. It’s necessary to consider both Limes as a complex system, with a triple function to create a virtual space between Roman Empire and foreign country, to put a physical limit in a dominant situation, and to organize trade and circulation behind and along the border.

In this case, this organization is in full adequation with all the constraints. The territory of this sector is very specific, including a wide valley with a quite regular slope in the West and a high cliff in the East, before the plateau. The valley is occupied with wetlands and marshes.

This good use of the territory, and its associated organization, has crossed the times until the humankind modify natural lands.

The contemporary landscape organization keeps different remains of this situation in the lineaments, in the parceling system and in the road network. It also shows us the “colonization” by the Roman Empire keeps a part of the former forms when it’s 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.

TH6-12 Abstract 16
The Impact of Water on Settlement Development in Western Europe

Author - Donnelly, Harriet, The University of Sydney, St Leonarda, Australia (Presenting author)
Keywords: early medieval, settlement patterns, water systems
Presentation Preference - Oral

The establishment or development of any settlement will require a reliable supply of fresh water. The vital nature of this resource creates a scarcity 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 Londinium/Ludianice experienced a significant transition from their previous urban layouts, while others, including Corduba, 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.

TH6-12 Abstract 17
Redistributing of Ancient Grave Stones in Antioch on the Orontes according to their Provenance

Author - Güven, Evrim, Buca/Izmir, Turkey (Presenting author)
Keywords: Antioch on the Orontes, cemeteries, grave stones
Presentation Preference - Oral

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 ascertaining the information we possess today.

Nonetheless, we must now be all 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 Archaeological Museum, Istanbul Archaeological Museum, Museum of Louvre, Princeton University Art Museum, Worcester Art Museum) and of a local private collection (Ovál, Kızıkkaya). 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 Architecture 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 had in pursuance of delineating the city limits. We will demonstrate by using visual materials how they concentrated in periphery of Antioch on the Orontes.
The landscape of iron production – from prehistory to the Early Modern Period in present-day Latvia

Author - Dita, Audina, University of Latvia, Riga, Latvia (Presenting author)
Co-author(s) - Černe, Mija, Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana, Slovenia
Keywords: Iron production, landscape
Presentation Preference - Poster

This poster 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 Krunzh 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.

Can We Observe Continuity?

Phenomenon of Medieval and Post-medieval Rural Settlement Abandonment:

Up and down: Models of landscape use in Middle-Late Bronze Age.

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TH6-12 Abstract 18

The landscape of iron production – from prehistory to the Early Modern Period in present-day Latvia

Author - Dita, Audina, University of Latvia, Riga, Latvia (Presenting author)
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Keywords: Iron production, landscape
Presentation Preference - Poster

Since the first successful attempts to produce iron, this activity has affected the landscape around it through the extraction of recourses, requiring infrastructure and creating pollution. However, the existence of iron production has been strongly dependent on the landscape, its resources and the possibilities for connecting with surrounding communities.

This paper will explore agency in iron production and its landscape, as well as changes through time in present-day Latvia. The earliest known archaeological remains of iron production in the study area are from the 2nd-4th century, when the success of production was directly dependent on the landscape. By contrast, iron manufacturing in the Duchy of Courland (18th-19th century) was an important factor in the process of transformation of the landscape.

By using an inter-disciplinary approach of archeology, history and natural sciences, the changes in landscape-production agency will be analysed.

TH6-12 Abstract 19

Warfare and Urban Transformation in Late Antique Central Balkans

Author - Jelena, Jaic, Oxford, United Kingdom (Presenting author)
Keywords: Late Antiquity, Transformation, Urbanism
Presentation Preference - Poster

This poster 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.

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TH6-12 Abstract 20

Medieval and post medieval village of Zasavje

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Keywords: Bračice (southern Slovenia), flood, medieval, post medieval
Presentation Preference - Poster

In the vicinity of city Brežice (southern Slovenia) Institute for the Protection of Cultural Heritage of Slovenia, Centre for Preventive archaeology 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 Krška as there used to be an area of late medieval and post medieval village of Zasavje, 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 2013 the analyses 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 25,5ha in the eastern part and smaller archeological 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 channels' 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.

TH6-12 Abstract 21

Phenomenon of Medieval and Post-medieval Rural Settlement Abandonment: Can We Observe Continuity?

Author - Dr. Holoka, Lukâ, University of Exeter, Exeter, United Kingdom (Presenting author)
Keywords: Abandonment, Medieval and post-medieval period, Rural settlement
Presentation Preference - Poster

The abandonment of rural settlement (desertion and shrinkage) is documented over the majority of European countries, especially between the 14th and 17th centuries. In some areas, desertion affected more than half of all the settlement units and significantly influenced the character and shape of today’s landscape. Despite considerable attention being paid to medieval settlements within several disciplines (history, historical economy, historical geography, historical demography, natural sciences and archaeology as well) the process of abandonment still remains poorly understood. On the contrary, a large number of reasons for settlement abandonment have been suggested across Europe, both cultural and environmental. In addition to various war events, demographic decline or unfavourable economic development, the human impact on the environment and changes in natural factors (deforestation, soil erosion, drying up of streams or an increase in flooding, climatic deterioration) have been supposed. A general idea of a ‘retreat from the margins’ is spread across European countries.

The paper evaluates the conventional concept of abandonment in marginal areas regarding their natural characteristics and tries to discuss the role of natural conditions in shaping of human communities together with their affect in wider transformations of land-use and the emergence of the countryside as a whole. Although the process clearly evokes the considerable change, systematic study in large-scale level has obtained remarkable evidence of continuity as well – 1) some settlements situated in positions originally regarded as marginal were not deserted at all; 2) some settlements survived in shrinkage forms or in close proximity of deserted sites, 3) there is also increasing evidence of multiple exploitation or utilisation in original settlement areas after settlement desertion (continuity in land-use, field systems, network patterns etc.). Thus, cases of total abandonment as well as an entire retreat from the land are very rare. Although the examples across Europe are included, the paper focuses on Central Europe (esp. the Czech Republic) and England, where the long-term interdisciplinary research concerning deserted settlement and large collections of data gathered and evaluated by the author, enable deeper conclusions.
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, inter / 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 the 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, solatility, seasonal dwelling structures). These changes are visible at the level of the communication system and transfer of goods, tools. 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 result that for the area of study was applied a model of a total change. In the seasonal dwelling structures). These changes are visible at the level of the communication system and transfer of goods, tools. 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.

The history of medicine provides the critical hindsight required to fully contextualize the culture of medical treatment and social care in the past. While Egyptian, Indian, Greek and Roman medicine have been extensively studied, this session focuses upon the archaeology of medicine in Northern Europe. Archaeological research has identified an array of plants, surgical instruments, preparations, and formulations of various ingredients, while historical written records have identified alchemical and folk remedies used throughout northern Europe in the past. This session intends to discuss the negotiation of social roles and concepts of identity, culture and agency amongst patients, medical practitioners and other individuals involved with spaces of healing. This session welcomes contributions concerning medical practice, access to medical care, archaeological theory in medicine, healing, palaeopathology, medicinal archaeobotany, surgery, hospitals, and the treatment of disease, impairment and mental illness in northern Europe.
TH6-13 Abstract 03

Surgical treatment at the Danish Cistercian Abbey of Jm - A critical analysis

Author: MA Møllerup, Lene, Museum Stjørdal, Stjørdal, Denmark (Presenting author)

Keywords: Medieval abbey, Skeletal paleopathology, Surgical treatment

Presentation Preference - Oral

Through eight decades the Cistercian Abbey of Jm, 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 in and 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 1172-1536 AD, a claim which has since, remained practically undebated. Modern anthropological analysis is questioning the former interpretation of the human skeletal material. New insight gives the opportunity to reassess the role of the Cistercian monks as physicians and surgeons. This paper looks into the alleged surgical role 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

Author: Wailer II, Joe Wallace, Reykjavik, Iceland (Presenting author)

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Keywords: disease, osteology, alchemy, heavy metals, culture, Iceland, monastery, hospital, medicine, treatment, syphilis, mercury, paleopathology, ICP-MS

Presentation Preference - Oral

Skriðuklaustur, located in the east of Iceland near the Vatnajökull glacier, operated between AD 1493-1554. As an Augustinian monastery, Skriðuklaustur ran a hospital with sophisticated medical practitioners, providing medicinal and surgical treatments. The specialised 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 conditions. This analysis of the decades after the large volcanic eruption in 1875

In the 13th century, alchemists began to use cinnabar ore (mercury sulphide) 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 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 Hekla (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 Skriðuklaustur. This presentation will discuss the results of osteological and chemical analyses, considering environmental, medical and occupational exposure to heavy metals. The results of stable isotope analysis for strontium will enable this research to consider the geographic origins of the individuals seeking treatment at Skriðuklaustur, thereby providing further insight into concepts of mobility, isolation and care in historic Iceland.

TH6-13 Abstract 05

The Archaeology of Zootherapy in Northern Europe

Author: Dr. Miller, Holly, University of Nottingham, Nottingham, United Kingdom (Presenting author)

Keywords: Animal medicines, Medicine, Zootherapy

Presentation Preference - Oral

The World Health Organization (W.H.O. 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 has 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 equalised with supernatural distance, and that animals derived from ‘outer realms’ (e.g. the wilderness or far-off lands) are more medicinally potent.

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 (Pinacea, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the mankind used to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the research. ONGUENT aims to fill this gap by studying medicinal tar in a systemic way, from the plant raw material to the end product and its use, on both sides of the Mediterranean today and in the past, and by assessing their actual medicinal effects, or even toxicity. Our innovative research is embedded in an inter-disciplinary and cross-sectoral frame, crossing the methodologies and perspectives of the humanities and life, material and environmental sciences (history, archaeology; bio-archaeology; Organic chemistry and Phytochemistry, plant biology and molecular biology, pharmacology, toxicology and ecology) carried by a Mediterranean and complementary consortium of scientists. Both diachronic and synchronic, this research takes place in different space-times: medieval and post-medieval Provence (France) on the one hand, and current Atlas and Anatolian mountains (Morocco/Turkey). Through a cross-approach, research is organized into three work packages. The first package deals with natural resources, knowledge and know-how used to produce wood tar and the micro-environmental impact of this activity. The second package aims at providing a better understanding of wood tar as material, of its biological and chemical composition through the acquisition and analysis of different plant species/tars, the development of a referential database, the analysis and chemical characterization of archaeological tar residues, and finally comparison of the molecular spectra of tars and essential oils. The goal of the third package is to study the use of these different sorts of tar in human and veterinary medicine in the past and today, to assess their actual medicinal properties and their possible toxicity. By its retroactive method 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 Hekla (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 Skriðuklaustur. This presentation will discuss the results of osteological and chemical analyses, considering environmental, medical and occupational exposure to heavy metals. The results of stable isotope analysis for strontium will enable this research to consider the geographic origins of the individuals seeking treatment at Skriðuklaustur, thereby providing further insight into concepts of mobility, isolation and care in historic Iceland.
TH6-13 Abstract 07
Written in bone? A critical review of evidence for treatment in human skeletal remains

Author - Dr. Jakob, Tina, Durham University, Durham, United Kingdom (Presenting author)
Keywords: Human skeletal remains, Palaeopathology, Treatment
Presentation Preference - Oral

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 skin or major 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 which 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 initiate the upper respiratory tract and, if chronic, could lead to mastoid abscesses. Nevertheless, sinus 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 formal 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 performed 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 arm and leg bones, when affecting only one bone might naturally heal without angulation, 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.

TH6-13 Abstract 08
Osteoarchaeological Evidence for 16th century Anatomy and Medical Treatment at Wittenberg, Germany

Author - Mayer, Christian, Halle (Saale), Germany (Presenting author)
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This study analyses cemeteries from known medieval leprosaria (e.g. Chichester, United Kingdom) as leprosy is recognized to be highly stigmatising and led to segregation of affected individuals. Even if not all individuals in the hospitals were suffering from the disease, all of them were outsiders of society. In particular, cemeteries dating prior to 1550 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 leprosy-associated cemeteries has been 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 newly 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 periods in medieval England. Social status 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 often been 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:

TH6-13 Abstract 09
"Love thy neighbour...": Social outcasts and the English Middle Ages

Author - Giootto, Chiara, University of Durham, Durham, United Kingdom (Presenting author)
Co-author(s) - Jakob, Tina, University of Durham, Durham, United Kingdom
Keywords: Middle Ages, physical abuse, Social outcast
Presentation Preference - Oral

Bioarchaeology allows the reconstruction of people’s life-ways even if they are largely 'off the written record'. This paper focuses on the marginalisation of stigmatised individuals during the English Middle Ages (800-1485) and its osteological evidence. This study analyses cemeteries from known medieval leprosaria (e.g. Chichester, United Kingdom) as leprosy is recognized to be highly stigmatising and led to segregation of affected individuals. Even if not all individuals in the hospitals were suffering from the disease, all of them were outsiders of society. In particular, cemeteries dating prior to 1550 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.

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Reference:
fractures were found in eight individuals, of which five were estimated to be males or possible males and the others were females or possible females. Three had died as young adults, three as mature adults, and one as an old adult. Colle’s fractures were found in five of the cases, three 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 vertebrae, and one young adult male with a Boxer’s fracture of the fifth metacarpal. Examples of trauma also include two subdural hemorrhages and one case of impoisyta ossificans on the posterior tibia. Male 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 periostem 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.

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TH6-13 Abstract 11

**LIVING ON THE EDGE:**

**Trauma Patterns in Medieval Vilnius (16-18th c.)**

**Author:**** PhD student Kozakaitė, Justina, Faculty of History, Vilnius University, Vilnius, Lithuania (Presenting author)**

**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 Liepiškės street (17-18th c.) – elite members of society, church of The Holy Trinity (17-18th c.) – clergy, Bellademes 7 street (16-17th c.) – Vilnius laymen, Mindaugas street (19th 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 (20.5%) had only one fracture, while 27 (6.8%) suffered more than one injury. Five cases were recorded as perimortem - no healing signs suggested an early death. Males correspond to the universal model which indicates their dependency to a “higher-rank” group: injured males consisted 75.2% of all injured individuals. The most common 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 of non-adults or adults younger than 18, Bellademes 7 street was more diverse with a higher percentage of adults and non-adults. One mature female was diagnosed with a Clay shoveller’s fracture of the 1st and 2nd thoracic vertebrae, and one young adult male with a Boxer’s fracture of the fifth metacarpal. Examples of trauma also include two subdural hemorrhages and one case of impoisyta ossificans on the posterior tibia. Male 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 periostem 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.

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TH6-13 Abstract 12

**Social welfare and health status of the Upper Lausitz - a Tormersdorf/ Toporów settlement case study**

**Author:**** PhD Szczerowski, Jacek, Wrocław University of Environmental and Life Sciences, Wrocław, Poland**

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**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 clash medical cultures or paradigms (monastic versus indigenous) 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.
IN HEAVEN AS IT IS ON EARTH: ARCHAEOLOGICAL TRACES OF MINORITIES AND RADICAL RELIGIOUS IDEAS WITHIN SOCIAL IDENTITIES IN THE MIDDLE AGES

Friday, 2 September 2016, 14:00-16:00
Faculty of Philology, Room SP2
Author - Garcia-Contreras Ruiz, Guillermo, University of Reading, Reading, United Kingdom (Presenting author)
Co-author(s) - Tejerizo, Carlos, Universidad del Pais Vasco, Vitoria, Spain
Keywords: Archaeology of religion, Minorities religious, Social identities
Presentation Preference - Regular session

Understood as a part of social identity of past societies, religion shall be contextualized in a historic and social frame that can explain this phenomenon in terms of complexity. Religion can be seen as part of macro-ideological discourses, such as the Crusades or Jihad, or as part of the relation between States and religious institutions, but also a form to shape social relationships within local communities and a form of political and ideological control among those who profess a different faith of the rulers.

The main aim will be to explore the possibilities and limits of archaeology to study religion as a social phenomenon in past societies and to shape its importance in different case studies within a long-term view. The session will discuss religion both in its importance as a state institution and as a social form of identification within local communities and minority religions, and also the conflicts derived from the contact of those spheres, as for example when internal transformations from radicalization of some groups within major religions are produced. The first groups were targeted by stigma and discrimination, especially when religious differences are correlated with other instances of social identity, such as ethnicity. The seconds have been agents of change at different times, causing not only cultural reforms, but also economic, political and social transformation. Both are needed to understand the role of religion as a part of social identity, and serve to understand the cultural complexity of the Middle Ages and beyond.

Which kind of material record is available for the study of these groups? What are the main differences of minorities and radical versus minorities beyond the cuts? How does religion reinforce their identities in relation to others? These are some of the questions we intend to address in this session.

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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

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 had 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-archaeological 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 still live in France allow to discuss the isolation or not of communities such as the Muslims or the Protestants in the funerary spaces. But it will important to analyze 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

Author - Bueno, Mami, Université Paris Est-Créteil, Paris, France (Presenting author)

Keywords: Archaeology, Ethnicity, Identity

Presentation Preference - Oral

In this paper I deal with the problems derived from adscription of archaeological site 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 Marmont Museum (Bordeaux) used in my PhD dissertation. I will pay special attention to concrete sites such as Miño de Medinaceli and Conquequeua. These sites reflect the different powers successively overlapped and the problems concerning the adscription of identity bearers in the complex Middle Frontier between 8th-11th centuries.

The settlement of Umayyad’s powers in the north-est of the Middle Frontier is a process quite well established tought 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 nomination of Abd – el Rhamman III (939) as Caliph, this area was rebuit and became the most active frontier with Christians 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 staff 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, Medinaçeli 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 Atienza 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 Arab mentality.

However, the new Muslims’ rulers 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 grant them a protected subordinate place in society through the status of mínim-s or protected people. The traces of these people are almost invisible, mainly rock-cut tombs sites. These ones are not associated with artifactual 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

Author - Toso, Alice, University of York, York, United Kingdom (Presenting author)

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) 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–12thC AD) and Silves (9th–13thC 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 unique influence of the Christian conquest onto the economy and lifestyle of the Christian minorities in southern Portugal as well as the shift 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.
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 1538, 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 archaeological 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/or 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.

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**TH6-14 Abstract 05**

**Archaeology of the Spanish Civil War:**

Is new data contributing to a deeper understanding?

Author - Dr. Perez-Juez, Amalia, Boston University, Madrid, Spain (Presenting author)

Co-author(s) - Dr. Morin, J., JUDENA, Madrid, Spain

Keywords: archaeology of conflict, Spanish civil war, trenches

Presentation Preference - Oral

Between 1936 and 1939, Spain was bled 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 Civil War viewed as partisan, biased, and provocative? Our paper will present the evolution of the research of the Spanish Civil War, beginning with our first excavations in 2000 and exploring other projects. It will also serve as a starting point for debating different approaches to archaeological research of recent conflicts, and will briefly compare the situation in Spain to other similar European and American cases.

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**TH6-14 Abstract 06**

**The Fact of the Mother Goddess**

Author - PhD Sozer Kolemanolu, Selma, Marmara university, Istanbul, Turkey (Presenting author)

Keywords: Religion, Art, Archaeology, Mythology, Philosophy

Presentation Preference - Poster

INTRODUCTION-PURPOSE: In this study, we show that the terminological context of the Mother Goddess idols are dealt in the context of mythology, art, archaeology, philosophy and religion. The connections of the effects of the idol wares which the antique individual (the figures) had left on their social structures, were found by means of exploration. The idol message is thought as symbolic evidence and its context is tried to be presented.

MATERIAL-METHOD: The typological phases of the Mother Goddess idol wares in the history of culture, as evidences made of different materials in various museums in Anatolia, were classified. Particularly, the wares which were taken out in the Neolithic period, was tried to be correlated with the archaeological narratives, the social events in the world conjuncture through philosophy, religion and mythological accumulation. The Mother Goddess wares were evaluated in compliance with the environment which they emerged in rules, principles and style as well as the social structure they addressed to. In describing the human being, we widely observe that he is connected with the mythological legends and holy scripture doctrines. FINDINGS: The role of the semantic integrities in the history of religions and their connections in the holy scriptures, may be needed to be examined.

We think that some critical scientific theories in art, religion and archaeology may have correlation with the idols. By taking the interpretations in the holy scriptures and the mythologies, their theses and antitheses were frequently compared. The fixed most important topic was that the observability of whether the abstract symbolic knowledge which is necessary in knowing humanbeing, the sociological ideas realized in the life environment by coming to know the nais. RESULT: We found out that the conquests which had been realized in different periods of the History of Humanity are hidden in the inner depth of human. The definition of the Pharaoh, idol (ego), icon was observed to be the abstract, emotional gap which made the life harder in the human structure. The concepts such as the Mother Goddess idols and Pharaoh are the explanations of this empty space as signs and symbols. This determination is that by scrutinizing the existence which bear critical meanings beyond time, there may be an explanation of the idol prescription of the history of humanity. It is seen that this prescription is the Noble Quran which constituted an important bridge between the past, which sheds light to the future which have been examined throughout the ages, with the future.
TH6-15

ARCHAEOLOGY FOR “CONVIVENCIA”, ARCHAEOLOGY AFTER SAINT DENIS

Thursday, 1 September 2016, 9:00-11:00
Faculty of History, Room 211

Author - Crisanto Boado, Felipe, Institute of Heritage Sciences (Inçıji, CSIC), Santiago De Compostela, Spain (Presenting author)
Co-author(s) - Rosserenbach, Salah, National Institute for Preventive Archaeological Research, France

Keywords: coexistence, multiculturalism, terrorism
Presentation Preference - Regular session

It was thought by the EAA Executive Board that, in my role of EAA president, a session should be proposed to discuss members' reactions about EAA politics as part of our strategic planning. When I was preparing this proposal, we were shocked by the 13-N terrorist attacks in Paris. Then I decided to change the focus of this “presidential” session to explore the contribution of Archaeology to promote “convivencia” among different communities in multicultural environments, an issue that also matters because it deeply relates to the practices that EAA should encourage. The term “convivencia” is used in Spanish because this was the concept developed in medieval Iberian Peninsula to denominate the coexistence, partially cooperative partly conflictual, of Jewish, Muslim and Christian communities (http://www.mpweberlin.mpg.de/workshops/an/Convivencia.html). “Convivencia” means more than living together, it is practicing coexistence between communities and actors in contexts of cultural heterogeneity. Critical accounts of “convivencia” should acknowledge that these actions do occur amidst conflicts and networks that are also crossed by asymmetrical relations of power. The other regard of this session is “Saint Denis”, an area that suffered the 13-N attacks, where the Unité d’archéologie has developed activity under the aim of using the archaeological foundations of the town to create a shared identity and neighborhood. Archaeology, because its relation to materiality, memory and identity, is useful to mediate in these conflicting contexts. It unveils dissent, creates basis for intersubjectivity, promotes dialog between agents and communities, and provides means for public and community activism.

Session aims to explore these capacities and reflect about contradictions inside these practices. We should both consider theoretical approaches and identify good examples of projects that could help to strengthen this application of Archaeology and be helped by our recognition. Cases studies can derive from any sort of cultural heterogeneity and communities interactions.

TH6-15 Abstract 01

Saint-Denis, Archaeology, territory and citizenship

Author - Director Rodrigues, Nicole, Unité d’archéologie de la ville de Saint-Denis, Saint-Denis, France (Presenting author)
Keywords: Archaeology, Citizenship, Territory
Presentation Preference - Oral

Saint-Denis, one of the major sites of French history is also a suburban town, an area that suffered the 13 November attacks, near the “Stade de France”, the symbol of the growth of the town of the 21st century. Here, the new constructions and urban development have erased the shape of the ancient town. More than 40 years of urban archaeology allowed us to gather data to understand the mechanism of urban growth from the beginning to present day. In order to place the research in a long term framework, in 1982, the municipality created the archaeological Unit. The Saint-Denis’ excavations have produced a vast mass of archaeological finds. Archaeology is a concrete discipline, perfectly suited for establish direct contact with general public. The outreach program, “Archaeology, territory and citizenship” is in progress since 1998. The goal of this project is to transform archaeological material into tools of understanding the territory. We are not using monumental remains but finds of daily life, experimental structure and local links, to cross both the know-how of past and present. This project, supported by the European projects, ACE and NEARCH is every time an experience, because the question of the inhabitants and the invisible towns of Saint-Denis is renewed.

TH6-15 Abstract 02

Deploying First Nations to live with Muslims. A Basque reflection on existence and coexistence

Author - Dr. Eschibar-Ruiz, Sergio, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain (Presenting author)
Co-author(s) - Adurizate, Agustín, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain

Keywords: Archaeology for “convivencia”
Presentation Preference - Oral

On 23rd October 2015 last, several unidentified persons threw rubbish in the mosque of Llodio (Araba). Several days later, a hooded person threatened and insulted those who were congregated inside. Nobody had experienced these kinds 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 people with whom we empathize and whom 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 restoring peaceful coexistence. 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 avoid the opportunity of debate offered by this session to reflect on the potential of the mediated 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

Author - Dr. Majewski, Teresa, Statistical Research, Inc., Tucson, United States of America (Presenting author)
Co-author(s) - Attouch, Jeffrey H, Statistical Research, Inc., Tucson, United States of America

Keywords: convivencia, cultural heritage, disciplinary heterogeneity
Presentation Preference - Oral

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 anthropologists, 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 share universal elements, convivencia is distinctly 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.

Keywords: Archaeology for “convivencia”
Uncovering convivencia from the dark depth of modernity: toward intercultural rights to heritage

**Author:** Orlando Barbian, Francesco, Castr Di Lece, 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 convivencia 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 conquist 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 colonic 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 unasailable with the right way of social relation, cultural practice or economic development. Heritage conservation emerged within the context of imagining the national communities and formulating 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 has 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 wheresoever 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.

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**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 Judaic Christian philosophy and its gift to the world. Anyone criticizing this apparent hegemonic ethic 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 ingrained 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 cooperation 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.

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**Keywords:** Archaeology, Perception, Science

**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 multietnic urban space. 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 through its Public policies of memory trying to do justice to the victims of the Franco's regime (1937-1978), of the terrorist group ETA (1954-2011) 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 Francoism at community centers... As a case study we will present the example of the district of Coronación, erected by the dictatorship in the early 50 to accommodate Spanish immigrants. Today Coronación welcomes much of the new Maghreb and sub-Saharan immigrants. The European Union is developing here 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.

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**Author:** Forrestal, Colin, Berkshire Archaeological Society, Wokingham, United Kingdom (Presenting author)

**Keywords:** Archaeology, Perception, Science

**Presentation Preference:** Oral

The Archaeology of science or what we owe to others

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 multietnic urban space. 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.

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**Author:** Orlando Barbano, Francesco, Castr Di Lece, 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 convivencia 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 conquist 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 colonic 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 theirs 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 unusable with the right way of social relation, cultural practice or economic development. Heritage conservation emerged within the context of imagining the national communities and formulating 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 has 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 wheresoever 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.
EXPERIMENTAL ARCHAEOLOGY: TECHNIQUES AND TECHNOLOGIES

Saturday, 3 September 2016, 14:00-18:30
Faculty of Philology, Room A/7
Author - Rimika, Virginija, Vilnius University, Vilnius, Lithuania (Presenting author)
Co-author(s) - Tomsa, Arūna, Latvian University, Riga, Latvia
Keywords: craft techniques, experimental archaeology, scientific research, education, tourism
Presentation Preference - Regular session

This session proposes presenting research of diverse aspects of experimental archaeology, prehistoric skills and techniques in the scientific research, various forms of education and its use in tourism industry. Main focus is on analysing various craft technologies, their development, and diffusion, as well as detecting ways of cultural interaction. All range of materials and items is welcomed.

TH6-16 Abstract 01
Testing twined clothing in Mesolithic
Author - Rimika, Virginija, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: experimental archaeology, Mesolithic, twined clothing
Presentation Preference - Oral

In 2018-2019, some experiments, testing possibilities of (re)constructing twined clothing, were held. They were based on a find from the middle-late Neolithic settlement of Šventoji 2B (Lithuania), dated back to ~4000-2900 BC. The found two specimens were made of lime bast. They were compared with other extant European twines of similar or close periods. Three pieces of rectangular shape were produced, in order to test some technical and functional questions.

In 2012, it was decided to come back to one of the objects, which had inspired some construction and wearing possibilities of the (re)constructed twined clothing. It was an engraving on the aurochs bone, depicting five anthropomorphic figures, which was found in Ryemarksrættur settlement (Denmark) and dated back to ~8000 BC. A set of photos, testing various variations of wearing the three pieces of clothing, was taken. There were tested more than 25 wearing possibilities, both male and female. Then it was tried to find out poses and actual pieces of clothing, which would best match the depicted figures. According to the congruous silhouette and constructional lines of the clothing, it was presumed, that most of the figures were a rectangular long cloth ("a cloak"), just in 3-4 different ways. Some of the figures possibly wore a shorter rectangular cloth ("a skirt") underneath. Repasting parallel lines of the depicted clothing clearly indicate twining, and actual qualities of the (re)constructed twines do confirm the indication. Thus, it is highly possible, that twined clothing was produced and worn by some Mesolithic communities, i.e. much earlier than the dates of the extant finds had allowed presuming.

TH6-16 Abstract 02
New experimental data for discussing bone and antler softening methods in the Stone Age
Author - MA Kuriga, Justyna, Institute of Archaeology, Nicolaus Copernicus University, Toruń, Poland (Presenting author)
Co-author(s) - PhD Daipozaczek, Grzegorz, Institute of Archaeology, Nicolaus Copernicus University, Toruń, Poland
Keywords: antler, bone, use wear analysis
Presentation Preference - Oral

During the speech results of the latest experimental works conducted at the Institute of Archaeology, Nicolaus Copernicus University shall be presented, aiming to see the most effective methods for softening bone raw materials. The subject of the research was both the ease of processing with the use of flint tools and the possibility to shape the material by bending. The aim of the experiments was to identify the method or methods that could have been used by prehistoric communities.

The experiments involved deer antler as well as bovine long bones and ribs. Seven methods most commonly referred to in the literature were subjected to testing, which include soaking in water, lactic acid, oxalic acid, urine, flux oil, lime and boiling in water. Additionally, an unsofterned raw material was subjected to processing as part of a comparative test. In the case of soaking-related methods, the samples were exposed to the substances for a 3-week period with regular monitoring of chemical changes occurring therein. Once every week the rate of softening in the raw materials was tested in order to specify their bending properties and their susceptibility to sawing with the use of flint flake.

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 areas or prove completely ineffective. In the course of the speech some of the current ideas regarding the discussed area of prehistoic economy shall be verified basing on the obtained data.

TH6-16 Abstract 03
Research, experimentation and outreach in the early Neolithic site of La Draga (Banyoles-Spain)
Author - Antoni, Palomo, Universitat Autonoma de Barcelona, Bellaterra, Spain (Presenting author)
Co-author(s) - Buch, Montserrat, Arqueoentz, Banyoles, Spain
Co-author(s) - Bargoll, Juan Anton, Universitat Autonoma de Barcelona, Bellaterra, Spain
Co-author(s) - Piqué, Raquel, Universitat Autonoma de Barcelona, Bellaterra, Spain
Co-author(s) - Terradas, Xavier, Institutio Mila Fontanel, CSIC, Barcelona, Spain
Keywords: Experimentation, Outreach
Presentation Preference - Oral

The exceptional preservation of organic material in the early Neolithic site of La Draga (Banyoles, North-east of Iberian Peninsula) has allowed undertake lines of research little developed previously in the region. The research project carried out at the site of La Draga involves experimental archaeology as a methodological tool in order to characterize the technological procedures and for testing the functional hypothosis of tools. Data drawn on these investigations are the foundation stone for the pedagogical project of La Draga, mainly based upon hands experience. These outreach activities are held in the Archaeological Park of the Neolithic Settlement of La Draga, where early farmers dwellings, tools and agricultural plots have been replicated following the results of the archaeological research. In this paper some examples of the interaction between experimental research, digital technologies and outreach activities are presented.

TH6-16 Abstract 04
Prehistoric drilling and bead manufacturing: Experimental approach and cognitive insight
Author - Dr. Gurova, Maria, National Institute of Archaeology with Museum, Bulgarian Academy of Sciences, Sofia, Bulgaria (Presenting author)
Keywords: drilling, experiments, prehistoric beads
Presentation Preference - Oral

Two categories of early Neolithic objects are recognized on the Balkans as having been involved in prehistoric drilling activities: beads and other decorative and prestigious items made of bone, shell, pottery and various minerals, and toolkits of flint micro-borers. This paper discusses experiments in drilling different materials undertaken with the aim of testing several practical issues. A series of flint micro-borers were produced and used for manual and mechanical drilling (with a pump drill). The toolkits (mainly prepared thin plates) of minerals and rocks, ranging in hardness (Mohs scale) from 3 (marble, limestone, calcite) to 6.5 (ammonite, nephrite). Biominerals were also used in the experiments: aragonite (shells) and apatite (bones). The initial attempts at bead production involved the manufacture of 16 delicate beads from 5 different materials using fine sand and water abrasion. Though not conclusive, the experimental work is instructive in many of the parameters, procedures and technical details of prehistoric drilling and bead manufacturing. The experience gained has led to a more holistic interpretation of archaeological drilling toolkits, as well as a better appreciation of the particular skills and know-how of the prehistoric jewellers.

TH6-16 Abstract 05
Aspects regarding the production of Eneolithic pottery based on an experimental archaeological study
Author - PhD Ignat, Theodor, National History Museum of Romania, Bucharest, Romania (Presenting author)
Co-author(s) - Opi, Vasile, National History Museum of Romania, Bucharest, Romania
Co-author(s) - Luc, Catalin, National History Museum of Romania, Bucharest, Romania
Keywords: Eneolithic, Experimental, Pottery
Presentation Preference - Oral

This paper discusses experiments in different materials undertaken with the aim of testing several practical issues. A series of flint micro-borers were produced and used for manual and mechanical drilling (with a pump drill). The toolkits (mainly prepared thin plates) of minerals and rocks, ranging in hardness (Mohs scale) from 3 (marble, limestone, calcite) to 6.5 (ammonite, nephrite). Biominerals were also used in the experiments: aragonite (shells) and apatite (bones). The initial attempts at bead production involved the manufacture of 16 delicate beads from 5 different materials using fine sand and water abrasion. Though not conclusive, the experimental work is instructive in many of the parameters, procedures and technical details of prehistoric drilling and bead manufacturing. The experience gained has led to a more holistic interpretation of archaeological drilling toolkits, as well as a better appreciation of the particular skills and know-how of the prehistoric jewellers.

Aspects regarding the production of Eneolithic pottery based on an experimental archaeological study
In this paper, we will present the results of five-year Experimental Archaeology Project on making Eneolithic pottery, based on our research in the Kolodzener–Gumrița–Karaonovile VI tell settlement from Subotna-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, coiling 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 local 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 pottery 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 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 - PI 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

Author – Dr. Krueger, Michal, Adam Mickiewicz University in Poznan, Poznan, Poland (Presenting author)
Co-author(s) - Bartkowiak, Marta, Adam Mickiewicz University in Poznan, Poznan, Poland
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 archaeometric 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 western 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 paint). 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 substances (silver, gold, Corinthis bronze) can be inlaid by damascene 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 discolouring of the surface, often green or brown. Architectural 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 them to the archaeological material. Initial results suggest 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 08
A Romano-British glass bracelet: rediscovering a technique

Author - Dr. Ilevea, Tatiana, Newcastle University, Newcastle upon Tyne, United Kingdom (Presenting author)
Keywords: glass bracelet, Roman Britain, technique
Presentation Preference - Oral

The paper will discuss the production technique of the seamless Romano-British glass bracelets that has been reconstructed by working with the modern glassmakers and through the close inspection of the British glass bracelet fragments. The production of the rigid annular objects composed of coloured glass in Britain is dated to the mid-first century AD, starting with the Roman invasion in AD 43. Prior to that, Britain had no history of glass bracelet’s production, yet the late Iron Age Continental glass bracelets have been alloted throughout Britain, albeit on a smaller scale. The close inspection of the fragments by the author had hinted at the possibility that the Roman-period British glass bracelets have been produced in the similar manner as some of the La Tène Continental bracelet types. This has been confirmed by the experiments conducted by the author with the experienced glassmaker, who specialises in making historical beads and pendants. Further experiments showed light on the production and application of the decorative features to bracelets. Most British annulars have either twisted cord decorations or trails with curved terminals. The common theoretical opinion is that cords and trails were marvered flash, e.g. by rolling a hot glass bracelet on a flat surface. This idea has been contested by the experiments, which indicated a simpler way of applying a decoration, further confirmed by the analysis of the fragments. The paper will present these findings and discuss how the experimental archaeology provides us with the clues about the points of interaction between craftsmen of Continental and British origin in the late Iron Age and Roman European Northwest.

TH6-16 Abstract 09
Teaching Experimental Archaeology at Vilnius University

Author - Rimkutė, Virginija, Vilnius University, Vilnius, Lithuania
Co-author(s) - Luchtanis, Aleksiaus, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: experimental archaeology, higher education, teaching
Presentation Preference - Oral

Vilnius University is the oldest institution of higher education in Lithuania, founded in 1579. Since 1940’s, the teaching of archaeology has started. At present, at the Department of Archaeology of the Faculty of History, the studies of archaeology are organized in three cycles: undergraduate, graduate and post-graduate. Teaching of experimental archaeology for students of archaeology was started more than ten years ago. Students get acquainted with some basics of experimental archaeology during the first year of their undergraduate studies. A full course of experimental archaeology (6 ECTS credits) is taught during the first year of archaeology graduate’s programme. The course consists of theory of experimental archaeology, discussions and numerous workshops. The workshops are lead by experimental archaeologists and ancient technology experts, in cooperation with craft and experimental archaeology organizations (workshop-galley “Amatu gildija”, workshop-living museum “Senųjų amatų dirbtuvės”, club for craft reconstruction “Dvaro meistrai”, archaeological and Historical Museum of Korytovo club “Pajauta”), as well as some museums (Archaeological and Historical Museum of Lithuania at Ramuškės). The studied periods vary from Stone Age to Late Middle Ages, so thus wide is the range of materials: bone/antler, flint, stone, fibres, plants, textiles, leather, food, non-ferrous metals, ceramics, etc. The course ends up with an original experimental project which contains a presentation of a particular committed experimental archaeological experiment. Application of the course vary each year, according to the interests of the students, and usually are related with their MA theses. Usually, this course is chosen by a group of 8-15 students.

As the result, students get both theoretical knowledge and some basic practical skills for using experimental archaeology as a research method in their MA theses or, later, in their doctoral dissertations. Also they use their skills at their work as ancient technologists and educators at living archaeology events and historical museums.
TH6-16 Abstract 10
Six years of experimental traseology at Klaipėda University: accomplishments and future prospects
Author - PhD Rimkus, Tomas, Institute of Baltic region History and archaeology, Klaipėda, Lithuania (Presenting author)
Keywords: Experimental archaeology, Stone Age, Early Bronze Age, Use-wear analysis
Presentation Preference - Oral

In Lithuanian archaeology experimental-traseology method currently is a very new 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 define 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
Author - Dr. Tomsons, Artūrs, Latvian National History museum, Riga, Latvia (Presenting author)
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 powerful tool in education of archaeology students and tourist.

TH6-16 Abstract 12
Microwear analysis on early medieval combs
Author - Pi, Nathalie, Vrij Universiteit Brussel, Gingelom, Belgium (Presenting author)
Co-author(s) - Tys, Dries, Vrij Universiteit Brussel, Brussels, Belgium
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 chronologically 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.
Keywords: experimental work, Middle Neolithic, single-chambered kiln
Presentation Preference - Poster

Among the wide variety of decoration techniques discovered at the Alba Iulia-Lumea Noua site (Transylvania, Romania), a specific painted decoration is in the present state of research the only technique that can be definitely attributed to 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 archaeometric analysis were made on a large number of samples, in order to extract all the informations regarding the technology that has been used to produce such painted decorations. Based on the material analysis, this paper represents 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 installation discovered in the painted pottery cultural areas that have evolved in the Transylvanian territory. We selected a single-chambered 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.

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TH6-16  Abstract 16

Flint awls: theory and practice

Author - PhD Student Slah, Gvidas, Klaipėda University, Klaipėda, Lithuania (Presenting author)

Keywords: Flint awls, Mesolithic and Neolithic, Trasology
Presentation Preference - Poster

It is known that flint awls are not a common phenomenon in Stone Age inventory. This material has not have a separate sub-group in East Baltic region so far. Nevertheless, there were carried out several classification works: experimental and methodological results in order to represent the data of this research. The material was collected from Lithuanian settlements of Stone Age, which is divided into mesolithic and neolithic time-period. In addition, there were made several copies of mentioned material and completed experiments by using different kinds of animals' skin: bison, deer, roe deer, beaver and mink. Skins and furs, experimental and methodological results were chosen according to fauna of Mesolithic period. However, mink is, also, a suitable example according to group of small mammals, for instance, martens. This is the evidence not only of fauna of that particular time-period, but, also, shows the thickness of different animals’ skin. Also, attention was paid to the functionality of flint awls utilization in different time-period according to technical and methodological results. The experimental works were tested by using flayed furs, which were direct, full of vegetal tannin and prepared skin. According to the data, it might be considered the effectiveness of flint material usage. Also, it has been established, which edges felt the biggest pressure during the process and which were worn out. After the research, it has been created the technological database, which are orientated to specifically one material analysis.

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TH6-16  Abstract 17

Expense vs. Effect: An analysis of selected variables that affect the production of cost surfaces

Author - Caswell, Edward, Durham University, Durham, United Kingdom (Presenting author)

Keywords: Cost Surface, GIS, Site Catchment analysis
Presentation Preference - Poster

Cost Surfaces Analysis has become a common, if sometimes controversial, 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, GRASS, 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, 184, 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-Sága, 2012). This poster will depicts results of analyses that build on those existing works by systematically exploring the differences in cost surfaces produced when varying: GIS package (ArcGIS and GRASS), 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 6 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.

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Herzog, I. 2013. ‘The potential and limits of optimal path analysis’, in Bevan and Lake (eds), Computational Approaches to Archaeological Spaces Vol. 60. Left Coast Press.


COMMITTEE ON PROFESSIONAL ASSOCIATIONS

Friday, 2 September 2016, 14:00-16:00
Faculty of Philology, Room K. Donelaičio

Author: Spencer, Mark, Saxion University, Amsterdam (Presenting author)
Co-author(s): - Wait, Gerald, 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 by the IAI via an easy-to-use CPD Record. 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 the 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 agenda necessitates engagement with two legislative frameworks as well as two curatorial bodies and a range of interested cross-border groups.

The archaeological profession in Ireland suffered a substantial setback during the recent economic recession. As the economic slump began to impact on the development sector, archaeologists were amongst the first in the chain of pre-development workers to feel the downturn, with loss of projects, employment and wage decreases. Since 2008, the IAI has consistently tried to maintain professional standards amongst our workforce by holding regular Continuous Professional Development (CPD) events which reflects our core principles. The Institute maintains that a vibrant and sustainable archaeological profession actively contributes to the protection of our rich archaeological resource, which in turn contributes to the social and economic well-being of the entire community, driving tourism, social cohesion and local pride. To achieve our aim and vision, we are committed to a range of long-term measures, one of which includes the facilitation of CPD for our members and for non-members. CPD activity is monitored annually by the IAI via an easy-to-use CPD Record.

Over the last year the IAI has:

- Produced and funded our regular annual Journal of Irish Archaeology and bi-annual newsletters Carried out a wide-reaching membership consultation on the direction of the Institute as the profession seeks to recover from recession impact
- Initiated an internal strategic three-year plan for the Institute
- Supported and been a key partner in the all-island Archaeology 2025 strategy review of the archaeology sector
- Represented our members views to government and public agencies
- In addition to our own Annual Conferences, the IAI held our 3rd annual Archaeofest heritage outreach event for the public
- Hosted and organised a variety of CPD events

TH6-17 Abstract 02

Professional archaeology without borders

Author: - Peter, Hinton, Chartered Institute of Archaeologists, Reading, United Kingdom (Presenting author)
Co-author(s): - Wait, Gerry, Chartered Institute of Archaeologists, Reading, United Kingdom

Keywords: Association, CIA, 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, CIAI hopes to be able to invite participants in this session to an informal reception at which stronger partnerships can be made.
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 European projection in this challenging time.

Because of the immediacy of the decision to hold this Round Table, we are still organizing its format and speakers. However, we want to stress that everyone is welcome and we hope that members will contribute actively to the discussion. The EAA must be flexible but prompt to address this situation and its specific requirements, and this also means we must be practical. We do not see 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 European projection in this challenging time.

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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 craftsmen. The same interdisciplinarity 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 ethnology (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 oysterculture farming in the Middle-East during the 1st millennium BCE.
- Technicians' (farmers') movement between the Middle-East and Egypt during the 5th millennium BCE.

The use of animals by political and religious powers and communities of craftsmen infuences during the Bronze Age using feline and bovine analysis.

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**GS Abstract 04**

**Natural factors in early metallurgical production in Egypt and southern Levant**

**Author:** MA Bakložnica, 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 special symbolic meaning.

Undoubtedly, 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 particular stages of production which depended on them will be presented.

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**GS Abstract 05**

**Mosaics of Ulpiana**

**Author:** Assoc. Prof. Dr. Getinkaya, 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 habitat which might be dated to 4th-5th centuries. But, it can not be ruled out that this material might have special symbolic meaning.

The site is well known in Slovenia and is renowned for its wealthy grave inventory, especially weapons and parts of Celtic uniaxial cart that were found in the graves. Investigations of the archaeological site began in 1948 when during building works for a new veterinary station some parts of weapons and late iron Age pottery were found. Later more graves were identified during various infrastructural ground works. In 1981 first methodological archaeological investigations of the site began under the supervision of Mila Guštin (first archaeologist curator in Posavski museum in Brežice). During 1982 he and his team excavated 58 graves. In 1997, another 10 graves were excavated west of the veterinary station. Until 2014 excavation all together 73 graves were identified in cemetery.

Archaeological excavations in 2014/2015 identified 37 new graves. All 37 of them were cremation graves (the same as 73 previously excavated). Only 9 graves were preserved intact, majority of them were partly or totally destroyed by modern interventions. 17 graves were just partly disturbed as all the grave goods were found in situ and others were preserved in fragments. Graves were simple burial pits, without constructions made from stone or wood. Burial pits contained different grave goods, such as: ceramic vessels, iron weapons, fibulae, glass beads, rings etc. Grave 36 contained parts of cart represented as crushed (during burial ritual) iron wheel allies. Chronologically, the graves can be dated in Middle and Late La Tene period (Lt C - D). Majority of metal artifacts are still undergoings conservation process, thus final chronological and typological evaluation and interpretation of excavated artifacts will be done after all the conservation works finished.

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**GS Abstract 06**

**Calculated Harmony**

**Author:** Richter, Éva, Budapest, Hungary (Presenting author)

**Keywords:** geometrical evolution system, pattern-family, plating, 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 plating basketry technique and has been surviving up to the present. The earliest motifs and religious symbols, such as chevron, checker board, mombo and the forms based on meander hook (meander and swirling) 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 plating 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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**GS Abstract 07**

**Celtic cart graves from Brežice**

**Author:** Murko, Mina, Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana, Slovenia (Presenting author)

**Co-author(s):** Bavec, Urška, Institute for the Protection of Cultural Heritage of Slovenia, Nova mest, Slovenia

**Co-author(s):** Nadadth, Barbara, Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana, Slovenia

**Co-author(s):** Carne, Miha, Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana, Slovenia

**Keywords:** Brežice (southen Slovenia), Celtic cart, late Iron Age cemetery

**Presentation Preference:** Poster

In the vicinity of city Brežice (southern Slovenia) Centre for the Protection of Cultural Heritage of Slovenia, Centre for Preventive archaeology is carrying out a large-scale archaeological project new Hydropower 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.

During the last third of 2014 and the first half of 2015, a part of late Iron Age cemetery had been excavated. Archeological excavations took place in the area of a previously known archaeological site of Brežice – Sejmišče (Fairgrounds).

The site is well known in Slovenia and is renowned for its wealthy grave inventory, especially weapons and parts of Celtic uniaxial cart that were found in the graves. Investigations of the archaeological site begun in 1948 when during building works for a new veterinary station some parts of weapons and late iron Age pottery were found. Later more graves were identified during various infrastructural ground works. In 1981 first methodological archaeological investigations of the site began under the supervision of Mila Guštin (first archaeologist curator in Posavski museum in Brežice). During 1982 he and his team excavated 58 graves. In 1997, another 10 graves were excavated west of the veterinary station. Until 2014 excavation all together 73 graves were identified in cemetery.

Archaeological excavations in 2014/2015 identified 37 new graves. All 37 of them were cremation graves (the same as 73 previously excavated). Only 9 graves were preserved intact, majority of them were partly or totally destroyed by modern interventions. 17 graves were just partly disturbed as all the grave goods were found in situ and others were preserved in fragments. Graves were simple burial pits, without constructions made from stone or wood. Burial pits contained different grave goods, such as: ceramic vessels, iron weapons, fibulae, glass beads, rings etc. Grave 36 contained parts of cart represented as crushed (during burial ritual) iron wheel allies. Chronologically, the graves can be dated in Middle and Late La Tene period (Lt C - D). Majority of metal artifacts are still undergoing conservation process, thus final chronological and typological evaluation and interpretation of excavated artifacts will be done after all the conservation works finished.