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

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22nd Annual Meeting of the EAA

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TH1 INTERPRETING THE ARCHAEOLOGICAL RECORD

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

This theme is inviting sessions dealing with technology, survey, typology, statistics, ethnoarchaeology, geoarchaeology and other scientific applications to the research of archaeological evidence and artefacts. It is also a call for papers that address new questions to the technological records now available to research. What is sought is a diachronic perspective that reflects new methods of decision-making in research strategies and our understanding of social agency in archaeology. This theme seeks to address our cognitive and post-processual reading of the past as a tool in defining 'artefact' and biography, and informing our creation of narratives.
TH1-01 Abstract 03

Spirit Birds at Neolithic Çatalhöyük

Author: Prof. Russell, Neresia, 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 involved mimetically through dance. Additionally, waterbirds, particularly in association with newborn human infants, may have mediated between human and spirit worlds. Although there is little indication that Çatalhöyük residents made much use of brightly colored feathers, bird wing deposits do attest to the importance of color symbolism at the site. Thus bird remains offer material evidence of aspects of Neolithic cosmology and ontology.

TH1-01 Abstract 04

The Human-Bird Interfaces in the Eneolithic period from Balkans

Author: Dr. Lazar, Catalin, National History Museum of Romania, Bucharest, Romania (Presenting author)
Co-author(s): Balasescu, Adrian, National History Museum of Romania, Bucharest, Romania
Keywords: Balkans, Birds, figurines, Eneolithic
Presentation Preference: Oral

The aim of this paper is to explore the complex interaction between humans and birds in the Kôljdaremen-Gumelniţa-Karanovo VI complexes (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, Vîlcanesti, Yunatata), in correlation with the zooarchaeological analyses, in order to identify the significance of avian species in the Eneolithic societies, both symbolically and economically. A special attention will be granted to some hybrid type of figurines that combines the anthropomorphic and zoomorphic elements of humans and birds because it reflects the best interface 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.

TH1-01 Abstract 05

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

Author: Profesora Lazari, Maria, Universidad de Cadiz, Cadiz, Spain (Presenting author)
Co-author(s): Ramos-Gil, Antonio, Universidad de Cadiz, Cadiz, Spain
Co-author(s): Gonzalez, Juan Luis, Universidad de Cadiz, Cadiz, Spain
Co-author(s): Malla, Manuel, Universidad de Cadiz, Cadiz, Spain
Co-author(s): Cruz, Maria Jose, 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, Cadiz), which represents the 99.94% of the total bird representations of postpalaeolithic rock paintings in the Iberian Peninsula. In 17 square meters of wall surface 962 pictograms are represented, of which 208 are sociocultural contexts of the East-Central European Gravettian, we show that owls are salient agents for Middle Upper Palaeolithic foragers which are thrown into these ecco-cultural constellations. The spatio-ecological and sociocultural conditions of human-owl interactions might therefore explain the popularity for materially representing owls in this context. The paper concludes by pondering on some implications for how we might interpret the 'foreign' ontology of Gravettian and Pavlovian people in East-Central Europe.

TH1-01 Abstract 06

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

Author: 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 artistic representations of birds are 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 Halstatt 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 elucidate how Dolenjska Halstatt experience and ideologieties. 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.

TH1-01 Abstract 07

“...no one was lucky enough to capture an ostrich...”: The sociocultural meaning of ostriches and eggs

Author: Dr. Gönster, Yvonne, Wuppertal, Germany (Presenting author)
Co-author(s): Dr. Hodos, Tamar, University of Bristol, Department of Archaeology and Anthropology, Bristol, United Kingdom
Co-author(s): Dr. Fletcher, Alexandra, The British Museum, Middle East Department, London, United Kingdom
Co-author(s): Dr. Caroline Cartwright, The British Museum, Department of Science, London, United Kingdom
Keywords: Iron Age, Mediterranean region, ostrich eggshells
Presentation Preference: Oral

As this quotation of Xenophon (Anabasis I, 5) suggests, ostriches were the ultimate free-ranging animal during the Iron Age (c. 1200-300 BC). Their Mediterranean habitats covered North Africa, Egypt, Anatolia and further west. Their cultural significance is already well documented in the Bronze Age. Egyptian and Libyan pre-Iron Age rock art depict ostrich hunts. The ostrich was connected to the Babylonian goddess Tiamat, and in Egyptian mythology Maat, goddess of truth and justice, wears an ostrich feather. Late paintings and inscriptions show offerings of feathers and eggs to various Egyptian Pharaohs, and numerous archaeological finds demonstrate that ostrich eggs were used as votive offerings in temples; ostrich eggs were also among the cargo of the Uluburun shipwreck. The shells were manufactured as amulets or beads for necklaces and earrings, or reworked into containers, flasks, cups and other vessels. During the Iron Age engraved or painted ostrich egg shells were a luxury item shared between many Mediterranean civilisations, from Asyria, Egypt, Greece, Ethiopia and beyond. Aside from noting them in funerary and dedicatory contexts, no research to date has sought to understand their trade mechanisms. Iron Age Asyrian iconography depicts ostriches as wild beasts conquered only by the king/hero, and ostrich bones are rarely found in excavated Iron Age sites. This suggests ostrich eggs were obtained from the wild, only achievable if nest sites are known. The quantity of surviving ostrich eggs suggests lively Iron Age Mediterranean-wide trade. Could that demand be met solely from wild acquisition? Realties of Asyrian lion hunts show that wild lions were penned and hunted stageloud. Could the reality of ostrich egg acquisition have involved captive birds rather than opportunistic retrieval? Did this luxury trade therefore...
stem from a managed environment? A pilot study conducted by myself and colleagues at the University of Bristol and the British Museum London has assessed where the eggshells originate from using a combination of SEM and isotopic analysis. Our results reveal the methods of their production and exchange, highlighting for the first time the detailed mechanisms of the Late Iron Age manufacture, trade and shared sense of value.

**TH1-01 Abstract 08**  
**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) dynasty, 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**  
**Symbolic side of human-bird interfaces**  
in the Late Iron Age (800-1200/1250 AD) Eastern Baltic  

**Author:** Kuriso, Tuukka, ZIBA/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 a 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 wing bones and claws. They have been interpreted as having to do with fertility, settlement sites, hearths, inhumation burials and cremation burials, which points to broad usage and multifaceted meanings. In this paper bird-related pendants are juxtaposed with folklore along with a comparison of species.

**TH1-01 Abstract 10**  
**Toward an Archaeo-Omniology of the Bering Sea Region**  

**Author:** Prof. Hill, Erica, University of Alaska Southeast, Juneau, United States of America (Presenting author)  
**Keywords:** Bering Sea, birds, human-animal relations  
**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 lions (sillers) and shorebirds. Human burials as early as the Chultan period (c. 400 CE), caches, masks, amulets, and ethnographic narratives indicate that select bird taxa mediated the human experience of coastal environments.

**TH1-01 Abstract 11**  
**Wild birds in medieval Italy:**  
an investigation of their roles in diet, environment and society  

**Author:** Dr. Albarella, Umberto, University of Sheffield, Sheffield, United Kingdom (Presenting author)  
**Co-author(s):** Corbino, Chiara, University of Sheffield, Sheffield, United Kingdom  
**Keywords:** medieval Italy, wild birds, zooarchaeology  
**Presentation Preference:** Oral

Wild birds are intrinsically associated with our perception of the Middle Ages. They often feature in heraldic designs, paintings, and books of hours; few human activities typify the medieval period as much as falconry. Almost obsessively portrayed in the famous Fayencemaster tapestry depicting the Norman victory at the Battle of Hastings (1066), this falconry has an especially prominent role in the Italian Middle Ages, not in small part due to the famous book by the Emperor Frederick II, which remains an important source of information on the subject. Prominent in medieval iconography, wild birds feature less frequently in written sources (as they were rarely a subject of trade transactions or legal documents) but can be abundant in archaeological deposits. The effect is somewhat underestimated and this paper aims to contribute filling this knowledge gap by highlighting the nature of wild bird exploitation in Italian medieval societies, ranging from their role as food items to their ritual, status and symbolic importance. A survey of about 20 Italian medieval sites, dated from the 5th to the 15th centuries, reveals the occurrence of more than 100 species (certainly an underestimate of the real original number). Considerations on the habitats and behaviours of the identified bird species, coupled with parallel information from historical sources, help our understanding of the role they played in medieval societies. Though some species were almost certainly hunted for food, as revealed by butchery marks on bones, others were more likely to have produced feathers or acted as hunting companions and status symbols. The paper will also contrast urban and rural evidence and investigate any apparent diachronic change.

**TH1-01 Abstract 12**  
**Avian-Human Interactions in North Atlantic Island Environments:**  
Modes & meanings of bird capture  

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

**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)  
**Co-author(s):** Faider, Michael, Bournemouth University, Bournemouth, United Kingdom  
**Keywords:** Human-bird interactions, Material culture, Zioarchaeology  
**Presentation Preference:** Oral

Birds form an important part of human society, culture and subsistence both now and in the past. Combining analysis of faunal remains and material culture at archaeological sites, this paper examines attitudes towards birds between the Bronze Age...
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 Sologeota, Idoia, The University of Sheffield, Sheffield, United Kingdom
Co-author(s) - Dr. Corbonis, Chiara, The University of Sheffield, Sheffield, United Kingdom

Keywords: Britain, Duck, Goose

Presentation Preference - Oral

Goose 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 a number of times 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. However, the advent of techniques such as stable isotope analysis and the use of eggshell samples from domestic and ritual contexts for example of diet and use of birds and its symbolic role in the Roman Culture.

This paper discusses the changing use of these birds from the early Roman period until the postmedieval period in Britain by comparing 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 post-doctoral projects and one PhD project at the University of Sheffield.

Food for the Dead or Symbol of Rebirth?

Culinary offerings and incubated eggs from a Roman cemetery

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

Keywords: antiquity, archaeozoology, eggshell

Presentation Preference - Oral

The late Roman site of Oster-Olm provides a fascinating example of 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 funerary.

Yet, not all faunal remains could be interpreted that easily as food. This was particularly the case for two goose eggs found in a woman’s grave. Because it was assumed that the egg’s function is closely connected to the state in which they were placed inside the burial – originally fresh eggs rather served as meal, incubated remains possibly had a symbolic, eg. (re)birth related significance – they were more closely analyzed. Slight differences of an eggshell’s microstructure can provide evidence of its potentially incubated state. These modifications result from the avian embryo resorbing calcium from the shell to form its skeleton. However, although the recovered eggs of Oster-Olm showed signs that could indicate incubation, these alterations were not uniform for all eggs neither did they form a distinct pattern of incubated and not-incubated spots. This could possibly have a taphonomic origin. It is for this reason that we’re now conducting experiments with unfertilized eggs. Due to better excavation techniques eggshell is also increasingly discovered on other archaeological sites. A deeper understanding of the taphonomic processes influencing their microstructure is vitally important in order to distinguish between the shells of hatched birds and eggs that served as food.

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

Author - Dr. Iborra Eres, María Pía, ICBR CulturArts Generalitat, 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 the 6th-century BC. Iberian society was highly urbanised and socially stratified (Bonet and Mata 2009; Ruiz 2000; 2003; Ruiz and Molinos 1988). 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 smaller settlements were set, and, depending on their size, are categorised as small towns, hamlets, farms, hillforts or military establishments. Ritual sites, mainly sanctuaries and cemeteries, have also been found (Grau 2002; Ruiz 1996; 2000; Vives 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), partridge (Alectoris rufa), golden eagle (Aquila chrysaetos), goshawk (Gypusu fulvius), mallard (Anas platyrhynchos), little bustard (Tetrax tetrix), pheasant (Columba livia), little owl (Athene noctua), barn owl (Tyto alba), Eagle owl (Bubo bubo), white stork (Ciconia ciconia), gull (Larus sp.) and Cory’s shearwater (Calonectris diomedea). Some birds are hunted and the bones used to create musical instruments (Iborra 2004; Iborra and Pizaro Jordà 2013; Iborra, 2016; Candelas, 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 depicting and use of birds and its symbolic role in the Iberian Culture.
Interpreting the Archaeological Record

Petrification: a concrete comprehensive diachronic concept

Social relations and practices.

whether parallel developments can be observed: in the natural environment in different spheres of material culture and in aspects of trans-generational or 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 ‘simultaneity of the non-simultaneous’, thus leading to social tension? Moreover, how adaptable can change and how resilient is a highly petrified society? Are there turning points or ‘points of no return’ within processes of petrification?

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.

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

The hardness and the eternal:

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 session like this – attempting to ignore the barriers between epochs and to a certain extent time itself – will at the same time be a challenge and a chance. 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 ‘equilibration’; it will be the topic of a follow-up session.

The approach has a further dimension when applied to past research: To which extent do the preserved ‘petrified’ monuments represent the whole system and lifestyle community. Many other aspects survived into the so-called ‘Middle-Neolithic’ period. This lecture wants to address the question, if changes in culture-historical archaeology to post-processualism and from spatial to cultural and other turns to current scientifically driven material culture. So this introductory talk addresses notions of time, change and material culture: From traditional culture-historical archaeology to post-processualism and from spatial to cultural and other turns to current scientifically driven 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 currently scientifically driven archaeology. As archaeologists need to connect the material culture we study to notions of transformation and development. How can we conceptualise periods of stability or ‘equilibrium’ vs. periods of change or break-up? How do we conceptualise periods or 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 presence/absence of less durable materials as used in the production of figurines and statues. The use of different materials can also suggest different attention was paid in setting figurines in connection with concepts like durability and social transmission of messages.

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.

**Keywords:**

- Archaeology
- Prehistory
- Sculpture

**Author:**

Diaz-Guardamino, Marta, University of Southampton, Southampton, United Kingdom (Presenting author)

**Presentation Preference:**

Oral

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**TH1-02 Abstract 06**

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

**Author:**

Díaz-Guardamino, Marta, 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 statues 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 iconicographic standardization, the long-term crafting of these sculptural traditions and, ultimately, the social reproduction of the communities associated with them. This paper will address these issues while also taking into account the variability and constant changeability of these stones, their workings within short-term temporalities and cultural interactions.

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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:**

Kristiansen, Kristian, University of Gothenburg, Göteborg, Sweden (Presenting author)

**Presentation Preference:**

Oral

We are now finally in a position where migrations can be documented rather than debated. This has lifted an interpretative burden from archaeology, in much the same way as C14 dating did when it was introduced. The new freedom can instead be invested in properly theorizing and interpreting local processes of migration, integration and assimilation, which has been an underdeveloped field of research. By integrating recent results from archaeology, isotopic tracing and historical linguistics this will in turn allow us to formulate better-founded models for the interaction of intruding and settled 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:**

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 deliberate and fortuitous processes from pits and postholes, wear patterns and structural remains. In this way, the creating, shaping and sheltering of prehistoric life can be traced, as well as any changes in architectural practice.

The proposed paper will focus on such changes, specifically from fluid to more solid concepts of later prehistoric architectures, described in this section 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 about them. For forms seem, 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 of the Neolithic through to the 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:**

Mlekuz, 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 Latoru’s difference between complex and complicated societies. Complexity in this context mean that society is performed only through bodies, using social skills and social strategies. Society is performed ex nihilo at every social encounter, every face-to-face interaction. The society can disappear if not performed. Nothing stays and stabilises it. Stable societies emerge only when additional, material resources are mobilized. Material resources can be used to mobilize new temporalities of social form. They permit the shift of social life away from complexity to what Strum and Latoru 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, karstic stone landscape in in western Slovenia, I want to explore how the use of landscape features, use of stone, manipulation of landscape texture and building of landscape structures has “petrified”, stabilised and structured specific social relations. I will explore the relations between landscape and social order, focus on questions of inertia and long term stability, but also change, resistance and creative improvisation in such landscapes.

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**TH1-02 Abstract 10**

**Prehistoric dry-stone structures at high-altitude in the Alps:**

**social, economic and cultural drivers**

**Author:**

Carrer, Francesco, Newcastle University, Newcastle upon Tyne, United Kingdom (Presenting author)

**Co-author(s):**

- Walsh, Kevin, University of York, York, United Kingdom
- 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 pastoral structures within an environmental framework comprising woodlands, pastures, streams and peaks. Huts are exploited by the herders for different types of activities, corrals and byres are used to stab the animals, and cellars for cheese-making. 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’ environment? In this paper the origin of dry-stone pastoral structures in the Alps will be investigated. The available archaeological data will be revised, to assess the chronology of their diffusion and to find structural similarities that might mirror functional and cultural aspects. Insights from recent ethnoarchaeological investigations will enabled the role of these structures within the upland landscapes to be inferred.

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

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

Keywords: archaeology of urban centres, Greek colonization, urbanism

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

Keywords: material culture, mobility, play

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. Maltby, 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...
**TH1-03 Abstract 03**

**Londoners at play: an archaeological exploration of Medieval and early modern bear-baiting**

**Author:** Dr. O’Regan, Hannah, University of Nottingham, Nottingham, United Kingdom (Presenting author)

**Keywords:** bear-baiting, blood sports, London

**Presentation Preference:** Oral

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

**TH1-03 Abstract 04**

**King Louis XIII’s real tennis court at Versailles**

**Author:** Dufour, Jean-Yves, INRAP, Villamomble, France (Presenting author)

**Keywords:** game, tennis court, Versailles

**Presentation Preference:** Oral

This paper gives an account of some of the archaeological discoveries made in the courtyard of the Great Commons of the chateau, where the Kings’ real tennis court (la paume) was excavated. The architectural project was the work of Philibert Le Roy, architect to the King. Architectural features of Louis XIII’s tennis court are described, and compared with textual data. Three of the four inner walls are bordered by covered galleries for public enjoying the game. The shape given to the room for the paume game has allowed historians to propose two hypotheses for the mediaeval origins of the game. It may have originated in the four inner walls are bordered by covered galleries for public enjoying the game. The shape given to the room for the paume game has allowed historians to propose two hypotheses for the mediaeval origins of the game. It may have originated in the four inner walls are bordered by covered galleries for public enjoying the game. The shape given to the room for the paume game has allowed historians to propose two hypotheses for the mediaeval origins of the game. It may have originated in

**TH1-03 Abstract 05**

**Ludic space in the late Middle Ages cities on the south Baltic coast**

**Author:** Dr. Romanowicz, Paulina, Center for Medieval Archaeology of the Baltic Region IAE PAS, Szczecin, Poland (Presenting author)

**Keywords:** amusement, space, toys

**Presentation Preference:** Oral

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

**TH1-03 Abstract 06**

**Whose game is it anyway? Mobility, cultural transfer and board games**

**Author:** Hall, Mark, Comharke nan Eilean Sear, Isle of Benbecula, United Kingdom (Presenting author)

**Keywords:** cultural transfer, mobility, play

**Presentation Preference:** Oral

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

**TH1-03 Abstract 07**

**The Mystery of the Shield-Biting Warders**

**Author:** Teichert, Matthias, Goettingen University, Goettingen, Germany (Presenting author)

**Keywords:** cultural transfer, mobility, play

**Presentation Preference:** Oral

The first object of this paper is to detect the route by which the game of chess entered Scandinavia and to roughly determine the timeframe in which this spreading process took place. Drawing on theories put forward by ethnologist 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 tiltefall interacted in order to produce such marvellous artifacts like the Lewis Chessmen.

**TH1-03 Abstract 08**

**The attraction of the exotic - Whalebone gaming pieces from early medieval Scandinavia**

**Author:** PhD student Henrikus, Andreas, Uppsala University, Uppsala, Sweden (Presenting author)

**Co-authors:** Gustavsson, Rudolf, SAU, Societas Archaeologica Upsaliensis, Uppsala, Sweden

**Keywords:** gaming pieces, raw material, resource colonisation

**Presentation Preference:** Oral

Like other forms of play they allow the individual to perceive their existence through performance, through combining physical, sensory enactions with mental agility and strategic thinking. At their most successful they can produce a feeling of flow. Reflectively they allow an escape from the world as a means of re-defining it (including re-locating the individual within it). Board games speak to the mobility of people – physically, intellectually and spiritually. They help to reify and crystallize 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!
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 and examination of questions of chronology, typology, and distribution. Gaming pieces can be made from a wide variety of exclusive or eye-catching materials, such as glass, amber, ivory, walrus tusk and horse teeth. Most commonly, however, gaming pieces are described as being made of unspecified bone or antler. Recently conducted studies have 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 artifacts bears witness to developed international trading networks in Northern Europe, already during early medieval times.

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

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

Author - master Stempin, Agnieszka, 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 chronicle: 1415-1460), this place is considered to be the oldest part of this town. From the year 1598 on through the period of 10 consecutive years: archeological works were carried out on some other parts of the Hill. On October 9, 1962 in the south-western corner of the homestead some unique find was uncovered, namely, an almost complete set of chess with only three pawns missing, made of antlers in the Arabic style, now known as “The Chess of Sandomierz”.

This is definitely not only one of the most interesting discoveries of the Early Middle Ages chess pieces on the territory of Poland but also one of the most remarkable ones of the territory of the Early Middle Ages Europe. The area then examined, not widened due to the requirement of finishing the works, allowed to determine the place of the discovery as a small, modest half undug. 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 a source of many hypotheses and speculations on the reasons of finding the figures on such an unexpected site. The hut being the only dwelling place in this area did not belong to any settlement and was a phenomenon of its own difficult to be interpreted. It was supposed to be a poor half undiscovered of a small size in which two almost complete sets of chess figures from the Early Middle Ages were found. For over half a century the site of discovering the chess was not researched archeologically. Undertaking the verifying works in the year 2014 was connected with the willingness to recognize a wider scope of the problem of chronology and the space relations of the stand no 7 and to determine the context of the appearance of the Chess of Sandomierz in this area. During the two research seasons (2014-2015) many artifacts connected with the elite culture were registered within the area the hut occupied. The exclusive character of the items uncovered both in the hut with the chess and its neighbourhood seems to confirm the above mentioned interpretation of this context as a residence like a manor house rather than an ordinary dwelling place. The discovery of a vast homestead or a manor house which was burnt down around the mid-13th century and which might have been the seat of the local elite was very surprising. This offers a new opportunity of interpreting the mysterious presence of The Chess of Sandomierz in this place.

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

Author - Wolało, 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 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 on their multidisciplinary physical characteristics, but also on their archaeological context and in the current knowledge about medieval games.
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.

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

In this paper, we mainly focus on sites from southern Italy (Puglia, Calabria and Sicily) in comparison with other sites from Italian territory and from wider Mediterranean and Alpine contexts, to discuss the insight of human creativity and perception and to evaluate human mobility dynamics in relationship with their potential ethnic identity, the raising of new creativity and the ways of making material imagination.

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

Author - Templier, Michæl, Neuchâtel University, Enges, Switzerland (Presenting author)
Keywords: Mesolithic, Neolithic, Transition
Presentation Preference - Oral

Archeology 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 archeological 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 archeology 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 extend 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, I 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 Aegean and Adriatic Basins. Sicily and the Balkans, from which we can glean an insight into the highly complex human behaviour and response, when faced with the phenomenon.

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

Author - Tarasov, Alexey, INP KRRC of RAS / ILM KRRC of RAS, Petrozavodsk, Russian Federation (Presenting author)
Co-author(s) - Manninen, Mikael, University of Oulu, Museum of Cultural History, Department of Archaeology, Oulu, Norway
Co-author(s) - Hakkilä, Pasi, University of Helsinki, Department of Geosciences and Geography, Helsinki, Finland
Co-author(s) - Mattila, Niko, National Board of Antiquities, Archaeological Field Services, Helsinki, Finland
Co-author(s) - Savolainen, Petri, National Board of Antiquities, Archaeological Field Services, Helsinki, Finland
Co-author(s) - Zobkov, Mikhail, Institute of Northern Water Problems, Karelian Research Centre of RAS, Petrozavodsk, Russian Federation
Co-author(s) - Petiashvili, Maxim, Institute of Northern Water Problems, Karelian Research Centre of RAS, Petrozavodsk, Russian Federation
Keywords: Eastern Fennoscandinavia, Finland, Karelia, Lake Onega, Idiite, contacts, Preboreal, colonization
Presentation Preference - Oral

Since the discovery of a row of Late Preboreal sites in Finland and the Ladoga Lake area during the last two decades, up to this moment the Lake Onega region and other eastern and northern parts of Karelia remained a “white spot” on the map of the earliest human colonization of Eastern Fennoscandia. The Late Preboreal habitation close to Lake Onega could be suspected, but was not supported by solid evidence. This evidence was obtained in 2015 after dating a number of calcined animal bones from Mesolithic sites located on the highest hypsometric positions on the northern shore of the Onega Lake. Two of the dates testify human presence in this area in the Late Preboreal and at the turn from the Preboreal to the Boreal period. These dates, as well as palaeogeographical data, confirm that the Lake Onega area was also included in the early migrational processes in Eastern Fennoscandia.

Recent finds from the earliest Mesolithic site in Finland – Jokivarsi 1, which is located some 250 kilometers west of the western shore of Lake Onega, reveal one interesting aspect of the earliest colonization of the region. The excavation assemblage contains artefacts made of a rock most closely resembling Idiite – a low grade metamorphosed siliceous sedimentary rock. In northeastern Europe deposits of this rare rock type can be found only on the north-western shores of Lake Onega in Russia. Investigation of these samples with the aid of a variety of petrological laboratory methods suggests an origin of this material in the Lake Onega Idiite deposits. Maintenance of contacts between the first colonizers of Eastern Fennoscandia with the southern core areas is evidenced by the presence of first artifacts in the majority of the earliest sites, and this aspect has already pointed out by many researchers. Our new findings show that resources of the recently inhabited territories were also involved in the flow of materials within the appearing interaction networks.

The paper was prepared with the support of the Russian Scientific Fund (grant 14-17-00766) and the North Karelia Fund of the Finnish Cultural Foundation.

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

Author - Dr. Hofmann, Daniela, Hamburg University, Hamburg, Germany (Presenting author)
Keywords: LBK, migration, Neolithic
Presentation Preference - Oral

Archaeogenetic evidence has now established the importance of large-scale population movements in the spread of the central European Linearbandkeramik culture, while continued individual mobility (in terms of patrilocality after marriage, or perhaps more important) has been suggested by isotopic analyses. What has not yet been fully explored is the possible continued importance of group mobility and migration after the initial phase of expansion. This paper argues that this is the case and that the one-off event, movements of larger groups continued to be practiced. As a longer-term cultural behaviour, these migration events had a lasting impact on social and political structures, seeking to counter-balance rigid models of lineage status argued on the basis of isotopic evidence.

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

Author - Semmoto, Masaou, Ancient Orient Museum, Izehara, Japan (Presenting author)
Keywords: Bulgaria, Early Bronze Age, Pottery with cord decoration
Presentation Preference - Oral

Pottery with cord decoration dated into the late 4th millennium BC to the 3rd millennium BC from the southeastern Europe has been regarded as one of the most representative components of Yamnaya cultural block, which was formed in the North Pontic-Caspian area (Mallory 1991, Harrison and Heyd 2007). While this kind of statements have been often made in terms of topics of
We use the gallery grave at Torpånestorps as a model site for investigation of mobility. Here the individuals analysed all date to around 1800 BC cal, the second half of the Late Neolithic period in Scandinavia. However, the megalithic graves have been used for successive burials over a long time and even though the skeletal remains are fairly well preserved, the burials over a long time made way for new burials and the bone material is often fragmented. The aDNA analyses can in this case be important for sex determinations that coupled to isotopic results can be used for discussing mobility patterns.

Using the combined knowledge gained from archaeology, isotopic analysis and ancient genomes we can address questions of migration and mobility in the Late Scandinavian Neolithic.

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TH1-04 Abstract 08
Adriatic Seafarers. Mobility and Social Practices at the End of the 3rd Millennium BCE

Author: Dr. Gorl, Maija, University of Heidelberg, Heidelberg, Germany (Presenting author)
Co-author(s): Recchia, Giulia, University of Poggio, Foggia, Italy
Keywords: Adriatic, Early Bronze Age, Mobility
Presentation Preference: Oral

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

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TH1-04 Abstract 09
(Invisible) traces of the exogamous mobility in Late Bronze Age?

Interpreting Unfeld 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 cemeteries (Be D - Ha A) 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 contained only certain deceased members of the Early 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 Slovakia, could also be in part interpreted as testimonies to the burial practices from Late Bronze Age communities. Cemeteries from Northern Carpathian area are in this period on the other hand very 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 Lubljana (Slovenia) can be found in the objects (specially urns) from distant archaeological sites, pertaining to Pliny and Suco 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 use 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 Lubljana 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 Unfeld 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 their reflection directions of the migration of individuals or smaller groups. Which were the motives and mechanisms for these intensive contacts in this particular period? How can we interpret this archaeological data – as traces of an exogamous mobility of women in Late Bronze Age?
TH1-04 Abstract 10
Greek Migration along the Ionian Coastline (Southern Italy)

Author: PhD Student Crudo, Maurizio, University of Groningen, Roma, Italy (Presenting author)
Co-author(s): Jacobse, Jan Kindberg, Ny Carlsberg Glyptotek, Copenhagen, Denmark
Co-author(s): Mitica, Giorgia Paola, University of Groningen, Groningen, Netherlands
Co-author(s): Saksjæger, Sine Grohe, The Danish Institute in Rome, Roma, Italy
Keywords: Cultural Encounters, Greek Colonization, Pottery
Presentation Preference: Oral

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

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

From the end of the 9th century BC onwards, an Eubean presence is detectable in the western Mediterranean, including Northern Africa, Spain and Italy. The Euboeans settled in the Sibaritide, where Greek-indigenous coexistence emerged in the settlement of Timpe on the slopes of Monte Massella 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 ofknowhow and techniques within textile and pottery production, including anthropological as well as archaeometric analyses, the present paper seeks to shed light on the possibilities and limitations of these methods for identifying migration in the archaeological record.

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

Author: PhD candidate Rautanen, Anna, La Trobe University, Northcote, Australia (Presenting author)
Co-author(s): Tyxel, Robert, University of South Florida, Tampa, United States of America
Co-author(s): Vianello, Andrea, Independent Researcher, London, United Kingdom
Keywords: archaeometry, contacts, Iron Age
Presentation Preference: Oral

This study attempts to identify and analyse processes of cultural transformation in south-eastern Sicily when indigenous populations came into contact with ancient Greek settlers during the eighth and the seventh centuries B.C. Historically, it is a crucial moment for Sicily because it initiated an irreversible process of modification of the original indigenous culture. This event brought profound and significant changes to the material culture of the indigenous communities. Earlier studies explain this revolution in material culture as the result of “Hellenisation”, a seemingly one-way process of adopting the “superior” Greek culture, with little influence traveling in the opposite direction. However, recent socio-anthropological studies claim that such cultural interactions are more complex and can incorporate not only a two-way process but also enable the maintenance of distinct cultural and ethnic identities through the careful selection of cultural features. In order to develop more comprehensive models of cultural contacts and the relationships established between indigenous Sicilians and Greek during the eighth and seventh centuries BC we will present the first results of the zooarchaeological analysis of several neolithic settlements located in the upper part of the Rhone Valley in Switzerland and in the Northern French Alps and dated between 5500 and 2209 cal BC.

This poster will present the first results of the zooarchaeological analysis of several Neolithic settlements located in the upper part of the Rhone Valley in Switzerland and in the Northern French Alps and dated between 5500 and 2209 cal BC. The study of the bone remains shows that domestic animals, especially caprines are predominant in the swiss region examined here, even at the beginning of the Neolithic, while in the Northern French Alps, wild game appears to be more hunted.

Taking into account the long term occupation of some settlements, animal production and herd management are explored to define the subsistence strategies of these neolithic communities and the possible movement of the herds to seasonal pastures. Through a comparison of these two regions, we try to gain a better understanding of the territorial and economic organisation of these alpine communities.

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

Author: Bobiia, Bogdan, County Museum of History and Archaeology Maramures, Baia Mare, Romania (Presenting author)
Co-author(s): Balbas, Cristian C., 1st December 1918 University, Alba Iulia, Romania
Keywords: mountain passage, paleolithic, post Roman, trade route
Presentation Preference: Poster

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

TH1-04 Abstract 13
Origin and Development of Balbals Stelae

Author: MA Janik, Pawel, Antiquity of Southeastern Europe Research Centre University of Warsaw, Legio, Poland (Presenting author)
Keywords: Kurgan, Nomads, Stele
Presentation Preference: Poster

Kurgan stelae, also know as balbas (Russian: каменные бабы, Polish baby kamienie; Kyrgyz: жашкыны жашкалык) are anthropomorphic stone statues or slabs set atop, within or around kurgans (barrows/tumuli), in kurgan cemeteries or special sacred zones on the territory of the Eurasian Great Steppe and surrounding areas. This custom is in practice from the Eneolithic to almost Modern Times. The term balbal came from a turcic word meaning “ancestor” or “grandfather”. The earlier examples of these statues are associated with Sredny Stog and Yamna (Pit Grave) cultures and dated to the 4th millennium BC. Although this custom existed incessantly on many various territories from the Eneolithic to Modern Times, however it was extremely popular in the steppe 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 stelae were very popular. Balbals commonly depict warriors holding weapons and drinking horns or bowls. There might also depict so many other items like belts and tools. Probably from balbals may derives other kinds of stelae, for example: deer stones, Bakhtiari lion tombs stones and stone rams and horses from Azerbaijan.

The purpose of my poster is the introduction to evolution and development of kurgan stele and show differentiation this kind of art form and place them in the investigative methodology of balbas.
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)

**Co-author(s):** Attema, P.A.J., University of Groningen, Groningen, Netherlands

**Co-author(s):** Van Gorp, W., University of Groningen, Groningen, Netherlands

**Co-author(s):** Sevink, J., University of Groningen, Groningen, Netherlands

**Co-author(s):** Attema, P.A.J., University of Groningen, Groningen, Netherlands

**Co-author(s):** Van Gorp, W., University of Groningen, Groningen, Netherlands

**Keywords:** Avellino, Vesuvius, Italian Bronze Age, landscape reconstruction, palaeoecology, geology, archaeology

**Presentation Preference - Poster**

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

**TH1-04 Abstract 15**

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)

**Co-author(s):** Attema, P.A.J., University of Groningen, Groningen, Netherlands

**Co-author(s):** Van Gorp, W., University of Groningen, Groningen, Netherlands

**Co-author(s):** Sevink, J., University of Groningen, Groningen, Netherlands

**Co-author(s):** Van Gorp, W., University of Groningen, Groningen, Netherlands

**Co-author(s):** Attema, P.A.J., University of Groningen, Groningen, Netherlands

**Co-author(s):** Van Gorp, W., University of Groningen, Groningen, Netherlands

**Keywords:** Avellino, Vesuvius, Italian Bronze Age, landscape reconstruction, palaeoecology, geology, archaeology

**Presentation Preference - Poster**

Maloyudashchevo 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 Kraskovko burial ground of Yamnaya (Pit-grave) culture the joint burials of Sintashta period with ceramics with bronze brackets 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.

**TH1-04 Abstract 16**

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

**Author:** PhD Evgenyev, Andrey, Orenburg State Pedagogical University, Orenburg, Russian Federation (Presenting author)

**Keywords:** Late Bronze Age, Potapovka culture, Sintashta period

**Presentation Preference - Poster**

One of the most controversial problems of the boundary of the Late Bronze Age archaeology is interaction of the population during the Sintashta period. Sintashta culture was allocated on the monuments of South Ural (Chelyabinsk region), and the most well-studied in this region. The settlements (Arkaim, Sintashta, Ustye I, Kameny Ambar, Kuyask, etc.) and burial grounds (Sintashta, Krivoe Ozero, Kameny Ambar, Stepnne VIII, Bolshoe Karakarinsky etc.) are investigated here. In the steppes of the Southern Pre-Ural area (Orenburg region) monuments of Sintashta period are few. Meanwhile, the region is of interest in connection with a problem of population migrations, especially of interaction between Sintashta and Potapovka cultures. In 1970s-1980s Sintashta complexes were investigated in the burial grounds of New Kumak, Ishkinovka II, Gerashinovka 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 Maloyudashchevo 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, axels, beads are typical for Sintashta culture.

The funeral ceremony and inventory of Maloyudashchevo 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 Maloyudashchevo 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.
ALL THAT GLITTERS IS NOT GOLD:
NEW APPROACHES TO SUMPTUOUS BURIALS BETWEEN WESTERN EUROPE AND THE EURASIAN STEPPE

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-Nebelsick, 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 has mainly 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 I will examine ostentatious graves of women in a wide chronological as well as geographical scope in order to ask under which conditions sumptuous female burials occur, how they relate to contemporary male burials in quantitative as well as qualitative aspects and why in some cases they seem to be absent in the archaeological record? I will focus on 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 primarily graves of the east European steppes.

TH1-05 Abstract 02

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

Author - Dr. Trémneaud, Caroline, UMR 8215 Trajectoires, LYON, France (Presenting author)
Keywords: Bronze and Iron Ages, Hierarchies, Methods
Presentation Preference - Oral

During the Late Bronze Age to La Tène B, in north-alpine societies, we see a multiplication of elite's graves. These ones, characterized by an impressive funerary hoarding and so called “princely graves” ask a lot of questions about hierarchisation, status of these individuals and social structures. These questions are supported by a key issue: how deal with the funerary data to express the wealth notion? Such an approach needs to take into account the difficulties to estimates values. In preliterate societies, emic approach is not possible; the etic approach is the only one. Thus we need to develop methodological tools in order to class graves against each other. The focus of my presentation will be to present a methodology developed during my PhD of rankng funerary data, so as to detect social structures. This work is based on a database from more than 1000 graves with 721 elite's graves, from Late Bronze Age to La Tène B, spread over north-eastern France, southern Germany, Belgium, and Bohemia, which allows multivariate statistics. The ranking approach depends on a method of weighting graves, to reveal wealth and characterize graves to each other. This method necessitates estimating value of each grave (grave good but also architecture and location) and so applying an emic framework to funerary data. I want to have a critical tool of this analysis grid used to value graves, in order to see the validity and the impact on multivariate statistics developed after. In fact this method shows possibilities for looking beyond the binary understanding of societies (elite vs. non-elite). These more frenc, qualitative approaches make it possible especially to develop a gender approach and a characterization of social structures and their evolution on a long term perspective.

TH1-05 Abstract 03

(sumptuous burials of the Low Countries

Author - Dr. Schumann, Robert, University of Hamburg, Hamburg, Germany (Presenting author)
Keywords: Early Iron Age, Low Countries, Sumptuous Graves
Presentation Preference - Oral

The emergence of the lavish burials known as Hallstatt chieftains' or princely graves reflects one of the most noteworthy developments in Early Iron Age Europe. These elaborate elite burials of the Hallstatt C period contain beautiful weaponry, bronze vessels and elaborately decorated wagons and horse-gear. As and found particularly in Southern Germany and Bohemia. There is, however, also a small cluster of these burials in the Low Countries. These Dutch and Belgian burials contain many of the same objects, all imports from the Hallstatt Culture in Central Europe. New finds and research, including the comprehensive study of all the Dutch and Belgian burials offer new insights into these graves. The elite burials of the Low Countries not only contain far more Central European ‘princely’ paraphernalia than thought, they also appear to contain local imports, challenging the established interpretation of these burials being feeble derivatives. These imported items, however, appear to have been re-contextualized in a regionally specific manner through a destructive burial practice that involved the transformation of both the dead and their grave goods through fire, manipulation and fragmentation. While the burial rituals seem to differ between the Hallstatt Culture and the Low Countries, detailed examination of rituals in both areas shows similarities as well. The objects interred in these sumptuous graves of the early Hallstatt Period in the Low Countries and those of the early Hallstatt Culture in southern Germany, western Austria and Bohemia also testify large-scale contacts as well as a potentially increasing social differentiation (or at least its representation in burials). The relationships that must have existed between these and other areas in the early Hallstatt period can be addressed and considered on a large scale. In this paper we present the possibilities of analyses by looking at the ostentatious burials from the Low Countries both from the regional and the international perspective, an approach that leads to a much better understanding of the performance of those exceptional burials.

TH1-05 Abstract 04

New Approaches to the Princely Burials of the Hallstatt Culture of the Heuneburg (Southwest Germany)

Author - Dipl.-Rest. 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 1950s, contrary 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 update our previous sociohistorical interpretation models and chronological theories.

TH1-05 Abstract 04
The Grave’s A Not-So-Private Place: Elite Multiple Burials in Early Iron Age West-Central Europe

Author - Prof. Arnold, Bettina, University of Wisconsin-Milwaukee, Milwaukee, United States of America (Presenting author)
Co-author(s) - Fernandez Goetz, Manuel, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)
Keywords: Iron Age, mortuary analysis, multiple burials
Presentation Preference - Oral

In his 1984 survey of multiple burials in prehistoric Europe Claus Oeftiger noted that burials containing more than one individual are often found in the vicinity of extensively cut chamber graves. The sample of multiple burials has expanded significantly in the intervening years and it may be time to revisit this mortuary category in light of new evidence. While most multiple burials contain two adults, often a female and a male, male/female and male/child or female/child combinations are also known. These configurations have traditionally been interpreted as reflecting familial relationships but recently excavated burials indicate that more complex associations for this category of burial are likely. We argue that the early Iron Age elite multiple burial category should be re-evaluated with reference to ethnographic analogy, archaeological evidence from other areas of west-central Europe, and recent burials excavated in the vicinity of the early Iron Age Huneburg Hilfort.

TH1-05 Abstract 06
Discernable Traces in Textil Archaeology

Author - Dr. Bandi-Burgess, Johanna, Landesamt für Denkmalpflege, Esslingen, Germany (Presenting author)
Keywords: mortuary ceremonies, princely grave Hochdorf-Eberdingen, Textile Archaeology
Presentation Preference - Oral

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

TH1-05 Abstract 07
Barbarian chief’s “secret” burials in the forest-steppe zone of Eastern Europe

Author - Dr. Stichiglieva, Olga, Institute for the History of the Material Culture, St. Petersburg, Russian Federation (Presenting author)
Co-author(s) - Radash, Olej, Institute of Archaeology RAS, Moscow, Russian Federation
Keywords: burials, prestigious gold objects, Great Migration period, sumptuous complexes, kings and military leaders
Presentation Preference - Oral

By the beginning of the Great Migration period Chernyakhov archaeological culture (its last stage) was spread in the left bank of the Dniester in forest-steppe zone. At the same time (periods D1 and D2 European chronology - 360 / 370-440 / 450 A.D.) 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 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. Matyushina 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 watersheds of river systems. Discussed sumptuous complexes are very different from the burials of the Chernyakhov culture, even at it’s 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, i.e. 450-470 / 480 A.D.), 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 Dniester and Don rivers dated to stages D1 and D2 of European chronology. The presence of glass cups (as seen for the forest) 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 ritual, nor by the inventory. Prestigious items belong to a common in Hunico time polychrome decorations. Rather we can speak about a direct link with the Late Antiquity Rusovka whence come the closest analogues of prestigious weapons, harness and silver vessels. Discussed finds belong to the common European horizon of burials of the nobility, the leaders of the barbarian kingdoms, which arose at the beginning of the Great Migration period on the periphery of the ancient world. Often death caught up with kings and military leaders of the Great Migrations in the territory and the environment in which they had no historical roots, nor stable relations. Their tombs and grave structures are unlikely to be perceived as a place of worship and a landmark of the traditional movement. Perhaps this explains the absence of grave structures and the great efforts spent on to hide the ordinary burials of high-level persons, most likely the ordinary general cemetery in protected, perhaps a sacred place. The exceptional volume and value of inventory corresponds to the rank of the deceased in his lifetime. The concept of “center of power” is applicable to the single “princes” and “military chiefs’ burials.”

TH1-05 Abstract 08
Commoners and Elites in Southeast Kazakhstan: Kurgans and Settlements of the Iron Age society

Author - Dr. Chang, Claudia, Sweet Briar College, Sweet Briar, United States of America (Presenting author)
Co-author(s) - Tourville-Perry, Sweet Briar College, Sweet Briar, United States of America
Presentation Preference - Oral

The spatial distribution of Iron Age kurgan and settlement sites from the Talgar alluvial fan (ca. 550 sq km) derived from survey reconnaissance and Soviet period site inventories indicates the presence of both commoner graves and elite kurgans. 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 test the foundation for understanding social hierarchy and the nature of commoner-elite relations.

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

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

TH1-05 Abstract 09
Miniaturization in the Production of Funerary Aesthetics in the Pontic Iron Age, ca. 600 - 300 BC

Author - Dr. Johnson, James, University of Chicago, Chicago, United States of America (Presenting author)
Keywords: Aesthetics, Burials, Iron Age
Presentation Preference - Oral

Funerary performances, including processions, construction of burial mounds, and the deposition of bodies and grave goods, are the primary means by which Iron Age social structure continues to be investigated and inferred. However, the scholarly focus on single massive burial mounds and the amount of interred grave goods, such as found at Alexandropol 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 Iron Age funerary practices critically explore how a different approach utilizing the lens of production (in a performative/theatrical sense) might highlight often hidden political facetas of burial in Iron Age contexts, as well as more broadly.

Drawn upon Susan Stewart’s (2007) notion of the ‘remarkable’ elements of identification chosen to be indiceal of certain periods and events assigned to individuals to demonstrate how burials are acts steeped in political intentionality and manifest power relations. I contend that funerary performances, including audience participation, were miniaturized sensory, and perhaps
more importantly sensuous, engagements carefully crafted in grander scale cosmologies of meaning that were themselves crucial constituents of social and political life in the Pontic Iron Age, ca. 700-300 BCE. During the course of this presentation, I explore the remarkable nature of Pontic Iron Age funerary performances through a careful disassembly and reassembly of grave good assemblages, mound construction, and mortuary landscapes. Utilizing data gleaned from a modest population of sites from across south-central Ukraine, I focus in particular on how burials and funerary activities were produced and intentionally manipulated as means to legitimate, and reinforce, the cosmological and social ordering of Pontic Iron Age communities through carefully designed and produced aesthetic displays.

**TH1-05 Abstract 10**

**The Kurgans of Scythian Nobility in the Eurasian Steppes**

**Author**: Dr. Habil. Ochli-Goryeva, Maria, Institute of archaeology Tatarstan academy of sciences, Kazan, Russian Federation (Presenting author)

**Keywords**: Eurasia, kurgan, Scythian epoch, nobility

**Presentation Preference**: Oral

Several thousands of burial sites of the Eurasian steppe dating to the Scythian epoch are associated with a number of archaeological 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, servants 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 their system of geographical/orientation in terms of cardinal points. Importantly, the regional differences in the spatial arrangement shown on the kurgan planigraphic profiles seem to be associated with the marital and later, 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 archaeological cultures of the region, where in fact one deals with two distinct cultural communities. Also, as the present work has shown, there is a logical association between the spatial arrangement of the kurgans and the ideas the ancient peoples 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 appearance of exotic objects at both ends of these politics, where material evidence attest to the local region surrounded and smoothed the elite. This paper will consider what message the assorted choice of non-local or non-locally inspired grave deposits, avowed in the first millennium CE by looking closely at two assemblages, one in Afghanistan and the other in China.

Across Eurasia at this time foreign imagery, technologies and mortuary practices and uses of artifacts derived from all sectors of that far-flung exchange network and we shall argue that this denotes and documents a cosmopolitan attitude about displaying one’s identity at death. More no telling of the eclectic and intercultural character of those expressions were the grave goods deposited in the six excavated tombs at Tylis Tepe, Afghanistan, found in a location that could be characterized as bordering on several powerful groups. Materials in those tombs connect imagery from the Near East, Hellenistic Central Asia, southwest Asia, present-day India and China.

**TH1-05 Abstract 12**

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

**Author**: Schreiber, Finn, University Berlin, Berlin, Germany (Presenting author)

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

**Keywords**: Bronze Age, Eurasia, Multivariate Statistics

**Presentation Preference**: Poster

During the EAA meeting in Vilinx 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 Aibahevo, Sinaishka and Andronovo and are dated to the Middle and Late Bronze Age.

My poster is about the results of multivariate statistical methods used in archaeology to establish a relative chronology for cemeteries. Examples will be demonstrated from my current investigations. Information will be provided for scientists without statistical experience. There is also brief information on the geographical and cultural background of these sites.

The poster allows that the multivariate statistics can lead to a more detailed understanding of the development and dynamics in Eurasian Bronze Age funeral archaeology and to a better understanding of cultural and social differences.

**TH1-05 Abstract 13**

**Origin of the Polychrome Style Jewellery**

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

**Keywords**: 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 gilded objects were decorated with precious or semi-precious stones (like almandines, red garnets, carnelians) or pieces of glass, which usually were red. These ornamental elements were set within strips of gold foil, often surrounded with granulation or filigree. There was another version of this style called cloisonnè in which the glass or gemstones were set in compartments of soldered strips of metal foil, separated with wire, over a strip of metal foil. The polychrome style is used in ornamenting dress accessories, horse equipment, diadems, weapons, jewellery and other things. Many researchers have divergent opinions about provenance of this jewellery style. According to popular opinion, the polychrome style was not typical only for European Barbarenum 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 (Saka-Ishtan culture and Korki culture) dated to period between III/IV century B.C. and IV century C.E. These artefacts are very similar to polychrome style ornamented objects from the Migration Period. Some scholars (Arhenius 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 (Schmuder 2002: 237-58) affirm that polychrome style evolved from the hellenistic jewellery traditions. The problem is that there are some polychromate 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.
Interpreting the Archaeological Record

TH1-06 Abstract 03
Vanity or Hygiene? Combs and mirror frames in the Vilnius Lower Castle

Author - Dr. Pukienė, Rūtilė, National Museum the Palace of Grand Dukes of Lithuania, Vilnius, Lithuania (Presenting author)
Co-author(s) - Kaminskaitė, Irutė, National Museum the Palace of Grand Dukes of Lithuania, Vilnius, Lithuania
Keywords: Archaeological history of hygiene, Late medieval period
Presentation Preference - Oral

The complex of Vilnius Castles consists of the Upper Castle on a hill and the Lower Castle located in a valley at the foot of the Castle Hill. The cultural layer of the Lower Castle territory has been accumulating since the 13th century and is 8 meters thick in deepest places. The late medieval layers at the bottom are saturated with ground water and are rich with preserved organic artifacts and wooden infrastructural 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 Malhiae) wood were also determined by the wood anatomy analysis. The combs are rather uniform, double-sided, rectangular with lentoid profile and quite simply decorated.

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

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

TH1-06 Abstract 04
Tableware in the Vilnius Lower Castle: function, significance and evolution

Author - PhD student, Archeoculture-Ramanauskienė, Skaiasta, 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 Place 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.

TH1-06 Abstract 05
Iron nails of cultural layers from Klaipeda castle: a functional aspect

Author - Master Stankevičiūtė, Erga, 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 Klaipėda castle, more than 13 000 units of nails and their fragments were collected, which, according to cultural layers, corresponds with Medieval and Modern ages. In 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 Klaipėda castle obtained iron nails types function, their adaptability in the old Klaipėda 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.
Interpreting the Archaeological Record

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

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 Qafar Jabiyev and PhD Fariz Khalili in initiative and with support of MIRAS Social Organization in Support of Studying of Cultural Heritage. During archaeological explorations for three years till 2012-December 1,5 hectare space was studied, and fortress walls, handicraft estates, houses, mosque, bath-complex, ice-house, stores, water and sewerage lines were revealed. Over 8000 gold, silver, copper, pottery, glassware, stone and bones were inventorized being found from 5 excavation sites; a part handed to museums and kept in Medieval Agsu Town Archaeological Tourism Complex. Along with Medieval Agsu Town, the perspectives of archaeological study of Shusha and Shaki cities were learnt as well.

TH1-07 Abstract 01

Introduction. The selective deposition of metalwork

Author: professor Fontijn, David, Faculty of Archaeology, University of Leiden, Leiden, Netherlands (Presenting author)
Keywords: Bronze Age, deposition, metalwork
Presentation Preference - Oral

One of the intriguing things about the way objects become part of the archaeological record is that this often happened in a structured, patterned manner. This is particularly clear for metalwork from Bronze Age Europe. Can we make sense of this sorts of 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 discuss the 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 metal work took place. However, although bronzes constitute a significant amount of the total number of objects deposited, the group as a whole is characterized by a variation in objects and materials and includes objects made of birch bark, amber, flint and wood alongside objects of bronze and gold. Among these finds we find a well-preserved wooden stool with Bronze Age carvings from Hystad outside Trondheim, found together with wooden platters and cups probably used in a ritual meal. Although there are differences in how the various objects were treated and deposited, they all seem to follow the same distribution in time, with significant peaks in the late Neolithic/Early Bronze Age (c. 2350-c. 1500 BC) and at the end of the Bronze Age (c. 900-500 BC). Thus, they seem to represent related practices.
This paper will give an overview of the practice of deposition in the area, and consider how variations in the material can be interpreted by applying a biographical approach in order to increase their interpretative value in studies of prehistoric deposition.

TH1-07 Abstract 03
Taming the Might of Bronze – Localisation of Bronze-Related Ritual Practises in Bronze Age Finland
Author - MA Saipio, Jankio, University of Helsinki, Helsinki, Finland (Presenting author)
Keywords: Bronze Age Fennoscandia, Ritual archaeology, Structured deposition
Presentation Preference - Oral

The area of present-day Finland was a crossroads of Scandinavian and Russian bronze networks throughout the local Bronze Age (1900/1800–500 BCE). Even though the archaeological assemblage of Bronze Age bronze artefacts is not abundant in the area (numbering less than 200 specimens), relatively well-established relations to eastern and western bronze centres are indicated by both imported bronze objects (predominantly of Scandinavian origin) and local casting of Russian bronze artefact types. Interestingly, while many of the bronze object types encountered in Finland were obviously connected with long-distance networks, their deposition patterns appear highly localised even within the area of Finland. Celts and daggers seem to have been especially prone to change their roles when travelling between eastern and western or southern and northern Finland. Such regional differences are discernible not only in differential treatment and significance of specific artefact categories but also in general relations between bronze technology, mortuary rituals and 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 - Visser, 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 non-metalliferous 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 religious and ritual practices 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 Sarauw, 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 harness and bridles, 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 bridles. 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. Bittla, Hélène, PARIS, France (Presenting author)
Keywords: Bronze Age, Hoards, social practice
Presentation Preference - Oral

During my PhD I was able to study and to characterise 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 Mittelalpe-Baale-Gebiet (central Germany), Denmark, the Burgundy doors (Belgium, Eastern France, south-eastern Germany) and the Amorician 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吃饱 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 immerged single finds. The favourite objects are different from one region to another: axes in the Amorician Massif and the MESG or weapons in Denmark and the Burgundy doors. In terms of composition, differences appear between the studied areas. Thus, the Amorican 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 Amorican Massif and totally missing in Denmark. Regarding to several criteria, some of them appeared earlier in Western Carpathians and the MESG than in Denmark and the Amorican 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 regionality and chronologically changing patterns can 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 bronzeas with various functions are
TH1-07 Abstract 09
Fragmentation as a common feature in European Bronze Age hoarding

Author - Dr. Marek, Regine, 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 Elsterwerda 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 craftsmen’s deposits and the hoarding of raw metal (“Gusserz”).

TH1-07 Abstract 10
Places of deposition of metalwork assemblages in West Bohemia

Author - Prof. assist. 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 even 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 it was possible to determine precisely the original location for 27 of the hoards. The field survey focused mainly on evaluating the subjective reception of the given space in order to assess potential links of the hoards to significant natural features. This analysis found a surprisingly narrow group of natural features that could have influenced the choice of a location suitable for hoarding; namely rocks or distinctly rocky terrain, dominant hills in the landscape, watercourses and ravines. The connection of West Bohemian bronze hoards to such features indicates their sacral function, likely as votive offerings.

TH1-07 Abstract 11
The Copper Highway - An Overview of Early Bronze Age Hoards in South Bohemia

Author - Dr. John, Jan, University of South Bohemia, Ceske Budejovice, Czech Republic (Presenting author)
Co-author(s) - Chvojka, 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 artifacts found in Early Bronze Age hoards.

TH1-07 Abstract 12
Urnfield Period hoards in South Bohemia

Author - Doc. Chvojka, 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. B.C.2100—H.B.) were known 15 years ago. In the last years the number increased to 51 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 bringing 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 Babi, 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 is the case of Aşa 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 (B.D.H.). During this phase, 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. Torbínig, R. Bradley and S. Hansen, this area received some research attention. However, I still lacked more robust theoretical models for interpreting this interesting archaological 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.
and Koszider ‘hoard horizons’ have provided ample material for such analyses. The turn towards a ritual interpretation of the deposition of metal in Bronze Age Europe has hardly been felt in local scholarship. The aim of our paper is to change this situation and to analyze Middle Bronze Age metalwork from the Carpathian Basin from the point of view of selective deposition. We will highlight the patterns observable in the composition of these hoards and compare them with other depositional contexts such as graves and settlement finds. Based on these comparative analyses we will attempt to reconstruct various social practices that involve the removal of metal objects from circulation.

THI-07 Abstract 15
Late Bronze Age metal deposition practices on the southern outskirts of the Carpathian Basin
Author - Hvoje, Katjašt; 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.

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The first metalworks hoards in UTR appeared at the beginning of Copper Age. At the Late Copper Age (Baden culture, Körösmakó culture) the tradition of deposition was not continued. The Middle Bronze Age (BA2) is a new stage of hoarding in UTR. Culturally they belong to Ottoman-Füzesabony culture and early phase of Suciu de 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 BD-HaA1 (Suciu de Susa and Gava phases of Suciu de Susa culture. Geographically they belong to eastern part of UTR. The earliest hoards consists mainly of prestige objects (ornamented weapons and gold wares).

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The standardised structure of the content of the so called Tölönemédi 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 Encrusted 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 Tölönemédi 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.

Presentation Preference - Oral

THI-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, Péter, Miskolc University, Miskolc, Hungary
Co-author(s) - Maji, Dóra, Eötvös Loránd University, Budapest, Hungary
Co-author(s) - Szabó, Gábor, Wosinsky Mór Museum, Szekszárd, Hungary
Keywords: Bronze Age, hoards, selective deposits
Presentation Preference - Oral

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THI-07 Abstract 17
Patterns of metalwork deposition during the LBA in the Lower Danube region
Author - Matal, Floria, Alexandru Ioan Cuza University, Iasi, Romania (Presenting author)
Keywords: deposition patterns, LBA, Lower Danube region
Presentation Preference - Oral

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

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

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

THI-07 Abstract 18
Bronze Age hoards deposition in the Upper Tisa Basin: time, space and cultural context
Author - Kostel, Josip, Transcarpian regional museum, Uzhgorod, Ukraine (Presenting author)
Keywords: Bronze Age, Metal deposition, Ukraine
Presentation Preference - Oral

Characteristic feature of the European continent population in Bronze Age is metal works deposition in form of “hoards”. Upper Tisa Region (UTR) is one of the richest in Europe on the finds of “hoards”: nearly 500. 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 (Balen culture, Cotofeni culture) and in the Early Bronze Age (Mako culture, Nîrșăg culture) the tradition of deposition was not continued. The Middle Bronze Age (BA2) is a new stage of hoarding in UTR. Culturally they belong to Ottoman-Füzesabony culture and early phase of Suciu de Sus culture. Geographically they belong to eastern part of UTR. The earliest hoards consists mainly of prestige objects (ornamented weapons and gold 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 BD-HaA1 (Suciu de Sus and Gava cultures) and till the end of Bronze Age.

THI-07 Abstract 19
Going with the flow? Atlantic Bronze Age metalwork deposition practices
Author - Dr. Gibson, Catriona, University of Wales, Salisbury, United Kingdom (Presenting author)
Keywords: Atlantic Bronze Age, metalworks, deposition, Atlantic
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.
THI-07 Abstract 20

Structures and function of Bronze Age deposition in Ireland

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

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

THI-07 Abstract 21

Creative Destruction - Early Bronze Age deposits 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 from the river itself and their back swamps needs to be broadened to the adjacent area in the hinterland of Germany, France, Belgium and Luxembourg. In this region, we have the opportunity to compare a variety of depositional practices in wet and in dry contexts that have so far never been studied together. This will not only readjust the previous one-sided focus on river finds, but also reveal whether objects deposited in and lands represent a practice steered by ideas and motivations contrasting from those of river deposits. The aim of this research is to identify a potential cognisance correspondence between the rise and fall of watery depositions and dry-land hoards and to reveal it communities in the Middle Rhine Valley shared the same ideology in the practice of deposition.

THI-07 Abstract 22

Selective Deposition of Metalworking Remains in Bronze Age Britain

Author: Dr. Adams, Sophia, University of Bristol, Bristol, United Kingdom (Presenting author)
Co-author(s): Dr. Webley, 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 placement of complete and deconstructed objects so too are patterns present in the deposition context and selection processes of metalworking. By combining the results from a range of collection processes including archaeological excavation and metal detecting survey we can explore the content and context of these differing deposits, and question the social processes and implications behind the choices that led to these variations. This evidence for the deposition of bronze moulds, smithing tools, casting waste and ingots will provide a valuable comparative dataset to the evidence for the deposition of finished, used and deconstructed objects.

THI-07 Abstract 23

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

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

Selective deposition of Bronze Age metalwork in the British Isles is a well documented phenomenon which has been studied intensively by a number of researchers. Initial work focused primarily on establishing and refining typochronological frameworks based on patterns of association within hoards. With the realisation of the selective nature of Bronze Age depositional traditions however, it became clear that the role of bronze extended beyond its value as a commodity buried for safe-keeping and storage, and that deposition was part of a long standing social practice represented in the archaeological record by buried metal objects. The landscape context where the structured depositions took place, must have been viewed as suitable for that purpose by individuals and communities involved in the act. As such we might expect to see an inherent structure in the depositional settings of metalwork, preserved by the topography and the relationship to environmental and cultural landscape features, exhibited by the 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. 1500 - 1150 cal BC) metalwork, through a regional case study focused on the Isle of Wight. The aim is to establish whether any significant relationships between the findspots and their landscape settings can be identified, and if these varied between hoards and single finds. Focusing on a relatively small, naturally bounded region with a high density of Bronze Age finds, allows us to understand the suitability of spatial analysis to the data and questions at hand, and relate the structure of the data-set to cultural processes leading to deposition with a degree of confidence and subjectivity not afforded by qualitative research.

Attention is paid in particular to exploring the divergence of the depositional characteristics of metalwork from those exhibited by randomly distributed data to establish whether similar patterning could be arrived at purely by chance, and, by contrasting different types of metalwork, whether this had an influence on the location of the depositions. Ultimately, a systematic approach to metalwork depositions is required to verify some of our assumptions on the role of landscapes in the deposition process, and to create a baseline against which further discussion and analysis can take place.

THI-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 astounding, 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.
TH1-07 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, Minho

Deposition of metal artifacts during the Late Bronze Age is a wider phenomenon attested all over the European territory. Occupying a western end position rich in mining minerals, the North-western 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 Iberian, specifically, in the Atlantic fringe of the North-western Portugal (between the basins of rivers Ave and Minho) 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 contingencies of 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.

Selective deposition due to ritual intentions has in the last years been identified as a key-concept governing the formation of Bronze Age metalwork assemblages. Especially in regions like the Carpathian Basin, where the transmission of metalwork depends heavily on deliberate decisions on the inclusion of certain object classes in hoards and the exclusion of others, severe repercussions for the interpretability of the archaeological record can be expected. Although widely accepted on a theoretical level, until now the full consequences of selective deposition have not been explored for the southeastern European Bronze Age archaeological record. The present contribution aims to highlight the far-reaching implications of formation processes for dating the earliest appearance of object groups and technological innovations, using the earliest appearance of socketed axes in southeastern Europe as a case study. Socketed axes seem to appear all at once in a hoarding horizon paralleled with the central European phase Bo D. It is argued that selective non-deposition of socketed axes denotes their pre-Late Bronze Age History, which however can be reconstructed by taking into account other sources than hoard finds. The transmission of settlement finds is governed by a different set of rules and can serve as a corrective for a more balanced view on the development of Bronze Age metalwork. Isolated instances of early settlement contexts for finished objects, but even more so for casting equipment discarded after use make a much earlier start of production of socketed axes in southeastern Europe probable.

TH1-07 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

Presentation Preference - Oral

Hoardng 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. The presentation will focus on the different ritual environments of hoarding in Caucasian Bronze Age, on the different locations of ritual places – off-site hoards or sanctuaries, and on the different historical trajectories that led Caucasian people to this specific ritual practice.

TH1-07 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-c.1050 BC, Middle Bronze Age) in the Central Plain. 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 depositories and the significance of the deposits to the Shang?

TH1-07 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 southeastern Europe as a case study. Socketed axes seem to appear all at once in a hoarding horizon paralleled with the central European phase Bo D. It is argued that selective non-deposition of socketed axes denotes their pre-Late Bronze Age History, which however can be reconstructed by taking into account other sources than hoard finds. The transmission of settlement finds is governed by a different set of rules and can serve as a corrective for a more balanced view on the development of Bronze Age metalwork. Isolated instances of early settlement contexts for finished objects, but even more so for casting equipment discarded after use make a much earlier start of production of socketed axes in southeastern Europe probable.

TH1-07 Abstract 29
The middle Bronze Age necropolis in Gllareva-the Mycenaean influence in Kosovo

Author - Prof. Lušçi, Kemajl, Museum of Kosovo, Pristina, Kosovo (Presenting author)

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

Presentation Preference - Poster

Kosova’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 Kosova has been sufficiently explored through systematic work. Nonetheless, there is insufficient knowledge on the development of the Bronze Age in Kosova. With the finding and excavation of the necropolis in Gllarevë, important new steps have been made to complete this gap. Excavations in Gllarevë have provided the most precise data for solving important problems of the Bronze Age in Kosova, as well as for the development of period as a whole. Two necropoleis have been identified marked as Gllarevë I and II. Both can be dated to the XV and XIV centuries BCE. So far, 48 grave constructions have been found, consisting of two types of burial practices: inhumation and cremation. Regarding the analogies and chronological determinations of the bi-rudal burial practices it is possible to conclude that inhumation, with or without stone constructions, is the older type of burial. The task of dating the graves with cremation was conducted through reference to urn fragments, specifically their handles, which can be placed in a broader 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 Gllarevë necropolis shows that the Middle Bronze Age in Kosova 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 corridor. Excavations in Gllarevë 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. Thulay, the Bronze Age in Kosova becomes and important stage in the formation and development of Paleo-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.

TH1-07 Abstract 30
“Multiesential” 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, offerings

Presentation Preference - Poster

“Multiesential” 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.

TH1-07 Abstract 31
Selective deposition due to ritual intentions has in the last years been identified as a key-concept governing the formation of Bronze Age metalwork assemblages. Especially in regions like the Carpathian Basin, where the transmission of metalwork depends heavily on deliberate decisions on the inclusion of certain object classes in hoards and the exclusion of others, severe repercussions for the interpretability of the archaeological record can be expected. Although widely accepted on a theoretical level, until now the full consequences of selective deposition have not been explored for the southeastern European Bronze Age archaeological record. The present contribution aims to highlight the far-reaching implications of formation processes for dating the earliest appearance of object groups and technological innovations, using the earliest appearance of socketed axes in southeastern Europe as a case study. Socketed axes seem to appear all at once in a hoarding horizon paralleled with the central European phase Bo D. It is argued that selective non-deposition of socketed axes denotes their pre-Late Bronze Age History, which however can be reconstructed by taking into account other sources than hoard finds. The transmission of settlement finds is governed by a different set of rules and can serve as a corrective for a more balanced view on the development of Bronze Age metalwork. Isolated instances of early settlement contexts for finished objects, but even more so for casting equipment discarded after use make a much earlier start of production of socketed axes in southeastern Europe probable.

TH1-07 Abstract 32
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UNDER THE RAISED ROOF: CREATING THE SPACE FOR FAMILY AND COMMUNITY

Friday, 2 September 2016, 09:00-16:00
Faculty of History, Room 330

Author - M.A. Postma, Daniël, Groningen Institute of Archaeology, Lelystad, Netherlands (Presenting author)
Co-author(s) - Romankevitz, Tanja, University of Edinburgh, School of History, Classic and Archaeology, Edinburgh, United Kingdom
Co-author(s) - Postma, Daniël, University of Groningen, Groningen Institute of Archaeology, Groningen, Netherlands
Co-author(s) - Winger, Katja, Freie Universität Berlin, Institut für Paläoanthropologie, Berlin, Germany

Keywords: building, reconstruction, timber

Presentation Preference - Oral

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

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

In this session we seek papers that explore the knowledge about past peoples as they spent and shaped part of their lives in the protected space under the home roof. We seek a discussion on the archaeological evidence and the reconstructions of those spaces and how to maintain a sense of academic objectivity throughout the research process. Perhaps an even more ambitious question is: 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 02

Hand builds a house but what makes a home?
Populating space in an Anatolian Early Bronze Age village

Author - Dr. Piccio, Paola, Rome, Italy
Co-author(s) - Dr. Alvaro, Corrado, Dipartimento di Scienze dell’Antichità, Sapienza Università, Rome, Italy
Co-author(s) - Dr. Balossi Restelli, Francesca, Dipartimento di Scienze dell’Antichità, Sapienza Università, Rome, Italy (Presenting author)

Keywords: Anatolia, Early Bronze Age, Household architecture

Presentation Preference - Oral

The paper presents the case of a wholly preserved agro-pastoral village in the highlands of eastern Anatolia, 900 metres above sea level, dated 2900-2750 BCE (Early Bronze Age), burnt, destroyed and suddenly abandoned due to a devastating fire. Utensils were mostly never recovered from under the rubble, animals died in the pens and stables, the village’s entire harvest was lost, slags thrown by metal workers were left in the middle of the streets. A place that had been abounding with movement, noise, smell, was suddenly silent and remained sealed in this way until our arrival. Our intention is that of reconstructing behaviours of the inhabitants, their movements in and out of the houses, under and over the roofs, imagining smells and noises, evaluating human and animal promiscuity, differently using spaces during the snowy winters and hot summers, in an effort to analyse family and community life and spaces, contemporaneity and privacy, and the sense of homelessness.

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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, Slovenska Bistrica, Slovenia (Presenting author)

Keywords: building remains, Hallstatt-period, Kleinklein (Austria)

Presentation Preference - Oral

Kleinklein near Großklein in southern Styria (Austria) is known to the scientific community for more than 100 years. It is famous for its bronze mask and hands, bronze cuirasses and ornamented bronze vessels from the princely tumuli in Kleinklein. Since the publication of the tumulus cemetery by Claus Dobiat in the 1960s and the latest publication of the princely tumulus Köllökgel by Markus Egg and Diether Kramer in 2013, the approximately 700 tumuli, which can still be found in the woods around the highest peak called the Burgstallkogel, stand in the centre of attention. The settlement on the plateau of the hill called Burgstallkogel was first researched by Walter Schmid in the beginning of the 20th century and later by Claus Dobiat, who excavated search-trenches on the top and on the northern terraces of Burgstallkogel in 1982 and 1984. They could very well date the settlement, but didn’t uncover any complete building remains or give insights into settlements organisation.

Since 2010 a team of the Universalmuseum Joanneum is concentrating its research on the settlement area and the region around Burgstallkogel. In 2015, through a mere coincidence, an almost perfectly preserved building was discovered on the southern edge of the settlement. The building, which could be almost completely excavated, burned down at the end of the 7th or beginning of the 6th century BC. Besides the burned timber walls, preserved in few metres length and with still visible architectural elements, the almost complete stamped clay floor under the ruined burned clay and wood could be investigated. The discovered building, which was positioned on a perfectly prepared terrace on the southern slope of the hill, gave us first opportunity to understand the architecture of the site. Since the building burned down, collapsed and no further buildings were erected on its remains, its remains are very well preserved and we have got the opportunity to get a first insight into the usage of interior space in a building of the Burgstallkogel settlement. A highlight was an almost completely preserved fire dog of a half moon shape, which was found in situ on the floor.

In my paper I would like to present the results of the analysis of the building remains from Burgstallkogel near Großklein, not only the building from 2015 but also the results from other parts of the settlement excavated in 2013 and 214, and put them into the

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Creating a home. Ritual practice related to houses in a terp settlement in the northern Netherlands

Author: Dr. Nieuwhof, Annet, University of Groningen, De Punt, Netherlands (Presenting author)

Keywords: human remains, Northern Netherlands, Ritual practice

Presentation Preference: Oral

Between 1923 and 1934, excavations were carried out in the terp settlement of Ezinge by one of the founding fathers of Dutch archaeology, A.E. van Giffen. Ezinge is located in the coastal area of the northern Netherlands, a former salt marsh area. It is one of many terps that are found in this region: artificial dwelling mounds, which once protected their residents against floods. Ezinge became famous because of the well-preserved remains of 85 longhouses, dating from the 5th century BC until the early middle ages. The lower parts of wooden buildings often were still preserved in situ, revealing the structure of 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 material culture, 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 (probable the remains 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.

Construction, function and interior design of sunken floor huts in Middle Eastern Sweden

Author: Ekhund, Susanna, SAU, Uppsala, Sweden (Presenting author)

Co-authors: - 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 pithouses (sunken floor, grube houses 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 questions are: do the ovens, benches, doors etc. have they been lived in at all or have they been a place for daytime occupations and handicraft mainly? How can these types of buildings be understood? We think that most important is to find out what actually took place within the four walls.

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

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

In the Dark Ages? Light and its absence in medieval domestic spaces

Author: PhD student Quinlor, 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.
Interpreting the Archaeological Record

TH1-08 Abstract 09
At the hearth. Daily life, and domestic architecture in Early Iron Age farmsteads of Western Denmark

Author: Dr. Nygård, 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 (550 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 outbuildings and the fenced of interior of the farmyard as the farmsteads grow in size.

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

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

TH1-08 Abstract 10
Charting the microstratigraphic life-cycle of an early Roman urban property, Roman Stilchester, UK

Author: Dr. Bamerjea, 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 Stilchester, by the trenches of Antipararian excavators. Previous research at Stilchester has integrated thin-section micromorphology and experimental archaeology to characterise sediments and occupation deposits to identify doorways roofed, semi-roofed, 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 architectural form comprising a ‘zig-zagged’ façade, fronting 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, as well as stalling livestock. However, during the Early Iron Age some activities, both specialized crafts and to some extent food preparation are moved into nearby outbuildings and the fenced of interior of the farmyard as the farmsteads grow in size.

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

TH1-08 Abstract 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 suggest a growing awareness of the social significance of domestic space in the North Atlantic region.

TH1-08 Abstract 12
‘Private’ spaces???... Reconstructing the ‘living-rooms’ of medieval castles

Author: Dr. Dempsey, Karen, Dublin, Ireland (Presenting author)
Keywords: Medieval Castles, Reconstruction, Social Space
Presentation Preference: Oral

During the thirteenth century, the hall and chamber were typically separate structures within castles/complexes in Ireland and Britain. Careful examination of the architecture of medieval chambers - understood as ‘private’ spaces - has revealed that their first-floor spaces appear to have been divided into ‘rooms’ most likely using partitions comprised of timber and/or textiles. Some castles have very tangible indications of divisions such as masonry corbels that once supported wooden partitions. Many other internal divisions, though now lost, have left significant indicators of their former presence, such as the arrangement of windows; groups of 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 furthest corner angle from the main entrance (diagonally opposed) or directly opposed suggesting that either the doorway or the latrine (or both) may have been screened from view.

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

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, left are 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).

Keywords: Medieval Castles, Reconstruction, Social Space

TH1-08 Abstract 13
Family space vs. community space from the perspective of settlements from the Lower Danube Region

Author: Dr. Magureanu, Andrei, Mireasa, Institute of Archaeology Vasile Parvan, Bucharest, Romania (Presenting author)
Co-author(s): Dr. Clupect, Bogdan, History and Archaeology Prahova County Museum, Ploiești, Romania
Keywords: early medieval period, house, community space
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/nivelage.

The problem is what can we interpret as a house and what we can consider a settlement. Generally, the archaeological reports described only similar constructed structure, settlements from this time frame 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 inhabited 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, Rodolick, 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 Tholos would suggest an assumption that the buildings would see an homogenous dominion of the conical roof. This may represent a best fit of technology to need and circumstance but in many other aspects of life, seen through preserved archaeological fragments, we can see an exuberance of design and masterful display of skill.

From the ornate gelled hair-style of the bog-body from Clonycavan to metalwork masterpieces such as the Mony Musk casket, and to ornate sculpture, such as Forvetorl arch, we have evidence that in some circumstances, builders, designers and craftspeople stepped far beyond what mere practicality demanded to create visually stunning artefacts. By presenting examples of buildings that seem to depart from the norm and that express a spirit of experimentalism, such as the early Christian church at Whithorn, this paper will seek to stimulate a discussion on how archaeologically practical 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 - Khutoraiava, Irina, The State Hermitage museum, Saint-Petersburg, Russian Federation (Presenting author)
Keywords: Dwellings, Graphic reconstruction, Neolithic
Presentation Preference - Poster

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

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

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

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

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

The complexity of the objects identification settlement situated in sandy sediments is in the absence of organic materials. The pits are determined because of their darker filling, different from the color of the surrounding cultural layer. Fireplaces and hearths are detected due to their structures (e.g., plates of stone), and calcedonized, characterized by red-grey ash interlayer.

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

BEHIND THE GLASS: NEW REFLECTIONS ON GLASS IN IRON AGE SOCIETIES

Friday, 2 September 2016, 09:00-13:00
Faculty of Philology, Room SFS

Author - Richard, Joëlle, University of Paris, France (Presenting author)
Co-author(s) - Vénicot, Natalie, Academy of Sciences of the Czech Republic, Institute of Archaeology, Praha, Czech Republic
Keywords: Glass, Methods
Presentation Preference - Regular session

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

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

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

Investigation of glass objects from Dodona Sanctuary, Epirus, Greece: an interdisciplinary approach

Author - Dr. Oikonomou, Artemis, University of Nottingham, Nottingham, United Kingdom (Presenting author)
Co-author(s) - Henderson, Julian, University of Nottingham, Nottingham, United Kingdom
Co-author(s) - Shenery, Simon, University of Nottingham, Nottingham, United Kingdom
Keywords: Epirus, Greece, Hellenic glass, scientific techniques
Presentation Preference - Oral

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

Our primary research objectives are: (1) to suggest the raw materials used to make the glasses; (2) identify any compositional contrasts between middle and late Hellenistic glass; (3) to suggest a provenance for the glass by comparing our results with other published datasets - 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 various vessel types (cone formed vessels, ribbed bowls, cast bowls, conical engraved bowls) of a variety of colours (deep blue, green, amber, colourless).

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

Investigation of glass objects from Dodona Sanctuary, Epirus, Greece: an interdisciplinary approach
TH1-09 Abstract 02
An Eye for an Eye Bead: Early Iron Age Glass from Lika, Croatia

Author - Franjić, Ana, University College London, London, London, United Kingdom (Presenting author)
Co-author(s) - Freestone, Ian, University College London, London, London, United Kingdom

Keywords: Croatia, glass beads, technology
Presentation Preference - Oral

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, lapidian culture has been studied in the cultural-historical manner, with the focus predominantly on chronology and typology. Production, technological networks, and glass use have received little discussion apart from conjectures that these beads must have been of local production due to their perceived basic production requirements, their abundant occurrence, and no 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 results show 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 lapidian group. Although the lapidians 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 within the lapidian society, which sheds light on the existing female roles in the Iron Age.

Bibliography:

TH1-09 Abstract 03
Prehistoric Glass from Iron Age Segestica (Present-Day Croatia)

Author - curator Đurđić, Ivam, Archaeological museum in Zagreb, Zagreb, Croatia (Presenting author)
Co-author(s) - Franjić, Ana, UCL, London, United Kingdom

Keywords: archaeometry, glass objects, Iron Age
Presentation Preference - Oral

Owing to its prominent position at the crossroads of Pannonia, eastern Adriatic coast, northern Italy, south-eastern Alps and the Danube, the Segestica settlement, located at the mouth of the Kupa and Sava rivers in Central Croatia, became an important trade nexus in the Early Iron Age. This is archaeologically attested by the abundance of imported objects appearing at the site at this time, such as bronze vessels, weapons, horse gear, dress ornaments, and glass items.

If compared to chronologically contemporary groups - the lapidians in Lika, Croatia, and the Lower Carniola group in Slovenia (which is also a possible glass production centre) - whose cemeteries have a high concentration of glass finds, frequency of glass items retrieved from Segestica seems scarce: twenty five beads and four bracelets. This is largely due to the fact that no Iron Age graves in Segestica have yet been found. Most of the glass items were retrieved during the dredging of the river Kupa at the beginning of the twentieth century, leaving them without a clear archaeological context. Only a few cobalt-blue glass beads and bracelets have been properly documented in their context during the 2015 excavation of the Pogonjec site, situated at the right bank of the river.

The glass artefacts will be presented according to their typological and chronological parameters, and manufacturing techniques. In order to gain further insight into the use and trade of prehistoric glass in Sisak, and, more generally, into the technological traditions of glass-making in the Iron Age period, the items were also analysed using SEM-EDS. The results of the chemical analysis of various types of beads (stratified eye beads, globular translucent light green beads, dark opaque beads with linear decoration, barrel-shaped and concave cone-shaped beads with protruding decoration, blue globular beads with wavy linear decoration) and bracelets (all blue in colour, but of various shades, with smooth D cross-section, with three ribs, with five ribs - the motif being the most prominent) will also be presented and interpreted.

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

TH1-09 Abstract 04
The Blue from the Sky: Hellenistic monochrome glass in La Tène Europe

Author - Dr. Venclová, Natalie, Institute of Archaeology, Prague, Prague, Czech Republic (Presenting author)

Keywords: glass, Hellenistic, La Tène
Presentation Preference - Oral

La Tène Europe glass-working produced enormous quantity of glass ornaments, widely distributed, which became prominent markers of cultural identities. However, no glass vessels were produced here. Luxurious items of this kind were imported from the Hellenistic world.

Besides the well-known mosaic (millefiori etc.) vessels, there is another kind of Hellenistic glass ware - the cast monochrome vessels. The paper deals with finds from the La Tène oppida and other contexts, based on finds from the Czech Republic. Chemical composition of the glass concerned is discussed.

TH1-09 Abstract 05
Current research on La Tène glass artefacts from Central and Southern Germany

Author - Prof. Dr. Schaefler, Andreas, University of Bamberg, Bamberg, Germany (Presenting author)
Co-author(s) - Dr. Scharff †, Werner, Germany

Keywords: Central and Southern Germany, Iron Age Glass production, Scientific Analysis
Presentation Preference - Oral

Late Iron Age settlement in Central and Southern Germany represents an important part of the Eastern La Tène Culture Province. With regards to evidence of glass, it is fair to say that the region may be appreciated as one of the major centres for the use of glass bracelets, beads, and other forms of glass jewellery during the last centuries BC. Research focused on the largest assemblage from the oppidum of Marching was very influential on glass studies of the La Tène period as a whole.

This paper focuses on two important settlement sites with abundant craft activities in two sub-regions of the area: Berching-Pollanten (Bavaria), only about 30 km from Marching and best known for its iron working evidence, and Bad Nauheim (Hesse), famous for its salt production and an impressive stratigraphical sequence of settlement and production activity several metres in height. Both sites also produced large amounts of glass artefacts, including some raw material and production waste. With more than 450 fragments of bracelets and about 300 beads the glass collection of Berching-Pollanten is the second largest of the region. Archaeometric analysis has been carried out on parts of the collections over several years using LA-ICP-MS and back-scatter electron microscopy. In combination with further typological and technological studies, it is possible to address important questions on chemical composition (different groups of raw material) and fabrication details, as well as on regional supplies and the circulation of objects.

References:

TH1-09 Abstract 06
Raw glass to La Tène glass productions: news analytical studies of French collections

Author - PhD Candidate Rolland, Joelle, Umr 8215 - Trajectoires, University of Paris 1, Nanterre Cedex, France (Presenting author)

Keywords: experimentation, LA-ICP-MS, La Tène Glass
Presentation Preference - Oral

The study of glass artefacts from the Early Iron Age to the La Tène period remains important for the understanding of prehistoric exchange networks in Western Europe. Raw glass to La Tène glass productions: news analytical studies and new experimental results. The composition of the early glass at La Tène will be presented.
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 Gratuze. We had the possibility to study the important collections of Lattara (Hérault), Bobigny (Seine-Saint-Denis), Toulouse (Haute Garonne) and a part of the large glass deposit of Mathay-Mantereau (Doubs). The study has also been conducted on 40 raw glass fragments from 3 shipwrecks sunk 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 produced. 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 clues on the organization of raw glass productions. The objective of this communication is to share this result in order to compare it with differents 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 understand the complex negotiation of identity occurring on the Northern Frontier of Roman Britain in the Late Iron Age. Glass toggles became a way for the indigenous communities to promote their local importance by displaying their connections with larger social networks. By transforming imported foreign material, in the form of both raw and reused glass from Roman sources, into items which catered for local tastes, bangles became a powerful symbol. The glass bangles highlighted a connection to Rome but also acted as a statement of the indigenous populations desire to shape and mould that relationship in a way that was locally beneficial.

TH1-09 Abstract 09
Romano-British glass bracelets: where La Tène Continental technology meets Iron-Age British design
Author - Dr. Heavey, Taliana, Newcastle University, Newcastle upon Tyne, United Kingdom (Presenting author)
Keywords: glass bracelets, Iron Age technique, Roman Britain
Presentation Preference - Oral

The aim of this paper is to bring the Romano-British glass bracelets into the discussion of the Iron Age Continental glass bracelets. The paper suggests that the British glass bracelets were Romanperiod British development of an existing Continental La Tène skill. Romano-British glass bracelets have primarily been studied from the regional perspective. Earlier research into the distribution and typology of British glass bracelets suggested that British examples started out in Late Iron Age, with a clear 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 most likely produced in the similar manner as some of the La Tène Continental bracelet types, that is in a technique similar to that suggested by Josef Rolander 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
Analysing a material ‘culture clash’: ‘sealing wax’ red glass in Late Iron Age Britain
Author - Dr. Davis, Mary, National Museum Wales, Cardiff, United Kingdom (Presenting author)
Keywords: Britain, glass, Late Iron Age
Presentation Preference - Oral

This paper will present work carried out on the analysis of Insular Late La Tène and Early Romano-British ‘sealing wax’ red glass. This was used principally as an inlay on high status decorative bronze work, which developed from the earlier La Tène traditions in both Europe and Britain of using opaque red ‘sealing wax’ glass to decorate metal artefacts. In Late Iron Age Britain (1st century AD), the use of inlaid red glass 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, in much of the Romanised world, the composition of red glass changed significantly from the red high lead copper ‘sealing wax’ type used in the Middle Iron Age and Continental La Tène pieces to the use of low lead, low copper red glass produced for Roman mosaics and probably exported as tesserae or rods. However, within Britain the use of ‘sealing wax’ red glass was retained, but of a slightly altered composition to the majority used within the ‘Celtic’ world; one principle difference was a significant increase in antimony. Although not used for previous La Tène glass, there are a few examples of similar high antimony ‘sealing wax’ red glasses noted within the southern Mediterranean: as re-used glass vessel fragments in early mosaics in ‘nymphaeae’ in southern Italy, in hellenistic red glass and in red glass from Jerusalem.

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

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

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

Author: Cesarein, Giulia, Universität zu Köln - Archäologisches Institut, Cologne, Germany, Castoria 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.

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, Aegae, Syria-Palestine) seems the most reliable hypothesis. The particular lavishness and rarity of these vessels and their meaning as status-symbol allowed also an analysis of the socio-economical dynamics, related to the diffusion and consumption of these luxury items, expression of an extremely restricted élite.
Between the forest and the river: hunting and fishing in the Danube Gorges in the Mesolithic

Author - Živković, Ivan, Laboratory for Bioarchaeology, Belgrade, Serbia (Presenting author)
Co-author(s) - Dimitrijević, Vesna, Laboratory for Bioarchaeology, Belgrade, Serbia

Keywords - Mesolithic, Danube Gorges

Presentation Preference - Oral

The first study of the archaeozoological remains from Iocana was made 40 years ago by Alexandra Bolosme. The importance of this settlement led us to re-examine all the faunal material using methods such as slaughtering curves, ageing and sexing, biometry, cut marks, butchery patterns and palaeogenetics. This has resulted in a new interpretation of the local fauna and of Mesolithic hunting activities. All the remain are interpreted as food refuse, with high fragmentation ratios. The list of taxa identified includes molluscs (1 species), fishes (1), reptiles (1) and mammals (16). The assembly 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.

Although, assessment of the precise proportion of wild game meat vs fish in the diet is elusive, particularly owing to the differences in mammal and fish skeletons, and biases affecting their survival and recovery, we have attempted to address this issue by estimating their dietary contribution and nutritional potential on the basis of the sum of average weight of the minimum number of individuals for both mammals and fish. In addition, we estimated the proportion (size and number) of the economically most important fish (sycniidae, Wlas catfish and acipenseridae) in the assemblages from the sites of Lepenski Vir, Vlasac and Padina. Even with methodological biases concerning recovery techniques employed during the old and new excavations, and different areas of the sites they encompassed, we found that fish species composition on the three sites varied to some extent. Given the site locations, their short distance from one another and similar landscape and environmental conditions (vicinity of cataracts and large whirlpools), this propensity towards fishing particular kinds of fish could suggest that the sites functioned as specialized fishing centres, and held different species of fish in special regard.

Use of beavers and bone industry in the Late Mesolithic – Early Neolithic site of Zamostje 2

Author - Rozovskaya, Olga, Institute for the History of Material Culture, Russian Academy of Science, St. Petersburg, Russian Federation (Presenting author)

Keywords - bone exploitation, Late Mesolithic, beaver

Presentation Preference - Oral

The Late Mesolithic includes the northwest Caspian Sea region, the Povolzhye 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 archaeozoological assemblages.

Geometric microliths of trapeze and segment shapes were used as arrowheads. Fish bones, including catfish, pike-perch, pike and sturgeon bones, were found at individual sites near the river.

Operational strategies, animal environment

There are solitary records of turtles. The only domestic animal was dog. Hunting and fishing took place all year round. Hunting increased further around 5600 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 Povolzhye steppes). According to the Klyavkins 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.
Lacustrine settlements of hunter-fishers in the Mesolithic–Early Neolithic of the forest zone of European Russia are part of the particular cultural and stable economic world of “the last hunter-gatherers”. The economy was based on hunting elk, beaver, aquatic and wading birds, as well as intensive activity. The site of Zamostje 2 was located in the centre of a wide lake plain in a former glacial basin. Cyclical 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 Zamostje 2 inhabitants. The bone industry includes hundreds of implements made from beaver jaws and incisors, used as woodworking tools, as well as ornaments and pendants. In spite of pronounced changes in cultural traditions over more than 2000 years, the main principles of production, shaping and final use of the tools made from beaver jaws remained the same. This, as well as some other specific types of bone tools, typical of the Upper Volga region, raise the question of how an ecological niche influenced some aspects of human activities and the rational use of natural resources.

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**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 are presented 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, mosasus 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 communities they are almost completely absent. To some extent, this is related to the immediate environment, but also is connected with differences in economic activities and local cultural preferences.

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**TH1-10 Abstract 08**

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

**Author:** Navarrete, Vanessa, Universitat Autonoma de Barcelona, Bellaterra, Spain (Presenting author)

**Co-author(s):** Siguier, M. Eulalia, GRAPAC, Unitat d’Antropologia Biologia, Departament de Biologia Animal, Biologi, Bellaterra, Spain

**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 indiscutable. 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 patterns, morphometric and biometric analysis of wild and domestic pig assemblages from the northeast Iberian Peninsula, dated between 5700-4600 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 northeast Iberian Peninsula. Our results indicate that the diet of Sus scrofa was substantially modified by Neolithic societies in the northeast 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.

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**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, Sofia, University of Belgrade, Belgrade, Serbia

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

**Presentation Preference:** Oral

Aurochs played a major role from the very beginning of neolithization in the Central Balkans, unlike in southeastern Europe, where sheep and goat, mostly for environmental reasons, preceded and subsequently kept their key position in animal husbandry. As genetic evidence suggests, cattle was introduced to Europe from its initial centres of domestication in the Near East. However, incidences of local domestication cannot be completely ruled out, and, even more so, hybridization of domestic stock with wild progenitors. In order to understand whether these processes ever happened, data on the distribution of the wild ancestor of cattle in the region are important, as well as its features observed from skeletal remains and archaeological contexts of discovery. Although scarce, aurochs were present in the Central Balkans during the Late Pleistocene, as can be judged from the faunal remains from 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.

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

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**TH1-10 Abstract 10**

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

**Author:** Ritchie, Kenneth, ZBSA, Iasi, Romania (Presenting author)

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

**Presentation Preference:** Oral

The Chalcolithic period (5th millennium cal BC) in the area of the Lower Danube River is of particular interest for archaeologists because of evidence of very early metallurgy, incipient social stratification, and (at many sites) a renaissance in the exploitation of wild animals in the subsistence economy (although domesticated animals continue to be important). Since 2002, excavations at the site near Piatrele, 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, Pieterjan, Vrije Universiteit Brussel, Etablissement, Belgium (Presenting author)  
Presentation Preference - Oral

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

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

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

THI-11 Abstract 03

Bypassing monolithic entities: diachronic and spatially informed approaches to early medieval towns  
Author - Wouters, Barbara, Vrije Universiteit Brussel & University of Aberdeen, Brussels, Belgium (Presenting author)  
Keywords: early medieval, geoarchaeology, urbanisation  
Presentation Preference - Oral

The settlement areas of early medieval towns have in the past been subject to generalising interpretations of their character, layout and function. Changes in the towns’ dynamics over generations of town dwellers have often only 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 plots, while an opposite reflex is necessary to produce a clearer phasing of each separate case. Before comparisons are made, the individual life trajectory of each town should be understood to its fullest. 

This paper examines how geoaarchaeological approaches (micromorphology, 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. Illustrating this approach with case studies from the Low Countries, including Tongeren and Antwerp, and Scandinavia, such as Hooley and Kaupang, this paper makes a case for a particularistic examination of early medieval towns before wider comparisons are made.

With current geoaarchaeological methods, it is possible to record and interpret separate phases of each town in more detail, to collect finds accordingly and source dating materials more securely. It is also possible to add information about well-dated but unclear phases of the towns, such as in the case of homogeneous deposits, so-called dark earths. The latter often occur precisely at the beginning and perceived end of early medieval towns, making their interpretation a challenging endeavour. Not every layer of deposit or nuance is captured by geoaarchaeological means, but more details can be added to the state of art of each individual town, perhaps even narrowing down the scope to particular changes at the scale of generations. Not just a diachronic approach, but one that takes into account diversity on a horizontal level as well, is necessary to further grasp the complexity of these urban entities. A combination of a diachronic approach and spatially informed one on a micro-scale yields archaeological results with the strongest interpretive value, and, if integrated into the research project design from the very beginning, provides a way to contextualise the enormous amounts of material these sites produce.
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 Leonard's, Australia (Presenting author)
Keywords: early medieval, settlement patterns, urbanism
Presentation Preference - Oral
The settlements of Western Europe experienced a period of significant transition following the decline of Roman control in the 5th century AD. The movement of people and ideas resulted in change and reorganisation for many communities living in what had previously been Roman settlements. Such developments occurred both within the boundaries of the old structures, and by expanding or moving beyond those existing limits. Many of those sites which saw significant change developed slowly over a longer period of time, often not taking the recognisable Medieval shape until at least the 12th century. This paper examines the developmental stages that occurred at two settlements which saw significant changes from the 5th to 10th centuries AD: London and Tours. Both developed according to a pattern of twin towns with the two halves divided by a small area with limited occupation. London and Tours were both hugely important settlements and a comparative discussion of respective changes at each site during this period highlights the various methods by which such settlements developed as well as providing insight into both a trade driven and monastic model of the twin town phenomenon. Examination of these sites and how they changed during the Early Medieval period, will enable a deeper understanding of the complexity of urban development and transitional processes.

TH1-11 Abstract 05
A Subversive Urbanism: Venice in the 9th century
Author - Calao, Diego, Stanford University, Stanford, United States of America (Presenting author)
Keywords: Adriatic, Emporia, Venice
Presentation Preference - Oral
How did Venice’s urban structure 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 laggon, in fact, was the place where the noble Romans sought refuge from the barbarian hordes: they had been forced to move to unexploited islands in the Mediterranean intent on being free and safe. In the islands the newcomers were able to rebuild a place - according to the historic narratives - ideologically and materially comparable to the old Roman sites.
The uncovered wood structures of the early medieval house, for example, have been described as a poor reaction to a sudden rise in value. In an important archaeological assessment, on the contrary, has shown how these buildings were comfortable and perfectly designed for the lagoon environment. Clay foundations and wood structures were technically appropriate for a cold and humid setting. The choice of the laggon itself was not forced. The settlement patterns were not extraordinary, but rather very dynamic and economic. By the 5th century BC increasing complexity of fortifications is recorded. The number, height and power of the settlements are increased. There is not only a general tendency to strengthen the fortifications, but also to the complexity of their structure: earthen ramparts with wooden fortifications in the form of the palisades, fences, walls, crates, towers and surrounding ditches. By the 5th century BC 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 the same economic system with many other trading towns at least in this earlier period. These facts pose other challenges to the traditional triumphalist explanations. Why did Venice enjoy a more durable success in a long-term perspective with respect to other towns? What exactly made the difference in the Venetian case? Was it mere coincidence that Venice was the seat of a political authority, the doge, whereas the other emporia were not? Was the fact that this authority was secular (a duke) rather than religious (a bishop) as elsewhere the key point?
The paper will seek to answer these questions by analysing the case of Venice in a comparative context and in the light of both archaeological data and written sources, by suggesting for the city, before 1050, typically rather than exclusively in terms of population size, accumulation of wealth and socio-economic development.
The earliest urban sites in the East European steppe date to the Early Medieval Epoch and, in particular, to the time of the Chasarian Kaganat (from the 7th to the 9th cc). So far their number has been limited to several, now famous, urban developments located along the Don river such as Sarkel-Balyaia Vezha, Pravobreznoye Tamlyanskoye gorodishche (urban development), and Semikarakororskoye gorodishche. Numerous urban developments in the adjacent areas of the foreststeppe Podorje (the Don basin valley) and Prilomnoevo (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 along the Don and the Volga belonged to the Chasarian Kaganat proper, hence it is these urban developments that can be related to ethnic Chasarians. The last decades saw simultaneous discoveries of several sites of the Chasarian Kaganat in the Volga-Don steppe. In the late 1990s at a kilometer distance from the Pravobreznoye Tamlyanskoye gorodishche an urban development was opened, which contained the ruins of a small large unfortified settlements (the name “large unfortified settlements” was proposed by the archeologists who led the excavations, the geographical position and the character of the constructions of the Samosdelta lower layer suggest that these may be the remains of the town of Itil II. In 2008 followed the opening of the Bashanta gorodishche which contained the remains of constructions made of white clay stone and tile fragments parallel to those found in later Chernousov on the Crimean peninsula (Jacobson, 1958, 1964). One of the stone blocks also had a tanga cut in it. According to two radiocarbon dates (622-655 a.D. 683-693) and 600-662 at 95.4 % and 672 728 at 90.4 %, resulting from the analysis carried out by Leibnitz Laboratory of the Kiel University, Germany, Bashanta turns out to be the earliest of the urban developments in the East European steppe dating to the time of the Chasarian Kaganat. The excavations of 2000-2005 of a number of late medieval urban centers and developments in the Lower Volga, undertaken by the Khalkin Institute of Archaeology of the Tatarstan Academy of Sciences, resulted in discovering cultural layers that are dated to the Chasarian epoch. As a number of the recovered finds show, some of the sites date back to the time of the Chasarian Kaganat. Thus, further effort along the lines will contribute to an understanding of early medieval urbanism in the archeology of Europe.

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

Author - Dr. habil. Ochir-Goryaeva, Institute of archaeology Tatarstan academy of sciences, Kazan, Russian Federation (Presenting author)
Co-author(s) - Dr. habil. Eidikov, A., Institute of archaeology Tatarstan academy of sciences, Kazan, Russian Federation
Keywords: Chasarian Kaganat, steppe, urban development
Preparation 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 Old Sclavonic 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 empires 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 North-Eastern Rus’, conducted in the two recent decades, produced extensive new data on Viking age and Medieval settlement, cultural landscapes, rural sites and early towns with the perspective of better understanding of settlement hierarchy and social contexts. Many of the dwelling sites with the first material of the X-XI cc. were mapped and surveyed in Suzdal Opole. Most important elements of this network were the large untfortified settlements – extensive unfortified sites or site clusters, with the area from 4 to 15 hectares.

Debating the nature of this category produces 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 Xth century. There is no evidence of its social and political importance in the X-th ce. 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-th c.

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

Methods, definitions and dynamics

Author - Dr. Runge, Mads, Odense By museum/Odense City Museums, Odense, Denmark (Presenting author)
Co-author(s) - Prof. Richards, Julian, University of York, York, United Kingdom
Keywords: Ringfort, Urbanism, Viking Age
Preparation Preference - Oral

The Viking Age and Medieval center of Odense were before the introduction of the systematical archaeology heavily destroyed by development work without prior archaeological excavation. This means that the earliest history of the town rests on fragmentized ground.

An ongoing research project responds to this and has started the chase on the earliest history of Odense. The project is based on a method combined with ‘urbanism’ combined with review of new material, among others new AMS dating. At the same time new large-scale excavations in the city center brings new possibilities to get the most out of the remaining parts of the city’s past.

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

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

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 area, 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 watersheds. Fact 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 Timiryevo 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 network of sites.

Viking winter camps: towns on the move?

Author - Prof. Hadley, Dawn, University of Sheffield, Sheffield, United Kingdom (Presenting author)
Co-author(s) - Prof. Richards, Julian, University of York, York, United Kingdom
Keywords: urbanism, viking winter camp
Presentation Preference - Oral

This paper will contribute to the debate about urban origins through exploration of the new archaeological evidence from the camps at which Viking armies were based during the period of raiding in the ninth century. Since they were evidently occupied for only a number of months, they do not accord with the definitions of urbanism that we have accustomed to adopting. Yet in most other respects it is now difficult to deny their urban attributes. In particular, discussion will focus on the evidence from Torceby (Lincolnshire), where the Viking ‘Great Army’ is recorded as having spent the winter of 872-3. Recent archaeological investigation has illuminated the nature of this site, which is considerably larger and more complex than hitherto suspected. It has yielded evidence for trade (in the forms of bullion, weights and coinage), manufacturing (including the processing of precious metals, smithying and textile working), minting of coins (in the forms of imitations of local currency), and religious practice and burial. The site has undoubted urban attributes, but can we really conceive of a ‘town’ as a mobile enterprise? And, if so, how do we envisage that the community supported itself? The archaeological evidence from the winter camps at both Torceby and elsewhere, not only challenges definitions, but it also prompts us to look at a new range of sites in our analysis of the development of urban settlements, since the winter camps did not develop in any direct way into the towns of the later Anglo- Saxon and medieval periods. They are physically unrelated, albeit connected in terms of the range of activities undertaken on them. The scale of the winter camps as we now understand them suggests that they housed unusually large concentrations of people, and may have given many of the members of the Viking armies their first experiences of urban living; they may also have provided a similar introduction to urban life for many of the communities in the regions where they were established. The newly emerging archaeology of Viking winter camps makes a novel, and as yet largely untapped, contribution to debates about urban development.
TH1-11 Abstract 12

More than a landing site, less than a vicus.

Iceland (Presenting author)

As a result of a systematic survey during the course of an international archaeological project, a significant number of archaeological sites were identified in Iceland. The paper discusses the evidence unearthed at Gáisir and places it in the context of social and economic organization in the medieval North Atlantic.

Keywords: Iceland, Medieval, Trade

Presentation Preference: Oral

TH1-11 Abstract 13

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

Author - Dr. Ólafur, Tállinn University, Tallinn, Estonia (Presenting author)

Keywords: development of towns in the Eastern Baltic, late Iron Age centres, 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 these early medieval towns in Tallinn and Riga. Both of them were founded as commercial sites 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 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 cattle places. Their similarities also include topographic location of the two accompanying sites, and their place in an overall culture historical complex. It depends on one’s research methods, whether the epigraphic and historical evidence help 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.

References:


Integrating archaeopedology and phytoanalysis. Quaternary International 315, 147-168.

TH1-11 Abstract 14

Hot beds? Manure pits in medieval Ackerbürgerstädte

Author - Dr. Van Oosten, Roos, Leiden University, AMERSFOORT, Netherlands (Presenting author)

Keywords: Urban agriculture

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.

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) - Devos, Yannick, Université Libre de Bruxelles, Bruxelles, Belgium

Co-author(s) - Vrydaghs, Luc, Université Libre de Bruxelles, Bruxelles, Belgium

Co-author(s) - Charnaudas, Pablo, Université Libre de Bruxelles, Bruxelles, Belgium

Co-author(s) - Degraeve, Ann, Head of the Department of Archaeological Heritage, Bruxelles, 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 century historians have heavily debated on the scarce existing – often very questionable – historical sources, trying to explain the emergence of this city situated along a steep slope bordering the Semois 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 Brussels over the past decades, no remains of farms or gardens 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 geochronological (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 agr-o-pastoral system (Devos et al., 2009; 2011; 2013; Vrydaghs et al., 2016). The present contribution will discuss the results of the study of these dark earth units, and demonstrate how they contributed to the understanding of the early town development and the importance of agricultural activities, the location of crop and pasture land, and the cultivated crops.

References:


Integrating archaeopedology and phytoanalysis. Quaternary International 315, 147-168.


TH1-11 Abstract 16

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

Author - PhD student Haase, Kirsim, Aarhus University, School of Culture and Society, Kolding, Denmark (Presenting author)

Keywords: National archaeology, Urbanization

Presentation Preference: Oral

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.
Interpreting the Archaeological Record

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 in the form of literature and 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, zoo archaeological and micromorphological analysis. With an extensive finds assemblage and well-preserved structures such as booths, houses, stables, latrines, paths, roads, fences, manureheaps and much more the site data forms the basis for addressing the question as certain features can be distinguished as agrarian or urban and how these features change over time.

Craftsmen in emporia - the original cast.

Non-ferrous metalworkers in eighth century Ribe

Aarhus University, Højbjerg, Denmark (Presenting author)

Recent research has come to challenge the universality of this link between urbanity, centrality and complex metalworking. The term is used to describe a concept, a practice and a context – was well represented in both rural peripheral settings and urban crafts-milieus. This means that the role of multimetality as part of an “urban conceptual package” is crucial to investigate. Such an approach will have the dual ends of properly understanding the craft and its societal implications, but also further the knowledge of the phenomenon of urbanity as a whole. Was multimetality Smithing part of an “urban package” that spread into rural landscapes? Did the multimetality differ between urban and rural crafts-milieus? How does early urbanity relate to the chronology of multimetality craftsmanship?

This paper aims to counter these questions using examples from the survey of multimetal sites conducted to complete the thesis project. A comparison between selected sites will be presented. The purpose of this is to evaluate the role of multimetality within the “urban package” and discuss the role of complex metalworking in the establishment of urban areas of interaction in Late Iron Age Scandinavia.

No town is an island

Author - PhD Jessen, Mads Dening, National Museum of Denmark, Kbh. K, Denmark (Presenting author)

Keywords: Architecture, Aristocracy, Production site

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 in the Viking Age is discussed in this paper as production sites such as the hall-churches near Fremninge, the new excavated site at Tømrum Næs, Jutland (Denmark), will be presented as cases in point. The special features that have been registered here will be discussed. In particular the conspicuous architecture will figure prominently; a very sturdy built and thus high structure which can only be interpreted as a tower is placed in companion with a succession of larger hall-type buildings, and a possible possible elite residential area. This aristocratic area is in direct contact with an extensive, perhaps larger pit-house cluster of more than 100 units, and placed in the vicinity of two conjoining streams. The different structures mentioned and their internal, topographical distribution as well as architectural features will be incorporated as the main base for a functional interpretation of the role of craft and building in 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 sites will be included. Furthermore, the structural fluctuation of the site at Tømrum Næs, and in particular the changes which seems to have taken place during the 7th and 8th Century, both at the site in question, but also with regards to the overall development of the Viking Age towns, will be debated in the paper.
Interpreting the Archaeological Record

Production and Distribution networks in the Diocese of Tuam, West of Ireland, AD 500-1000

Author: Tighe, John, Trinity College Dublin, The University of Dublin, Castlebar, 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 slighty earlier and not to have an organised plan.

These include sites such as Doonoughou, 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 possibility 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 sowing season for much of Europe.

This form of exchange may have been brought into fruition as increased specialisation of production coupled with increased opportunities to exchange. This may have had a direct impact on the decline of the importance of the cow can be seen as a move away from the type of economy, widespread in pre-Roman Europe, where an items value was bestowed upon it not because of its intrinsic value, like that of the silver economy which the Vikings helped to develop, but in its cultural value. The silver bracelets found at places like Cluainloughr, 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 ‘citlax’ to describe sites such as Kilclare, has smudged the idea of what constituted urban in this context, it is clear that these establishments acted as centres of production and distribution, in a way that rings 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 Doonoughou 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 earlier medieval 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.

Keywords: Iron processing, social practices, urbanity

Presentation Preference - Oral

Classical ways of defining urbbnity 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 urbbnity 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?

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

Author: Professor Dries, Tys, Vrije Universiteit Brussel, Brussels, Belgium (Presenting author)

Keywords: diversity, Low Countries, Research

Presentation Preference - Oral

The Low Countries were together with Northern Italy the most heavily urbanized regions of the medieval world. The origin and understanding of this phenomenon has been debated in a long and impressive historiographical debate, involving famous scholars like Pirenne, 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 therefor maybe what different forms urban life and functions could have and which methods we need to identify these.

Keywords: Excavation, Medieval, Oslo

Presentation Preference - Poster

We will present the latest finds from the old town of Oslo. The Folio 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.
TH1-12 Costume Complex (Clothes and Its Atire): Development, Relationships, Forms and Technologies in Time and Expansion

Friday, 2 September 2016, 09:00-16:00
Faculty of Philosophy, Room 207
Author - PhD Zhitina, Institute of archaeology RAS, Moscow, Russian Federation (Presenting author)
Co-author(s) - Stapanoviciene, Daiva, Director, Public Institution "Vita Antiqua", Vilnius, Lithuania
Co-author(s) - PhD docent Stepanova, Julija, Tver State University, Tver, Russian Federation
Presentation Preference - Regular session

Quite often there is an isolated study of typology of any category of jewelry, parts of headgear, 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 space (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 costume complex.

TH1-12 Abstract 01 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) - Margari, Monica, Valahia University of Targoviste, Targoviste, Romania
Co-author(s) - Lazar, Catalin, National History Museum of Romania, Bucharest, Romania
Keywords: Beads, Cemetery, Eneolithic
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 Bolan and the Gumeinita cultures (ca. 5000-3800 cal BC) used this cemetery. In these circumstances, the beads encountered some changes in form, dimension and raw material preference for their crafting, but other aspects remained the same in their evolution. Furthermore, the anatomical deposition of the beads on the skeletal remains is a significant source of information in the identification process of the beads as components of the costume or if they were only jewellery pieces.

The aim of this paper is to explore the beads discovered in the Sultana-Malu Rosu cemetery, from the contextual, technological, functional, and 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 this beads, and to determine the social, economic, gender, and religious connotations of this kind of artefacts.

This work was performed through the Partnerships in Priority Areas Program - PN II, developed with the support of MEN - UEFISCEDI, project no. PN-II-PT-PCCA-2013-4-2352.

TH1-12 Abstract 02 Purses-amulets from territory of Tuva in 1 mill. BC as a phenomenon of cultural symbolization

Author - Busnova, Vana, 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 Holad k.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 for the pre-restoration study. Interestingly unnoticed fact noted (other coloring) and desorbed 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, its protection properties. But what was to see the edges of the leather articles? Modern Altaï to suit women belt, append sewn leather purse on a path with the umbilical cord first child in the family.

TH1-12 Abstract 03 Sewed Jewelry in Old Russian Costume

Author - Prof. Stepanova, Julija, Tver State University, Tula, Russian Federation (Presenting author)
Keywords: burial, hoard, costume, dress, jewelry, cut, ornament
Presentation Preference - Oral

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

Sewed metal jewelry is characteristic both for the noble and for a demotic 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 Toschok, burial in the Tver Kremlin, in St. Sophia Cathedral of Novgorod, in Devilinaia church of Kiev, burial grounds Lipinsky (the Kursk region), Novkii 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 and reused. In a dress of rural people the sewed jewelry of various forms was used. First of all, it was suspension brackets of various forms: chains, belts, tiny suspension brackets, the trapezoid, drilled stones, seeds, and also knives. All things were suspended on rings, which were sewn to clothes.

The location of attached jewelry has certain regularities. First of all, it is a breast zone, and also shoulders, belt, in some cases – a skirt zones.

Chains as a rule settle down on one shoulder, asymmetric. Most likely, their ritual value as to such chains suspension brackets amulets and daggers fastens. Among other sewed jewelry the belts draw attention. There is a series of burials, in which the belts settle down in a certain order. They can be considered as markers of structure or a cut of clothes. The following options of a location of belts are allocated: 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. Probably, the linearly located belts ornamented edges or connections of separate parts of clothes.

Symmetric jewelry on the shoulders testifies the shoulder clothes, perhaps, like a Russian traditional sarafan.

Ways of fastening of the sewed jewelry can be various: by woolen threads on rings; by thin leather laces.

It is obvious that the set of metal sewed jewelry made heavier clothes. Besides, there was a need repeatedly to alter jewelry. Materials of hoards and burials, undoubtedly, show a festive clothes, and funeral, which could correspond a lifetime festive costume. The sets of festive clothes were stored together with the sewed jewelry that excludes need to unpick repeatedly jewelry from clothes. Such details as collars, could be ripped off from clothes entirely and keep together with the sewed plaques. Such practice remained later. Lists of a dowry and the bequeathed things quite often include the removable and cut-off details. In the XV-XVI centuries, metal details give way to pearls, golden-sewn stripes and lace and metal plaques, which were also of great value and were transferred from one cloth to another.
Women's funerary dress in 12th-century North Estonia.

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

Ratas, J., Freelancer, Tallinn, Estonia

Presentation Preference - Oral

Late Iron Age inhumation cemeteries dated to the end of the 12th and the beginning of the 13th century in Estonia reveal traces of richly decorated funeral dresses of mature women. Although textiles have preserved in the graves very rarely, sets of copper alloy jewelry and thin metal (copper) artifacts have permitted a rich variety of information about the attire of the dead.

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

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

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 jewelery.

Heavy-metal attire has existed since the era of metal (Eneolith, 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 using it as a hard case or of supporting framework (head hoops), others cover cloth with metal layer (sewn and hanging plates, interwoven spirals).

Adornments mainly decorate the body, their forms correspond to its parts: head wreath, necklace, 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.

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

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).

Heavily a gathered at waist long skirt. The dress was sewn a dense, carefully stitch.

The aim of the presentation is the identification of similarities and differences in the 19th century funeral textile equipment of two women, forms of clothing, typefaces, type of additives and manufacturing technology used fabrics.
TH1-12 Abstract 08

Jewelry: decoration or a detail of construction? Theory and practice

Author - PhD Stanoprianici, Daiva, PI Vita Antiqua, Vinita, Lithuania (Presenting author)  
Keywords: construction, costume, jewelry

Jewelry is emphasized by clothing - Oral

Archaeologists, having found ancient jewelry in the burial monuments, most often regard it as a decoration element, classifying and typologising it according to the shapes and ornamentation. Mostly only the metallic decoration details remain from 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 position relative to the skeleton.

In this way, the position of the brooches makes it possible to guess what kind of clothing was pinned with it - a lapsel of the blouse, sides of the coat, corners of the cloak; pins with pendants and chains tell us the style of the women’s dresses; 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’s necks; decoration details made in the area of the head give us an image about the shaping of hair or one or another variant of the headdress; 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 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 trib.

TH1-12 Abstract 09

Costume of deads or costume of livings?

Author - Dr. Ciuperca, Bogdan Ioan, History and Archaeology Prahova County Museum, Ploiești, Romania  
Co-author(s) - Dr. Magureanu, A., Institute of Archaeology Vasile Parvan, Bucharest, Romania (Presenting author)  
Keywords: early middle age, from object to costume, social meanings

Presentation Preference - Oral

There is a long debate of interpreting the archaeological discoveries from cemeteries, especially, as a suggesting (sometime as a certainty) of the costume of certain community/group/ethnic. Discoveries from settlement where never taking into consideration as a relative source for such debate. But there are exceptions when we do not have cemeteries and there are exceptions when we do not have settlements, archaeologists preferring to excavate the cemeteries. Such a situation is in Lower Danube region in the 6th-10th centuries. So this is a good situation to a wider kind of questions relating the costume. Costume of a person? Of a group? Of an era? Of the other, non-era? Of the dead? Of the living? Or image of the buried person? Or image of the family? How we can 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 “clothing objects”? or can be ambivalent? We intend to provoke 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.

TH1-12 Abstract 10

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

Author - MA Mach, 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 - figural mosaics. They depicted both mythological scenes and everyday life and were displayed in public places and private estates of influential landords. 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 Pannonicus. 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 landords and their wives is emphasized by clothes and jewellery which they wear, adulating 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 existance of the Roman Empire, for example the representations of chapes for jewellery (yuxides) which are known status symbols already on Classical Greek grave-stakes.

TH1-12 Abstract 11

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

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

Presentation Preference - Oral

Zupan - one of the oldest components of the costume wearing by the elite of the Belarusian society. From the 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 XVII century Zupan became an essential element of the Belarusian gentry culture. During the Renaissance Zupan has evolved from military clothing to the main component of ceremonial Belarusian dress. Zupan began to sew from precious silk, velvet tissues, using a trim and gilded buttons. Such a rich clothes acquired status significance. During this period suit with the Zupan has become a unique distinctive artistic phenomenon, the hallmark of 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, celebrity men’s suit was born with changes in the worldview of the gentry class in Polish-Lithuanian Commonwealth, the desire to emphasize its own peculiarities among European Community. There will also be observed evolution of the complex costume, which included Zupan. The differences between celebratory and everyday Zupan, changes of details (collar, sleeves, etc.) from the end of XVI and XVII centuries will be presented. It will be noted that the basic principles of cutting and style of wearing Zupan remained almost unchanged for three centuries. Red, white and gray colors of Zupan were most widespread during the lifetime of the gentry’s suit.

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

TH1-12 Abstract 12

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

Author - Grupa, Dawida, Institute of Archaeology, Nicolaus Copernicus University Torun Poland, Torun, 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 burial, 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’s 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, even in accordance to fashion of their parents’ clothes. Children needs were neglected, their garments had to reflect their parents’ wishes only. That tendency had frequently negative effects on proper development of the youngest members of the society. That trend is observed till the end of 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.

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TH1-12 Abstract 13

The burial monuments of the Roman-Ionian region as a source of information on the socio-economic changes in the 2nd century BC – 1st century AD

Author - Prof. Radulescu, Maria, Institute of Archaeology, Vasile Parvan Bucharest, Romania (Presenting author)  
Keywords: burial monuments, Roman-Ionian region, social status, economy

Presentation Preference - Oral

The burial monuments of the Roman-Ionian region are rich in jewelry, pottery and other kinds of artifacts that provide information about the socioeconomic changes in the 2nd century BC – 1st century AD. The analysis of these artifacts allows us to reconstruct the social and economic structure of this region and compare it with other regions in the Roman Empire.
Late Bronze and early Iron Age costumes in the Southern Baltic: unknown and unexplored

Author: Dr. Ślusarska, Katarzyna, University of Gdańsk, Gdańsk, Poland (Presenting author)
Keywords: female/male costume, LB/A-early Iron Age, Southern Baltic zone

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 assume that there 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. Funerary tradition of the late Bronze and early Iron Age Central European groups make the situation even more complicated. Not only creation 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 every-day and ceremonial costumes.

Women’s headwear from the burials of the III–IV centuries in Suzdal Opolje

Author: Dr. Zaytseva, Irina, Institute of Archaeology of RAS, Moscow, Russia (Presenting author)
Keywords: burial rite, 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 Bolshoy Davydovskoe 2 in Suzdal Opolje. In the small cemetery 18 burial pits with 23 burials were excavated. They performed the rite of inhumation. Funeral rites, grave goods and the parts of the clothing allow us to attribute the monument to be a part of Riazan-Oka culture. The burials can be dated to the end of 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. Belotserskoyeva, similar clips with rings appeared at the end of the I-II cc. In IV-V cc. they have proliferated and are becoming an indispensable part of the corollas and occasionally necklaces from the population of Riazan-Oka culture. T. Kraschenko believed that the head corollas put on the top of the textile shawls, which were a part of women’s headdresses. 3 persons had the head decoration of a different type: these were clusters of oval bronze clamps that were closely strung on cords with small wire rings and semicircular plaques. Probably cords with clips and small ornaments were sewn onto organic bases (leather, textile). In all these burials near the skull found a pair of large cylindrical temporal rings with blade. The presence of complicated, often multi-layered women’s headwear is one of the characteristics of funerary rites in cultures of Finno-Ugric type, continuing over a long period of time from the Migration period to the late middle ages. T. Kraschenko, N. Trubnikov and I.Belotserskaya made a reconstruction of the typical headwear of female burials of the early phase of Riazan-Oka culture. Mostly it’s a cap of leather or textile with a rigid skeleton, represented by the bronze plate or braid. Caps were decorated with sewn on badges and straps with bronze spirals. Bronze-cylindrical temporal rings with blade were attached to hats. At the back were often fastened with a brooch with jungling pendants.

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

New data confirms the theory by I. Belotserskova about the syncretic nature of the early Riazan-Oka women’s headdresses, which combines features of various groups.

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

Author: Dr. Rodrikova, Vlada, Institute of Archaeological Russian 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, 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 Kiotchin and Pen’kovka 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 jewellery 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 Kosowska, 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 Asialic and European workshops were very often decorated with the motive of confronted animals standing on the floral ornament. The scene is usually put into metadition-type decoration. It is believed that this convention had its roots in Sasanianweaving tradition, but the oldest depiction of it is known from “jin” fabrics discovered in Turfan oasis (Kixiang) and Dulan (Grihagh). Because of its technical features (warp-faced compound tabby) is obvious that they were made in Chinese workshops. Some components of the motive depicted on these textiles are pure Sasanian (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 Sogdian trade activity on the Silk Road. This Sasanian-Chinese convention was introduced into Central Asia in 8th century (especially to Sogdiana), and then was adopted 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 dresses long been recognized as an indicator of group affinity. The information in the dress is with 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 dresses. 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 this is only hypothetic version lacking definitive proof in form of actual archaeological finds, although backed by strong supporting evidence.

TH1-12 Abstract 18

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

Author - PhD Varatinova, Aksana, National Academy of Sciences of Belarus, Minsk, Belarus (Presenting author)

Keywords: costume, decorations, medieval

Presentation Preference - Oral

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

TH1-12 Abstract 19

Jewellery workshop in the medieval Smolensk

Author - Mirenaeva, Tatjana, The Institute of archaeology, Buturlinovka, Russian Federation (Presenting author)

Keywords: Archaeological excavations, Jewellery workshop, Medieval city

Presentation Preference - Oral

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

TH1-12 Abstract 20

Andronovo Costume: Headgear and Ritual

Author - Senior Fellow Umanova, Emma, Saryarka Archaeological Institute, Reserve Park “Ulytau”, Karaganda, Kazakhstan (Presenting author)

Keywords: Archaelogical relics, Andronovo culture, Headdress

Presentation Preference - Poster

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

TH1-12 Abstract 21

Peruvian textiles in Warsaw National Museum

Author - MI 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 (late Nazca: 500 B.C - 200 B.C) and other two are tapis fragments woven in Wari state (500 -1000 C.E). Embroideries (plain stitch looped behind) are similar in shape and it is very probable that they were pieces of the same 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 tapis fragments were originally sewn into the small purse (trapezium 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 - Elsina, Irina, Institute of Archeology 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. Byelayev 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 of great interest. In the burial, numerous textile fragments, forming the shape of a trapezoid, 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 tulip, bugle braid, 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 (cloak). 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 cloak was long, and its front edge was fastened with buttons. This is typical of the ancient type of phelonion. Based on these studies a color graphic reconstruction of ornamental patterns and design of the collar was performed. Phelonion collar was performed by high-end skilled workers, and certainly is a striking example of the Russian decorative art. Ornamental pattern of the collar and the nature of gold embroidery execution relate to the 17th century.

TH1-12 Abstract 23

Jewelry from Germanic graves in Krakowany - Strażę (Slovakia)

Author - Mgr. PhD Danova, Mirolava, University of Trnava, Department of Classical Archaeology, Trnava, Slovakia (Presenting author)

Co-author(s) – Krupa, Vladimir, Balneological Museum Piešťany, Piešťany, Slovakia

Keywords: decorating techniques, goldring, Krakowany

Presentation Preference - Poster

The Balneological Museum in Piešťany (Slovakia) acquired goldring from grave of noble person in Krakowany – Strażę (Slovakia). The ring was found by brickwork employees in 1930s but it have disappeared for almost 80 years. Analysis of decoration techniques confirms that the ring comes from Germanic workshop inspired by Romans. Ball decorations made of silver, golden and silver clasp from the grave II are decorated with identical motifs.
Interpreting the Archaeological Record

TH1 Abstract 24

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) - Jabon, D., University of Turku, Turku, Finland

Co-author(s) - Helinmaa, M., Muurutukimu ky, Kaarina, Finland

Co-author(s) - Uria, A.M., University of Turku, Turku, Finland

Co-author(s) - Lampiäinen, T., University of Turku, Turku, Finland

Co-author(s) - Quoipoiskaella, E., Rauma Museum, Rauma, Finland

Co-author(s) - Saalomäki, S., University of Turku, Turku, Finland

Co-author(s) - Uotila, K., Muurutukimu ky, Kaarina, Finland

Keywords: Early medieval, Textiles and accessories

Presentation Preference - Poster

Burying deceased parishioners beneath the wooden church floor was a common practice for approximately for 50 years at the church of Köyliö, built in 1752. Due to church renovations during the summer of 2015, a number of burials were surveyed and excavated as part of a salvage effort due to the risk posed to the remains, with an unknown number of burials remaining in situ. The dry and well-ventilated microlclimate beneath the floor resulted in exceptional preservation levels for both human remains and their accompanying textiles. This is a rare occurrence in Finnish church studies, as textile materials require unique and often extreme environments for preservation.

The funeral attire at Köyliö represents both social and symbolic aspects, contrasting the life and death of these individuals. The samples include two elderly women, a middle aged man and three children. Based on their attire and various ornaments we may look into the social ranks of the deceased. Additionally, the selection of cloths and accessories, their manufacture and materials in addition to the plants used to mask the smell of decomposing bodies under the floors, we may read both official and folk religious approaches to considering death and the deceased. Written sources from this period imply that the practices surrounding the burial of a relative were controlled through various beliefs and laws, which will be used to interpret these burials.

TH1 Abstract 25

Archaeology and conservation intertwined: A leather jackets’ journey through conservation

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

Co-author(s) - Lotti, Benjamin, Studio Västsvensk Konservering, 41502 Göteborg, Sweden

Keywords: 16-th century, Field conservation, Gainsford, Leather

Presentation Preference - Poster

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

During excavation of a buried individual an excavating archaeologist cease 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 early medieval Rhineland. Due to the specific preservation conditions organic material survived only in connection with metal; for this reason only a few objects with a functional connection between clothing and buckles or jewellery (particularly bracelets and earrings) can be taken into consideration. Apart from some additional separate depictions the corpse was dressed in gender-specific clothing.

This is also reflected in the late grave 25 to 670/89. The young woman wore a fine spun patterned garment that was open or slit vertically in the upper body area and closed with two silver press plate fibulae with mask-like heads. The burial also included a gold filigree fibula and a necklace of amethyst, gem and amber beads, silver plate cylinders and disc-shaped gold pendants. Representative for male graves should be grave 368 with extensive weaponry (sword, scramaas, shield and spear) and multipart belt fittings. Under the belt the deceased wore a tunic-like garment made of diamond twill, while further textiles was found together with feathers (perhaps a lining or feathers scattered loosely). 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.

TH1 Abstract 27

Clothing in figural decorations on Lusatian culture pottery

Author - master of arts Przymorska-Sztuczka, Magdalena, Institute of Archaeology Nicolaus Copernicus Univeristy in Toruń, Toruń, 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 Trzesta Rjadova, site 1, and the second is form Wenecja Górska, 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 peplos. 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 Gapia, 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 stripes 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 ornaments and it is possible to use them in reconstructions of clothes of Lusatian culture.

TH1 Abstract 28

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

Author - Wilson, Kelvin, Kelvin Wilson, Ridderkerk, 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 conic 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.

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

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

This is also reflected in the late grave 25 to 670/89. The young woman wore a fine spun patterned garment that was open or slit vertically in the upper body area and closed with two silver press plate fibulae with mask-like heads. The burial also included a gold filigree fibula and a necklace of amethyst, gem and amber beads, silver plate cylinders and disc-shaped gold pendants. Representative for male graves should be grave 368 with extensive weaponry (sword, scramaas, shield and spear) and multipart belt fittings. Under the belt the deceased wore a tunic-like garment made of diamond twill, while further textiles was found together with feathers (perhaps a lining or feathers scattered loosely).

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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Poster

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This significance displays a degree of appreciation which goes beyond the ideas we would associate with textiles from a modern production from the Neolithic to the Iron Age, representative of the significance of textile products in prehistoric Central Europe. Research results of the past 20 years have made it possible to recognise traditional manufacturing techniques of textile production, and the importance of sheep-husbandry and woollen 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 one 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 03
Textile impressions on ceramics from the late Neolithic to the early Iron Age in Central Europe
Author - Dr. Siennicka, Malgorzata, University of Copenhagen, Københavns, Denmark (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?
Diacronic 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 notably 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 (namely loom weights) and their distribution which may have reflected the transfer of technical novelties, skills 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 view of gradual development and ground-breaking novelties of the Aegean Bronze Age weaving technology.
that spinning with spindle whorls and weaving on the warp-weighted loom were commonly practiced. Plant fibres, particularly linen, seem to have been the main material for the production of cloth and textiles during this period. At some point, most probably during the Early Bronze Age, animal fibres (sheep wool) began to be used in the Aegean on a wider scale. Since hardly any Neolithic and Early Bronze textiles are preserved 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.

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

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**TH1-13 Abstract 08**

**Does anybody still wear that?**

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

**Author:** Thaler, Ulrich, German Archaeological Institute, Athens, Greece (Presenting author)

**Presentation Preference:** Oral

Minoan and Mycenaean wall-paintings, as most recently documented in B. R. Jones’ monographic study ‘Archaic 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 is particularly noteworthy, as is, arguably as a collateral phenomenon, the occasional less-than-artful rendering of motifs when a painter diverged from the templates of actual or conceptual pattern books. Judging the 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 selection on the part of the mainlanders and that it can be associated with ritual or festive occasions and possibly only with weavers of a certain social status, there has been a long-lasting debate whether or not this female dress was actually still worn on the mainland in the 13th century B.C. Its survival only in wall-painting iconography has been suggested as an alternative explanation of the extant evidence, which has recently been complemented by important new wall-painting finds from the site of Thera. These include, at least one and possibly repeated instances, a very unusual rendering of the bodice, which – unless it was explicable as a purely local form – provides a new vantage point to address an old and as yet unfinished question in the proposed paper.

**References:**

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

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**TH1-13 Abstract 09**

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

**Author:** Kofel, Dominika, Polish Academy of Sciences, Katowice, Poland (Presenting author)

**Keywords:** dyeing, Hala Sultan Tekke, plant macrofossil analysis

**Presentation Preference:** Oral

Hala Sultan Tekke site is located in the southern – east part of Cyprus, ca 7 km from Larnaca. The investigation has been being undertaken at a terrain of the Late Cypriote city of Domoriatovia. Due to a large territory that the settlement could have occupied the archaeological research has been divided into smaller areas. The exploration started, in the so called Area 8, in the 70’s of the 20th century. At that time, the director of the excavation was a Swedish professor Paul Åström. At the end of the 80’s undertaken at a terrain of the Late Cypriote city of Dromolaxia Vizatzia. Due to a large territory that the settlement could have occupied the archaeological research has been divided into smaller areas. The exploration started at a terrain of the Late Cypriote city of Domoriatovia. Due to a large territory that the settlement could have occupied the archaeological research has been divided into smaller areas. The exploration started in the Amelia called Area 6 in the northern part of the site.

The conducted, hitherto, excavations allowed establishing the localization 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 II: 1450-1200 BC and Late Cypriote III: 1200-1050 BC). Additionally, two stages of site occupation have been discovered. Stratum 1 and Stratum 2 that can be differentiated by a change in the soil colour and a shift in the stone constructions technique.

The research in the 20th century as well as the one conducted for last six seasons brought to light interesting matters regarding textile production at the site. There are both artefacts, including spindle whorls and dozens of loom weights and archaeobotanical material that could indicate fabric-dying in the city. Out of five most common dyeing agents, namely major and other rubiculous plants, insects, the flavonoid dyes, the gallotannins and the dyewoods, two were detected on the site. The presented paper, throughout an examination of finds, analysis of plant macrofossils and motifs will highlight the importance of Late Cypriote III in the Domoriatovia Mediterranean basin.

**References:**

- Kofel, Dominika, Polish Academy of Sciences, Katowice, Poland (Presenting author)
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TH1-13 Abstract 10

Technical Innovation in Flax Yarn in the Northwest of the Iberian Peninsula.

The Spinning Bowl

Author: Doctorandra Ruiz de Haro, Maria Irene, Escuela Internacional de Posgrado- Universidad de Granada, Almuñecer, 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 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 relates to this innovation and secondly to open the investigation to their role within the technical chain embodiment of linen thread in the phase of the splicing techniques.

TH1-13 Abstract 11

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

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

Keywords: import, textile, wool

Presentation Preference - Oral

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

TH1-13 Abstract 12

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

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

Keywords: ceramic spindle whorls, Early Bronze Age

Presentation Preference - Poster

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

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

TH1-13 Abstract 13

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

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

Co-author(s) - Pásztóki-Széke, Judit, University of West-Hungary, Hungary

Co-author(s) - Kolcu, Gabriella, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary

Co-author(s) - Stevéninyi, Vajk, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary

Keywords: Bronze Age, Central Europe, textile imprints

Presentation Preference - Poster

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

As part of a recent multidisciplinary research project (“From bones, bronzes and sites to society: Multidisciplinary analysis of human mobility and social changes in Bronze Age Hungary (2500-1500 BC” http://ri.btk.mta.hu/en/english-submenu-06) launched this year by the Hungarian Academy of Sciences Momentum research programme, our study focuses on local textile production and consumption during the Early and Middle Bronze Age in the Carpathian Basin. The primary goal of our poster is to present the pilot study of this research concerning the technologies used for producing woven and non-woven textiles imprinted on the surface of ceramic storage vessels.

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

TH1-13 Abstract 14

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

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

Presentation Preference - Poster

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

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.

TH1-13 Abstract 15

Hallstatt textiles in Poland: Analysis of textile finds from the bi-ritual cemetery in Świebő

Author: MSc Slomka, Joanna, Polish Academy of Sciences, Łódź, Poland (Presenting author)

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

Keywords: bi-rual cemetery, Hallstatt Period, Textiles

Presentation Preference - Poster

Textile production during the Hallstatt period was an internal 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-rual graves in Silexia voivodeship. Among preserved fragments of organic finds we were able to distinguish the clothes remains and the elements of accessories. The best preserved and well studied textile remains come from the cemetery in Świebő, 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 region of the South and West Europe. 63 graves contained remains of textiles. Most survived fabrics adhere to metal outfits. In addition, research encountered woven wapes remains, braided ribbons, threads and strings.

Material acquired from the cemetery in Świebő is the largest textile collection from Hallstatt period, discovered in Poland. It waited at museum warehouse till 2015 when Institute of Archaeology and Ethnology Polish Academy of Sciences at Łódź proceed with further studies. Despite the fact that most of fragments were small and mineralized, all undertaken analyses lead to better understanding of textile production in Hallstatt period in Poland, with its innovative and traditional elements.
Comb or a vertical loom? Attempt to interpret of the decoration on the urn from Szemud, Poland

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 ornaments on urn of Pomeranian culture from Szemud, Poland. In literature, this image is described as “alleged” comb. It was noted that both the same image, as well as the location of the engraving is unusual for typical combs motifs. If not a comb, then what? According to the author it is a representation of the vertical loom. This interpretation is supported by exceptionally long and densely arranged engraved lines, but most 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 the elements of the vertical loom for making a more complex patterns.

CHILD’S LIFE – BETWEEN PLAY AND WORK

Thursday, 1 September 2016, 14:00-18:30
Faculty of History, Room 332
Author: Blažević, Pooška, National Museum - Palace of the Grand Dukes of Lithuania, Vilnius, Lithuania (Presenting author)
Co-author(s): Romaniwicz, Paulina, Institute Archeologii I Etnologii PANiZZca, Poland
Presentation Preference: Regular session

Children do not have an easy life. Childhood is a time of hard work on child’s own physicality, emotionality and knowledge. Time of challenges, ups and downs. Meanwhile, the vision of the ideal childhood and a happy child usually revolves around carefree fun. And today with all the power we try to hold our children away from concerns. As if we have forgotten that “no pain no gain”. The theme of the planned session is to present archaeological sources of children living in different times and places, with a particular focus on issues of children’s work and play. The spectrum of topics of interest includes children’s toys and games, socialization through miniatures, the presence of children in craft workshops, anthropological study of children’s skeletons of children in terms of physical effort, and all that will broaden our knowledge about the lives of children in the past.

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

Author: Prof. D.Sc. Mednikova, Maria, Institute of archaeology of RAS, Moscow, Russian Federation (Presenting author)
Keywords: Archaeology, physical anthropology, Chalkolithica
Presentation Preference: Oral

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

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

Author - Miliauskienė, Žydrūnė, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: Baltic Sea region, children, enamel hypoplasia
Presentation Preference: Oral

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

The aim of the study was to analyze the prevalence of localized primary canine hypoplasia of subadult individuals in selected archaeological samples, based on different chronology and subsistence: the Stone Age sample (7500-2600 BC, represented by Zvejnieki site, Latvia), the Iron Age sample (5-6th c.c., represented by Plinkaigalis, Lithuania) and medieval sample (16-18th c.c. represented by selected sites from Vilnius and Trakai, Lithuania). Medieval sample was subsequently divided in three groups, based on different social status of individuals. In total, 134 individuals (338 teeth) were included in the study. All primary canines were visually scored for presence or absence of the defect. The highest prevalence of hypoplasia was found in the Stone Age sample: 38.8 % of primary canines (50 % of individuals) were affected. Children from the Iron Age sample and medieval sample had statistically lower frequency of LHPC (21.1 % and 25.4 % of teeth, respectively, p<0.05). Results also revealed differences in the prevalence of LHPC, according to social status. Children of the highest social rank had lower frequency of hypoplasia compare to children from lower social strata (12.0 % and 27.7 % of teeth with LHPC, respectively). Differences in the prevalence of LHPC most probably reflect changes in the mode of subsistence, and dietary peculiarities of different social strata, although differences in child care practices cannot be excluded.
TH1-14 Abstract 03

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

Author: Dr. Lorentz, Kiri, The Cyprus Institute, Nicosia, Cyprus (Presenting author)
Keywords: GNI, growth, 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 endeavor, cross-sectional data from the immature skeletal remains from Anglo-Saxon mortuary populations of Blackgate, Newcastle-upon-Tyne, and Raunds, 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 criptra orbitalia and porotic hyperostosis is high in the Blackgate individuals delayed in growth. Behavioural abilities are more closely related to skeletal age than chronological age, which dental age is seen to approximate. Thus, when discussing children’s capabilities, particularly in relation to work, the use of skeletal age is preferential to the use of chronological age. Delayed long bone growth may be used in making inferences about the behavioural developmental stage attained by children in mortuary populations, and further, on the kinds of work children at various growth stages may have been able to perform. The possibility of excessive physical activity should be noted alongside the conventional claims of malnutrition and disease when discussing possible environmental causes for delayed growth. Further, contemporary Western ideas should not be employed when constructing theories of childhood work in archaeological contexts. Better heuristic models for conceptualizing childhood, for example in the Anglo-Saxon period, can be found through 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, Sami, University of Oulu, Oulu, Finland (Presenting author)
Keywords: burials of children, nurture and education, play and textile work
Presentation Preference: Oral

Researching children’s daily life in Pre-Roman central Tyrrhenian Italy is challenging, as there is minimal archaeological material indicating the presence of children in settlement contexts. The existing evidence on children consist mostly of infant tombs dated between the final Bronze Age and Archaic period. Considering the high child mortality rate, the amount of child burials at necropoles is very low, and the burials of the youngest children (less than four years of age) are mostly missing. However in Latium and Rome, many infants and fetuses have been found buried at settlement sites. Current research implies that different burials 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 Etruria, 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 material 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 proofs that even small infants had been bestowed important status within their families, and their enculturation was already in process prior to their death. Socialisation through gender roles is also visible through examination through funerary artefacts.

TH1-14 Abstract 05

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

Author: Zupanek, Bernarda, Museum and Galleries 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 consistent 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 immurett.

TH1-14 Abstract 06

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

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

In the protohistoric European communities, due to the scarcity of evidence in archaeological record, the role of infants and children is difficult to grasp; indeed, in 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. Kasela, Joäählme) and comparing the findings with other researches conducted in the largest European cemeteries (e.g. Ottso 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 protohistoric 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 hereditary 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: Vilka, Aija, SIA “Arheoloģiskā izpēte” (Archaeological Research Ltd.), Aluksne, 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. 5th - 12th century) cemeteries in Latvia. These artefacts can be found within burials of different age of children, starting with a 1-2-years old. 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 boy? 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 Bamberg 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.
Interpreting the Archaeological Record

TH1-14 Abstract 09

Getting better. Learning how to knap at the Early Neolithic Flint mine of Casa Montero (Spain)

Author - Dr. Castañeda, Nuria, Université Paris I-Panthéon Sorbonne, Nanterre, France (Presenting author)
Co-author(s) - Dias-ldio, Pedro, Institute of History-CSIC, Madrid, Spain
Keywords: learning, Neolithic mining
Presentation Preference - Oral

In Prehistoric times, the opportunity to take part in flint procurement at a mine was part of the initiation process for infants that would grow up to become active members of the group. The analysis of lithic remains from the Early Neolithic Flint mine of Casa Montero (Madrid, Spain c. 5300-5200 cal BC), where three different skill levels have been recognized, supports the presence of flint knapping apprentices. In order to become part of the community, apprentices had to start working in peripheral tasks before being trained in flint knapping techniques. Therefore, management of waste, selection of raw material, extraction and recycling were probably the first stages of learning while helping. Identifying the waste produced by unskilled knappers in the lithic record is critical in order to discriminate them from the general assemblage. Lithic leftovers are explicitly composed by skilled reduction by products and those generated in the learning process. The latter not only reproduced the normalized reduction schemes, but also could eventually contribute to the final production of blades. This paper will focus in the technical criteria used to recognize the remains of unskilled knappers and which kind of previous knowledge must acquire the novice knappers by helping in secondary tasks at the mine. At Casa Montero, limited access to the facility raw material is one of the main features to determine novice knappers lithic remains.

TH1-14 Abstract 10

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

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

This presentation aims to examine the relation of children and animals, as illustrated by animals shaped objects used as toys or grave gifts, as well as 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 explore the varying or changing attitudes towards animals, as set in particular social and chronological terms, and as based on one of the fundamental dualities permeating Greek thought (humans vs animals, Greeks vs barbarians etc). These attitudes are bequeathed to the "unchanged" 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 funereal reliefs, showing children playing or fighting with animals. Animal shaped toys, such as rattle, held by either toddlers or their nurses to full them to sleep, include pig or wolf teeth, possibly meant to ward off evil. We hear of rocking horses in literature, or come across wheeled animals, mainly horses, for babies to push or pull; once they could walk or crawl. These are either depicted on vases or form figurines found in children's graves. Birds, such as geese, ducks, swans, doves, were the favourite pet of both boys and girls, sometimes buried with them, if they died. Only rarely do we find caged singing birds. Youngsters were associated mainly with dogs and only occasionally with cats, of the Abyssinian breed that was imported to Athens, as well as exotic felines, such as cheetahs. These exotic cats, or occasionally also monkeys, were reserved for the rich youth of 5th c. Athens. Children also appear to play with goats or deer on vases, while we know that older boys could keep racehorses or hunting hounds, as part of their hunting or athletic activities. Pets are not only shown at play, but also being petted, walked, trained, or even mistreated. A special category of pets are cocks, often in fight, since they were used to evoke a pugnacious spirit in young boys. Moreover, cocks, as well as hares, tend to copulate a lot, so they are often suitably depicted as erotic gifts in the context of pederasty (boys' love), along with other animals associated with hunting, such as deer, or pet birds, such as doves.

TH1-14 Abstract 11

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

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

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

TH1-14 Abstract 12

The children of medieval and post medieval Copenhagen

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

Children are often quite invisible in the archaeological material for many reasons - the (few) toys have disappeared or can no longer be identified; children’s bones are more fragile and perish faster than those from adults from burial sites. With the aim to give nuance to the lives of children in past society, this paper will present the evidence of children living in historical Copenhagen through different unique findings of artefacts, a cemetery and an example of child labour. The Metro excavations in the city centre have given a lot of new evidence of the presence of children in Copenhagen. Well preserved finds of toys made of organic materials were excavated from the moats of the fortification surrounding the city. These unique toys reflect play and fun, but also some of them must have been a means of preparing the children for adult lives. Along the churchyard walls of the former church of a monastery were used to establish the orphanage. It was financed by donations of the citizenry and so document the life course stage at which they began to articulate their identity as a literate person. The paper suggests a methodology that could be fruitfully applied in many periods to reveal more about how childhood was conceptualised in the past.

TH1-14 Abstract 13

Work and play at the early modern orphanage in Altenburg

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

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

TH1-14 Abstract 14

The cultural construction of childhood as a separate category to adulthood, and embody this through social practices involving material culture. This paper takes one object category, finger-rings, and investigates the evidence that relates to the use of rings by children. By examining grave contexts containing finger-rings, we can establish the normal size ranges that existed for rings worn by children and adults. A much larger sample of rings can then be examined, identifying rings in sizes that are likely to have been worn by children, and documenting any decorative motifs on the bezel of the ring that were particularly associated with them. We can show that decorative motifs that were much used for children in the Roman period include the phallicus symbol, palm branch, depictions of the Egyptian god Serapis, and other motifs such as theatre masks. Many of these themes chosen for children's rings reflect themes of benevolence and protection appropriate to the perceived vulnerability of children in antiquity, while others relate to childhood activities and conceptualise childhood as a time of leisure. A difference can even be identified between motifs felt suitable only for babies, and those given to older children. We can also investigate the likely age at which children may have been given seal rings, and so document the life course stage at which they began to articulate their identity as a literate person. The paper suggests a methodology that could be fruitfully applied in many periods to reveal more about how childhood was conceptualised in the past.
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 (medos) 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 fulfill 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 hired 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 or 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. Chmiel-Chrzanowska, Marta, University of Szczecin, Szczecin, Poland (Presenting author)
Co-author(s): Fatmir, Ratit, 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, Toruń, 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.

TH1-14 Abstract 17

Children in Vilnius potteries

Author: Dr. Bläženickus, Povilas, National Museum – Palace of the Grand Dukes of Lithuania, Vilnius, Lithuania (Presenting author)
Keywords: Child labor, Fingerprints, Medieval archaeology
Presentation Preference - Poster

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

TH1-14 Abstract 18

Work & Play; an archaeology of childhood in Early Modern Scotland

Author: Campbell, Stuart, National Museums Scotland, Edinburgh, United Kingdom (Presenting author)
Keywords: Archaeology of Childhood
Presentation Preference - Poster

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

CHARITING OTHERWORLDS:
CEMETERIES AS CULT SITES

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

Author - Plakowski, University of Reading, Reading, United Kingdom
Co-author(s) - Karzewska, Maciej, University of Białystok, Białystok, Poland (Presenting author)
Co-author(s) - Banaszak, Rowena, Reading, United Kingdom

Keywords: Cemeteries, Cult, Religion

Presentation Preference - Regular session

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 ‘r’ (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 types of place-name indicating outdoor cult (such as theophoric names and place-names containing the element al ‘sacred site’), however, suggests that burials were present in these locations. In this paper, a selection of these cult sites will be examined through detailed study of archaeological features, topographic features, as well as some written sources, above all Edict 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’.

Cult and Burial Sites as Arenas of Ritual and Performance

Author - Dr. Sanmark, Alexandra, University of the Highlands and Islands, Kirkwall, United Kingdom (Presenting author)

Keywords: Burial, Cult site, Scandinavia

Presentation Preference - Oral

This paper will discuss the definition of cult sites in Vendel and Viking-age Scandinavia. In recent years a number of cult sites with place-names containing the element ‘r’ (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 types of place-name indicating outdoor cult (such as theophoric names and place-names containing the element al ‘sacred site’), however, suggests that burials were present in these locations. In this paper, a selection of these cult sites will be examined through detailed study of archaeological features, topographic features, as well as some written sources, above all Edict 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’.

Necromancy in grave reopening practices

in late Iron Age Scandinavia

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

Keywords: Burial, Excavation, 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 reopenings like that of the Oseberg mound in Norway are part of a much wider pattern of revisiting and reworking burials. Such reopening 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 reopening activities on the body of the dead and the artefacts 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.

Christian and pagan: Eggs as grave goods

in the Late Iron Age cemetery at Kukruse, NE Estonia

Author - Dr. Oras, Ester, University of Tartu, Tartu, Estonia (Presenting author)

Co-author(s) - Jonuks, Tõnno, Estonian Literary Museum, Tartu, Estonia
Co-author(s) - Mui, Sian, Durham University, Durham, United Kingdom (Presenting author)

Keywords: Cult, Religion

Presentation Preference - Oral

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 accented 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.

Positoning 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 investment. 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 consciously and meaningfully practiced 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, nationally 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.
In 2009 two wealthy female inhumations were excavated in the conversion period (12th–13th century) cemetery at Kukruse, NEEstonia. Both women were exceptionally richly furnished and belonged to the nobility of this society. In addition to rich grave
goods both inhumations contained egg shells, although these were recovered from clearly different contexts. In one burial the
egg was laid between femurs, on top of her dress and ornaments. It was painted red and clearly displayed with apparent symbolic
connotations. The egg from the second inhumation was found at the foot of the woman, next to a ceramic vessel. Both eggs have
been identified as chicken eggs with ZooMS and microscopic analysis.
The obviously different finding circumstances of eggs in the two female burials at Kukruse raise several questions: What is
the meaning of an egg in burial rituals for this conversion period cemetery? Why was the same object curated so differently and
how are we to interpret this situation? Can we talk about pagan or Christian connotations, perhaps even simultaneously?
What do these egg finds tell us about the religious identity of this society?

TH1-15 Abstract 06
Were cenotaphs built at Milzi kapis? Analysis of barrows discovered
in Wysokie site in Lithuania
Author - Mgr Rosowska, Justyna, Wilczyce, Poland (Presenting author)
Keywords: barrow, cenotaph, Vilkiautinis
Presentation Preference - Oral
In 1913 Stefan Krukowski excavated 22 barrows at Wysokie site (Vilkiautinis, dis. Varėnos) 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 Milżi kapis means in Lithuanian “the graveyard of giants” and it relates to the part of the site excavated in
1913. During the exploration mentioned researcher found inter alia six barrows without any burial or artifacts inside them. Despite
this, these structures revealed certain traces of funeral rites, for example layers of carbon and ash. The same layers were also
discovered under 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 Alinka (Alinkos,
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 new 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
Eastern Lithuania at the end of the 1st and the beginning of the 2nd millennium. In this time the increasing number of people could
not be buried in their indigenous places. It has happened so probably because of the disappearance of the body; its absence
caused by its death in the distant lands. This was connected with the increasing threat in these times which forced the Lithuanian
warriors to heading out to war and also was one of the reasons of the fall of the Roman Empire.

TH1-15 Abstract 07
Discovering Otherworld:
Investigation of the Bajorai Cemetery (SE Lithuania)
Author - Prof. Vaitkevičius, Vykintas, Klaipėda University, Klaipėda, Lithuania (Presenting author)
Keywords: Burial site, Pre-Christian religion and mythology, Sacred site
Presentation Preference - Oral
In 2006 Klaipėda University in collaboration with Kaišiadorys museum started investigation of the Bajorai cemetery (Elektrėnai
district, SE Lithuania). Due to the climate and water change cemetery was either island or shallow of the Briaunis (former Švenčius
‘Holy’) Lake; that particular site was first settled in the Mesolithic period. Separated human bones and blue glass beads found in
wetland under peat layer are dated back to the Late Bronze Age (543–398 BC) while huge amount of the cremated human and
animal bones, grave-goods, and potsherds to the 14th c. AD – early period of the Grand Duchy of Lithuania.
Use of the same flooded area for inhumated and cremated bones with 1800-years break looks extraordinary and points some
significant features of the site up. However its’ archaeological interpretation remains uncertain; the phenomenon of burials surrounded
by or placed under water will be discussed from the mythological point of view. Latter approach to the Bajorai archaeological site and
findings altogether suits well. It gives real outline of the Otherworld in the Baltic mythology which in Lithuanian is called paskandos
‘the drowned world’. Archaic motives in tales lead us to the conclusion that water has played substantial role in the cyclic process

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of the death and birth. According to Daiva Vaitkevičienė, the posthumous state of the deceased depends on the mannier of the
burial: if the body is buried in earth, the soul will reborn in a plant form; if the body is burned – the deceased acquires a bird shape.
Spilling of cremated bones into the water corresponds to the double burial (both in fire and water); it leads to the shape of the water
bird, ussually the duck. Since archaeological remains of funeral rites often are of the same kind as they do for sacrifices, further
investigations should be extended by mythological approach considering particular site and activity. While interpreting Bajorai
cemetery two overlapping archaeological conceptions of burial and sacred sites will be regarded as a whole.

TH1-15 Abstract 08
Sacredness of Space and the Afterlife:
The Topography of Medieval Lithuanian Cremation Cemeteries
Author - Petrauskas, Gediminas, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: sacredness, the afterlife, topography of cremation cemeteries
Presentation Preference - Oral
In many cultures burial rites and the relationship with death and the afterlife are fundamental issues of existence. Death is
considered as a passage from this world to the afterlife, therefore, burial is perceived as a direct reflection of connection between
the living and the dead. Contrary to the established views, burial rites speak not only about the departed to the Paradise, but also
about the living, their ideology and the concept of the afterlife. Nowadays researchers perform comprehensive interdisciplinary
studies, and burial rites are used for the reconstruction of the social structure and communication, religion and the concept of
the afterlife of past societies.
Furthermore, they allow analysing burial sites and their environment that is of not less importance. This paper examines the
burial topography and its relationship with the surrounding environment and the landscape. The relationship among cemeteries,
residential and sacred places, defensive structures and water bodies is investigated. The paper aims to reveal what role
sacredness of burial places, the concept of the afterlife, and afterlife images played in the topography of burials.
The early Medieval Lithuanian cremation cemeteries are the case in this study. In the middle of the 13th century, the Grand
Duchy of Lithuania was formed as a Christian state, however, Christianity was abandoned, and until the final conversion to
Christianity in 1387, Lithuania existed as the only Medieval pagan state in all Christian Europe. In the 13th and 14th centuries, due
to the state reform of Paganism in Lithuania, burying cremated deceased in burial grounds became a uniform burial practice.
Certain landscapes define burial places, though the topography of early Medieval Lithuanian cremation cemeteries had
typical features. The cremated deceased were buried in places above the flat land, that were separated by water from the living
spaces. It is argued that separation of spaces of the living and the dead, revealed in the topography of cremation cemeteries, was
based on mythical images of the afterlife, and special sacred and mythological values conditioned the location of burial sites.

Interpreting the Archaeological Record

TH1

TH1
Interpreting the Archaeological Record

Co-author(s) - Mänd, Raivo, University of Tartu, Tartu, Estonia
Keywords: conversion period, eastern Europe, egg symbolism
Presentation Preference - Oral

TH1-15 Abstract 09
Change of the Lithuanian burial rite in the 14th – 16th century:
Archaeological and Written data
Author - Vitkūnas, Manvydas, General Jonas Žemaitis Military Academy of Lithuania, Vilnius, Lithuania
Co-author(s) - Dediala, Ričardas, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: burial, cemeteries, medieval archeology
Presentation Preference - Oral
Lithuania was the last European country converted to Christianity. In its ethnic lands the old heathen faith thrived till the end of the
14th century (and in Samogitia till the early 15th century). Though Christianity featured some signs of spreading to Lithuania since
the occurrence of the Lithuanian state (the 1st half of the 13th century), conversions were far from massive. Christian communities
(both Eastern Orthodox and Catholic) and their churches and cemeteries existed in Vilnius during the heathen times.
After Lithuania was baptised in 1387 and Samogitia – in 1413, Christianity began to spread causing changes in different
spheres of life including burial rites. In the late 14th – early 15th century inhabitants of the present territory of Lithuania practiced
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 orientating heads westwards started to
prevail. This 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
surveyed 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 (claws of wild beasts in metal sockets), were found in burials of both genders.

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Though, after Lithuania had been baptised, Christianity began to spread and change burial rites, its influence varied in different ethnic regions of Lithuania. It had a greater effect in the political centres of the state, in the cities, and in the vicinities of castles and churches. Meanwhile, in the peripheral old burial customs which were hardly in line with Christianity thrived during the entire period discussed. The faith fostered syncretism and entanglement of Christian and ancient heathen traditions which was reflected by the burial rites, as well. The written sources of the period discussed also present some information on the old burial customs still being practiced in the region revealing how complicated was the way of Christianity into the heathen country.

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, Kraków, 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 human, 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 (von Denemark 1939) and, perhaps, mythological narrations.

At necropolises of the Przeworsk culture zoomorphic figural images, made of clay, were recorded. Artefacts of this category were 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 (von Denemark 1939) and, some kind of identity performance in order to consolidate community (Turner 1989).

On account of, that cemetery, relics as the special space of transregional and communication between the living and the nearer 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 (Domasalski 1978), was the frontier zone of different archaeological units (the Przeworsk and Weilbark 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-IV c. AD) are difficult to archaeological interpretation. For instance, some burials with remains in cremation site (Homo, Kr. Spree-Neisse) are associated with the Przeworsk Culture because of the warrior equipment inside (Janiczak 1990), while others surrounded by stone circle (Luboszyce, Krosno Odrzańskie county) – with the Weilbark 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 barbian societies (Speck 1981) 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 funeral rites (Domasalski 2010) and, perhaps, mythological narrations.

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 burial remains of the Przeworsk culture, a typical animal, which was commonly found on the ancient burial sites in Poland, is a rooster. In cases where a rooster was a part of the burial ritual, this animal was the subject of veneration and ritual sacrifice. The presence of roosters in the burials of the Przeworsk culture may indicate the existence of some interregional trends in the sphere of rituals and beliefs, in which animals and symbolism referring to them played an important role. The validity of this assumption is further supported by the fact that for the motives, for example a hen and a rooster, occur in the areas lying on both sides of the Western Oder river in this period.
TH1-15 Abstract 15
What can the cemeteries from 8th – 10th centuries from Lower Danube region tell us?
Author: Dr. Ciuperca, Bogdan Ioan, History and Archaeology Prahova County Museum, Ploiești, Romania
Co-authors: Dr. Magureanu, A., Institute of Archaeology Vasile Parvan, Bucharest, Romania (Presenting author)

Keywords: cemeteries as social understanding, early middle age, faith in funerary context
Presentation Preference - Oral

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

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

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

TH1-15 Abstract 16
In this World and the Next: Deviant Burial Rites from Medieval Cemeteries in Bulgaria
Author: Parvanov, Petar, Central European University, Sofia, Bulgaria (Presenting author)
Keywords: Bulgaria, deviant burials, medieval period
Presentation Preference - Oral

What is deviant burial and why it occurs are questions that have been part of archaeological thinking longer than we may assume. Nevertheless, the interest of such special cases where the deceased received noticable diferential treatment is now forming systematic approach towards them. Recently the theme of deviant burials was reapraised in European archaeology, sometimes creating very heated debate over it. Simultaneously, the increasing finds number of such untypical and strange character attracted a chance to see diverse view of artefacts.

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

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

TH1-15 Abstract 17
Aegean burials as liminal performances
Author: Dr. Schallin, Ann-Louise, Swedish Institute at Athens, Göteborg, Sweden (Presenting author)
Keywords: Aegean, burial, Performance
Presentation Preference - Oral

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

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

TH1-15 Abstract 18
Phenomenon of multiple burials and its significance in the studies of Early Mycenaean elites
Author: PhD candidate Dukšik, Katarzyna, Institute of Prehistory, Zalasiewo, 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, Mycanae, Tyris 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 steles and tumuli).

Using of tumuli (Argos) and perimeter walls (Grave Circles at Mycanae) 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 clearly 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 type 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 steles and tumuli) or graves offerings, which included numerous precious objects (imported or made in local workshops).

This will be connected especially with the presentation of cases from Argos (tumuli) and Mycanae (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 marked need to separate and designate for some groups of society their own / their creation of themselves. They emphasized the individual identity and tried to define their origins and place as members of a larger group of society.

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

TH1-15 Abstract 19
The Symbolic Meaning of Grave Goods
Author: PhD candidate Valžiakinienė, Šarūnė, Lietuvos Šviesos ir tautosakos institutai, Vilnius, Lithuania (Presenting author)
Keywords: Grave goods, Interdisciplinary method, Symbolic meaning
Presentation Preference - Oral

Generally, grave goods are defined as artifacts 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 artifacts 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 technology. 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 high growth of multiple burials was visible, the traditional burial areas were used and there were no special cemeteries for the local elites of society. Some of the objects were highlighted within the cemeteries (perimeter walls, stone steles and tumuli).

It should be emphasized that there was a strong need to practice certain funeral customs – using a common cemetery, the same type 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 steles and tumuli) or graves offerings, which included numerous precious objects (imported or made in local workshops).

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The special roles in this performance were reserved for ancestors and descendants, who created a special conditions to highlighted relationships between them.
LITHIC RAW MATERIALS IN PREHISTORY: SOURCING, NETWORK DISTRIBUTION AND USE

TH1-16 Abstract 01

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

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

Keywords: exchange, obsidian, sourcing

Presentation Preference - Oral

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

TH1-16 Abstract 02

Provenancing Archaeological Obsidian from Bulgaria

Author - Bonsall, Clive, Edinburgh University, Edinburgh, United Kingdom (Presenting author)

Co-author - Guruva, Maria, National Archaeological Institute with Museum - BAS, Sofia, Bulgaria

Co-author - Ganetzovski, Georgi, Regional Historical Museum, Vratsa, Bulgaria

Co-author - Elenks, Nedko, Archaeological Museum, Veliko Tarnovo, Bulgaria

Co-author - Ivanov, Georgi, National Archaeological Institute with Museum - BAS, Sofia, Bulgaria

Co-author - Slavchev, Vladimir, Archaeological Museum, Varna, Bulgaria

Keywords: Bulgaria, obsidian, provenancing

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.

TH1-16 Abstract 03

Sites, Sources and Flint Routes

Author - Manolakakis, Laurence, CNRS-Lab. Trajetoires, Nanterre cedex, France (Presenting author)

Co-author(s) - Aubry, Laurent, CNRS-Lab. Trajetoires, Nanterre cedex, France

Co-author(s) - Robert, Bruno, INRAP-Lab. Trajetoires, Soissons, France

Keywords: Bartonian flint, sources, procurement, control, Neolithic; Michelberg, routes, access

Presentation Preference - Oral

During the Middle Neolithic in the Aisne and Vesle valleys, the numerous sites dating to the Michelberg Culture mostly exploit Upper Bartonian Tertiary flint (bT). This was used predominantly 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 Vesle valley and the well-known source of Romigny LHé. The aim here was to address a number of issues. Is there a source of Bartonian flint closer than Romigny LHé with sufficiently large and good quality nodules for production of long blades? Are there any mine shafts of the kind known in other Michelberg areas? Are ditched enclosures involved here in controlling access to sources, or is the case elsewhere in Michelberg contexts, for example at Jablines, in the central Paris Basin, or Spenne 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 Michelberg lithic procurement territories.

TH1-16 Abstract 04

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

Author - Šatavičius, Egidijus, Vilnius University, Vilnius, Lithuania

Keywords: Final Palaesolithic, 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 beds 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. Elenyas, Margonytis, Tiltis 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 tanged 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.

TH1-16 Abstract 05

Obsidian Use: An Analysis of the Archaeological Evidence from Malta

Author - De Grez, Frédéric, University of Malta, Msida, Malta

Co-author(s) - De Grez, Frédéric, University of Malta, Msida, Malta

Keywords: archaeology, Mediterranean, obsidian, temper, horsehoe, Late Neolithic

Presentation Preference - Oral

During the Late Neolithic (3700-2900 BC) on Malta, obsidian was used and traded extensively. Although this is very well known, there has been little published about this practice. This paper presents an overview of the obsidian artefacts from that period in Malta, particularly the full manufacturing cycle. The various steps involved in the work on the obsidian have been studied in-situ, with particular attention to the flint components. The research was supported with the use of pXRF analyses to identify the geological sources of the obsidian. The results were used to construct a map of the obsidian use and distribution in Malta during that period. The study of the obsidian artefacts from Malta provides important insights into the interactions between the Maltese and the wider Mediterranean region during the Late Neolithic period.
quartz, quartzite, sandstone. One of such non-flint raw processing cases are set out in the study of the Early Mesolithic Pasieniai-1 site in eastern Lithuania, where knapped porphyry, quartzite and sandstone material amounted to 15 percent of the total debitage 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 Valdai / Upper Volga Region and got access to sources of high-quality red Flint. A few hundred years later, together with flint first 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 microflints (bladed blades, lancets) and working tools. The majority of blanks were struck from single platform conical cores using soft hammer percussion and pressure flaking. In some sites (Sudotai-I, Sudotai-IV) about 5-16 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 of sizes of cores, tools and debris 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-Dyana river corridor was widely re-used at the tum of the Neolithic-Bronze Age, when the yellow flint was imported from the Valdai / 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 lithic resources in inland Portugal are quite distinct from the ones in coastal Mesolithic 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 rocks were exploited. Dozens of different raw materials were identified and such diversity led to the creation of a regional raw materials reference collection, now in the Natural History and Science Museum of the University of Porto. Although several varieties of quartz dominate the assemblages, other local high silica content rocks were selected by prehistoric communities such as cherts. The different 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 cherts. The different 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 cherts. The different 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 cherts.

TH1-16 Abstract 06
Differences in the raw material preferences in Polgár-Csóshalom, 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-Csóshalom 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 pastoral) 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 in the organisation of life. It is, no matter which material 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 21 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, estimates of scale and duration of quarries and, to some degree, the rock’s distribution. With this, I demonstrate and interpret spatial and temporal variation in procurement practices. That is, some practices involved in lithic procurement were common cross-regionally, while others defined regions and/or time periods. In some situations, it seems to have mattered more how, whom or where, you obtained your rock, than the type or the quality of the rock itself. Suggesting also an index of the intensity of quarrying, the different modes of lithic procurements demonstrate the variations of the role the various lithic extraction sites must have played in the prehistoric societies. Some extraction sites even became nodal points in the landscape, entangled in social and symbolic structures. Thus, when contextualised, quarry studies have the potential to provide insight into developing social relations and social-political strategies.

TH1-16 Abstract 08
Double cache – single core: a case of long distance (85 km) stone tool refits from southern Norway

Author - Nielsen, Sven, Museum of Cultural History, University of Oslo, Oslo, Norway (Presenting author);
Keywords - Long-blades, Middle Neolithic, Norway
Presentation Preference - Oral

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

Author - Pyżewicz, Katarzyna, Adam Mickiewicz University in Poznań, Poznań, Poland (Presenting author);
Co-author - Gruzdź, Włodzisław, Cardinal Stefan Wyszyński University in Warsaw, Institute of Archaeology, Warsaw, Poland
Keywords - flint axes, Poland, Final Neolithic
Presentation Preference - Oral

The paper presents selected issues related to the manufacture, distribution and function of the Final Neolithic axes in western Poland. The main subject of our study is flint axes associated with the Furnel 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 southern Poland and “Scandinavian flint”. Based on these results, we created models of chaine 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.
Interpreting the Archaeological Record

TH1-16 Abstract 10
Banded flint from Central Poland – new discoveries, new questions

Author - Szadski, Michal, University of Cardinal Stefan Wyszyński in Warsaw, Warsaw, Poland (Presenting author);
Co-author - Budziszewski, Janusz, University of Cardinal Stefan Wyszyński in Warsaw, Warsaw, Poland;
Co-author - Grusz, Witold, University of Cardinal Stefan Wyszyński in Warsaw, Warsaw, Poland;
Co-author - Jakubczak, Michal, Institute of Archaeology and Ethnology Polish Academy of Sciences, Warsaw, Poland;
Co-author - Radziszewska, Katarzyna, University of Cardinal Stefan Wyszyński in Warsaw, Warsaw, Poland
Keywords: banded flint, flint mining, remote sensing

Presentation Preference - Oral

Prehistoric banded flint mines were discovered on the northeast margin of the Świętokrzyskie Mountains nearly a hundred years ago. Since then, they have been attracting the attention of several generations of Polish archaeologists. A special place in these studies was taken by a large and well-preserved mining field “Krzeszmimol”. Intensive research on prehistoric flint exploitation was conducted at the site during the 1960s around the time of the 19th 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 this type of activity 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 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 about the size and state of preservation of most sites. Verification surface survey of prehistoric banded flint mines resulted in the discovery of materials that show in new light the problem of access to resources and how they were used in the Neolithic and Bronze Age.

TH1-16 Abstract 11
Still in Prehistoric Times? The mined flint for production of high quality tools in Dynastic Egypt

Author - Butalwa, Sylvia, Institute of Archaeology and Ethnology Polish Academy of Sciences, Warsaw, Poland (Presenting author);
Keywords: Dynastic Period, Egypt, flint

Presentation Preference - Oral

 Flint as a material for the production of implements in Egypt was still common during the Bronze Age. It was caused mostly by the difficult access to copper and tin deposits and especially the costs of the production of metal tools. In contrast, sources of flint were easily accessible for everybody. Additionally, products of this raw material had a long durability and a low cost. Flint appeared almost throughout Egypt, but mined flint of better quality, was placed mostly in wads, such as in Wadi el-Abshish, Wadi el-Sojor, Wadi Umb Elhabar and in Western Thebas. 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 wads there are still places of extraction of raw material, lasting its quality, knapping workshops and some temporary workers’ shelters visible at the surface. On the other hand, there are not many traces of knapping workshops on the settlement area in the Dynastic Period. However, a wide spectrum of everyday objects made of flint is known from the territory of Egypt. This paper is concerned with the study of flint assemblages from a number of Egyptian archaeological sites of the Dynastic period. The observations are based on published material from mines and settlements, on museum collections and excavations. The attempt to compare the mined flint and flint from secondary placer deposits products will be carried out. The results of the analysis will provide an introduction to the topic of flint knapping specialization and indicate the importance of this raw material in Dynastic Egypt.

TH1-16 Abstract 12
Obsidian blades debitage at Kašov-Cepegov I (Büké Culture), Slovakia

Author - Aliard, Pierre, CNRS, Nantes Cedex, France (Presenting author)
Co-author - Klarc, Laurent, CNRS, Nantes Cedex, France
Co-author - Hornadcov, Bibiana, Institute of Archaeology, Slovak Academy of Sciences, Nitra, Slovakia
Keywords: Early Neolithic, lithic technology, obsidian

Presentation Preference - Poster

This paper will present the result of a new study of the site of Kašov-Cepegov I in eastern Slovakia. Excavations at Kašov were led by Ladislav Banesz in the mid-1980s. Excavations revealed one pit with hundreds of obsidian waste concentrations and associated decorated potsherds belonging to the Büké Culture (Banesz 1991). The exploitation and trade of obsidian is usually linked to the Büké 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 main operation of obsidian knapping at Kašov is quite an original Neolithic obsidian debitage. The production is not very regular and shows « macro blade debitage » as well as smaller blades. Evidence of flint-knapping apprenticeship has also been detected. Finally, we demonstrate that Kašov can rather be interpreted as a domestic assemblage. The obsidian production does not suffer much from other blade productions made in limnoquartzite or radiolarite described on other Büké sites. We believe that the blade debitage of the pit at Kašov belongs to a laminar tradition that appeared in the Early Phase of the ELC in eastern Slovakia.

TH1-16 Abstract 13
In search of a non-destructive way of identifying lidite in archaeological lithic assemblages

Author - Manninen, Mikael A., University of Ural, Museum of Cultural History, Helsinki, Finland (Presenting author);
Co-author - Anttiroiko, Niko, Archaeological Field Services, National Board of Antiquities, Helsinki, Finland;
Co-author - Heikkilä, Pasi, University of Helsinki, Department of Geosciences and Geography, Helsinki, Finland;
Co-author - Pesonen, Petri, Archaeological Field Services, National Board of Antiquities, Helsinki, Finland;
Co-author - Tarasov, Alexey, Karelian Research Centre, Russian Academy of Sciences, Petrozavodsk, Russian Federation
Keywords: Lake Onega, Mesolithic, Fennoscandia, Russia, lidite, shungite, lithic provenience analysis

Presentation Preference - Poster

Lidite is a low grade metamorphosed siliceous sedimentary rock consisting of quartz and approximately 5% non-crystalline shungite carbon. The rock has a conchoidal fracture but often contains internal fines while the non-crystalline carbon gives it a pitch black colour. In Northeastern Europe deposits of this raw rock type can be found only on the north-western shores of Lake Onega in Russia among other shungite-bearing rocks. The Onega idites from bedrock and glacial drift-derived pebbles, were used for stone tool raw material since the initial postglacial habitation of southern Karelia in the Mesolithic. Outside present-day Russian Karelia artifacts made of lidite are rare but no systematic study of their distribution outside the core area has been conducted so far. However, several artifacts made of a raw material that we suggest to be lidite were recently detected among the finds from Jokivarsi 1, the earliest Mesolithic site in Finland and some 250 kilometres from the western shore of Lake Onega. In support of our working hypothesis the source of the Jokivarsi 1 artifacts is in the region of contemporary Late Preboreal human presence on the northern shores of the Onega Lake. In order to identify the raw material of the Jokivarsi 1 artifacts, a multidisciplinary research project was designed with two aims: 1) to identify the raw material of the Jokivarsi 1 artifacts using a variety of geological methods, and 2) to develop a non-destructive method for identifying lidite in archaeological assemblages. The study was conducted and the paper prepared with support from the North Karelia Fund of the Finnish Cultural Foundation and the Russian Scientific Fund (grants 14-17-00766).

TH1-16 Abstract 14
A Danubian raw material exchange network: a case study from Chelmo Land (Poland)

Author - Wiera, Dagmara H., Institute of Archaeology and Ethnology Polish Academy of Science, Warsaw, Poland (Presenting author)
Keywords: Danubian communities, distribution of siliceous rock, East-Central Europe

Presentation Preference - Poster

The Polish Lowland is poor in deposits of good quality raw materials for the manufacture of chipped stone artefacts. Lineanbandkeramik communities, in Chelmo Land, distributed good quality siliceous rock. Some of them were distributed over dozens of kilometres. On the sites “imported” flints were predominant. Among the most important are the “chocolate” flint from the northeast margin of the Świętokrzyskie (Holy Cross) Mountains, and Jurassic-Cracow flint from the Polish Jura, near Krakow. From 14 inventories from Chelmo Land we analyzed more than 1400 flint artefacts. The presence of distributed materials is from 3.5% to 85%. In the oldest phase Jurassic-Cracow flint predominates, while in the younger stages “chocolate” flint is dominant. The latter is present in several varieties, which indicates that it may have been imported from different outcrops. This suggests that the links with the south were not limited to one area. The presence or absence of these two types of flint has an influence on our knowledge about the meaning of the sources, the use and existence of flint mining and the reconstruction of exchange routes. Unfortunately, mistakes are sometimes made when distinguishing the various flints. In particular “chocolate” flint is mistaken for Jurassic-Cracow flint. To better distinguish those two types of flint we made several analyses. One method we used was Electron Probe Micro Analysis (EPMA). We analyzed several geological samples as well as artefacts from four prehistoric sites from Chelmo Land. In this paper we present the results of the analyses and their potential implications for our knowledge of Lineanbandkeramik communities’ exchange and distribution of siliceous rock. Acknowledgements: The investigations were funded by the National Science Centre in Poland (PREL15UM.2-NOV/15/33973).
This study is an analysis of local flint pebbles reduction strategies in the settlement of Sārnate. The site is located approximately 2.5 km from the present Baltic Sea shore on a former lake shore on the Kurzeme Peninsula (western Latvia) and is dated to the Neolithic of the East Baltic. It was excavated between 1938 and 1959 by Eduards Šturms and Lūcija Vankina. During excavations in the site, numerous separate dwellings were discovered. 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 massive monopolar flakes that mostly belong to the secondary flake group (grouped by the Triple Cortex Typology). The same pebble reduction strategy was used for poorest quality imported flint as well. While good and excellent quality imported flint pebbles and nodules were transformed into platform cores or used as irregular multidirectional cores. In some cases, in this dwelling group local flint pebbles have been divided into massive debitage using bipolar technology as well. The secondary dwelling group consists of dwellings where the quality of a flint pebble did not affect the reduction strategy. In these dwellings both poor quality local flint pebbles and all kind of imported flint pebbles were transformed and used as platform cores and irregular multidirectional cores. In these dwellings flakes from local flint are more like flakes from imported flint – thinner and mostly with a flat striking platform. If the results of this study are compared with the study of pottery in the Sārnate settlement by Valdis Bērziņš, then the first group dwellings where raw material quality affected the pebble reduction strategy are mostly those where were used local pottery tradition: dwellings with Early Sārnate Ware and dwellings with Late Sārnate Ware, while in dwellings where raw material quality did not affect pebble reduction strategy Typical Comb Ware pottery was mostly used.

**Keywords:** flint, Sārnate, Neolithic of the East Baltic, Archaeology.

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**TH16 Abstract 16 Localisation of Sources of Obsidian Registered in Bohemian Prehistory (Czech Republic)**

Author - Burgert, Pavel, Institute of Archaeology of the CAS, Prague, Czech Republic (Presenting author);
Co-author - Prichystal, Antonín, Department of Geological Sciences, Masaryk University, Faculty of Science, Brno, Czech Republic;
Co-author - Proksa, Lubomyr, Department of Chemistry, Masaryk University, Faculty of Science, Brno, Czech Republic;
Co-author - Potlik, Jan, Department of Geological Sciences, Masaryk University, Faculty of Science, Brno, Czech Republic

**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: LBr, 5500–5000 cal BC; Stroked Pottery Culture: STK, 5000–4500/4400 cal BC). Based on the data obtained, it is possible to locate the raw material of these samples to the Slovakian source called Carpathian 1b (Brno – Čejkov). However, the raw material of the two remaining samples dated to the same period comes from Hungarian sources, Carpathian 2b (Délődenye – Olaszló). 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 investigated, 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 colour, 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.

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**TH16 Abstract 17 Chocolate flint extraction points and workshops in Oronoko, Poland. Spatial and functional analysis**

Author - Niedźwiedzka, Katarzyna, Institute of Anthropology and Ethnology Polish Academy of Science, Warsaw, Poland (Presenting author)

**Keywords:** chocolate flint, Oronoko, Palaeolithic

**Presentation Preference - Poster**

Oronoko village and region 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 northeastern province of Mazovia (former district, Mazovian voivodship). The history of researches in this area began in the early XX century, when S. Krukowski discovered numerous sites connected with the exploitation of local raw materials that are dated from Late Palaeolithic to Early Bronze Age. For many years this research, the use of ground-up, 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 container contains several hundred sites concentrated in the northwest part of the chocolate flint outcrops (about 60 km), 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 had to detail 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, their preferences and dependence on natural conditions, as well as the significance of chocolate flint outcrops vicinity and mining in different periods of the Stone Age.

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**TH16 Abstract 18 Analysis of household units from chipped stone tools at Alsónyék–Bátszék (Hungary)**

Author - Szalay, Káta, Eötvös Loránd University, Budapest, Hungary (Presenting author)

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

**Presentation Preference - Poster**

Alsónyék–Kánizsa-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 their investigation 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 postformed 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.

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**TH16 Abstract 19 The Flint Inventory of the Neolithic and Bronze Age from the sites at Żylicy (western Belarus)**

Author - Velent-Shcherbach, Sviatlana, Institute of History NAS of Belarus, Minsk, Republic of Belarus (Presenting author)

**Keywords:** flint industry, Neolithic, Lepenski-Neman culture

**Presentation Preference - Poster**

Western Belarus is rich in flint deposits with a stratiform distribution, which are the most important sources for obtaining and processing flint raw materials for the near Paleolithic and the Early Bronze Age. The consecutive flint objects of the Late Neolithic period have been discovered during excavations in the territory of the so-called Lepenski-Neman culture. The raw material of the flint industry has been extracted from the local resources of flint raw material and a database has been created. Based on this database, a map has been drawn, from which the sites with flint extraction have been determined. From this database a map of the flint extraction zones has been determined. From this database a map of the flint extraction zones has been determined. From this database a map of the flint extraction zones has been determined.
There are eight multicultural sites known near Žyličy village (Hrodna district). Open-air settlements dating from the Final Palaeolithic until the late Middle Ages are located on the upper and lower terraces of the left bank of the Neman River. Five of them were excavated between 1999 and 2011. The first inventories from sites 1 and 4 comprise mainly debitage products, which makes it difficult to determine their cultural attribution. Materials from sites 1, 2 and 3 are more characteristic and allow the flint industry to be ascribed to the Neolithic and Bronze Age. Local Creteceous flint was used as a raw material. The tool set of the complexes under discussion is typical for the Neolithic and Bronze Age of the Upper Neman region: triangular arrowheads, end-scrapers, borers, knives and knife-like blades, combination tools, burins, splintered pieces, notched tools, axes and adzes. More than 50% of the flint artefacts are waste products: flakes, blades and technical chips. Typological and comparative analyses permit cultural and chronological interpretation of the material as well as highlighting the main features of the local flint industry of the Neolithic and Bronze Age. Therefore, flint materials testify to the presence of the population of the following cultural traditions on the settlements under discussion: Przyod-Nelemian and Neman Culture, the Circle of the Corded Ware Culture, and the Trzecie Culture.

This session is an attempt to place buildings archaeology in a wider context. Buildings were important aspects of medieval society and the medieval landscapes, they were central to the lives of people at all levels of society. The study of medieval buildings can tell us much about society and people’s beliefs and attitudes, therefore they are a very valuable source for the study of the Middle Ages. This session incorporates papers that consider any aspect of buildings and what it can tell us about people or society. These will focus on buildings in their landscape context, building comparisons, building evolution and adaptation, studies of building materials, or spatial analysis. With contributions from across Europe and further afield, these papers will form a significant discussion of medieval buildings, their study, and their meanings.
Anglo-Welsh social and political relations is therefore an original dimension of this paper to both castle studies and to the study of the medieval March of Wales. However, the frontier of Cheviot also had influence beyond its boundaries. It was representative, and indeed pivotal, to changes within the British Isles. The county was clearly and intrinsically linked with the overall political, social and economic dynamics of not only England, but also Wales and the Irish Sea Province. This paper therefore questions traditional documentary and secondary source narratives, which have taken on disjunctive Welsh versus English cultural identities based on false or irrelevant, modern, and thus constructive, historical periods and tenurial boundaries.  

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**TH1-17 Abstract 03**

**The archaeology of medieval buildings in a borderland: a study-case**

**Author:** Dr. István, Daniela Veronika, Brav, Transylvania, Romania (Presenting author)

Keywords: buildings archaeology, medieval church, Transylvania

**Presentation Preference:** Oral

My paper will explore the region of central-western Romania, commonly known as Transylvania, in the first centuries of the second millennium. This region was part of the kingdom of Hungary, but was in fact located on a confessional and ethnic frontier, between Orthodox and Catholic Europe, and in an area of bewilderment ethnic and linguistic variety—both factors favorable for giving the region its distinct character of a borderland. One of its most significant forms of expression of that character was religion: pagans, orthodox and catholics settled this area and found specific ways of living and practicing their beliefs.

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 complex stratigraphic context, consequence of the use of the area during the last two thousand years. Prehistoric, Roman, post-Roman, and medieval structures have 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-13th centuries’ medieval graveyard and later by still uncertain 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.

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**TH1-17 Abstract 04**

**PETRAPILOSA. Building and historical development of medieval fort**

**Author:** M-A. Vilnijóp, Ľosip, Croatian Conservation Institute, Svetinčenat, Croatia (Presenting author)

Keywords: development, medieval fort, preliminary reconstructions

**Presentation Preference:** Oral

The Medieval fort Pestrapilosa is situated in the northeast of the Istrian peninsula in the Republic of Croatia. It is one of the largest, and as historical sources indicates, one of the most significant feudal forts in Istria. Systematic archaeological researches of the fort area have been conducted in the last six years that confirmed the lengthy and very dynamic development of this fort. The results of the archaeological researches in combination with the detailed analysis of the preserved wall structure allowed us to distinguish eleven phases of development that covers period from 11th till 17th century - a process that synthetizes both the stages of growth and development and episodes of destruction or degradation. These analyses allowed us a reconstruction of the appearance of the fort in its various developmental phases. Development of building structures was closely connected with different phases that more or less influenced the character of buildings and activities that have been happening in and around it. In a way, preserved structures of Pestrapilosa are reflection of historical processes that have been changing Istrian peninsula through long period of Middle Ages.

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**TH1-17 Abstract 05**

**Medieval Roof Trusses in the Swedish landscape of Västergötland**

**Author:** Master Gullbrandsson, Robin, Västergötland Museum, Skara, Sweden (Presenting author)

Keywords: Medieval churches, Medieval roof structures

**Presentation Preference:** Oral

This paper deals with the methods and results of an inventory made 2014-2015 with the aim to survey what is preserved of medieval roof constructions in church attics in the Diocese of Skara in the landscape of Västergötland of western Sweden. More or less intact roof trusses from the 12th century up until the first half of the 13th century are scarcely preserved outside Scandinavia, which add up to the importance of mapping this unique unknown heritage in Sweden. Similar surveys have been made in the dioceses of Lund, Skara, Stockholm, Strängnäs and Västerås during 2013-2015 and are about to be made in Linköping, thus giving us a more complete view of the grade of preservation.

It has been as-sumed that the Swedish material may consist of some hundred Romanesque roof structures and probably at least a hundred Gothic structures. Until the conduct of above mentioned surveys our knowledge of the number of preserved roof objects was scarce and more or less random. In the present stand it seems that the early-medieval roof structures of churches in the landscapes of Götaland may comprise the largest preserved corpus of this kind in Northern Europe. This heritage is about to attain its proper importance as a source for the dating of churches and for understanding the processes behind their erection.

164 churches in the Diocese of Skara have medieval origins. They are all situated in the old landscape of Västergötland. The survey has identified whole or partly preserved medieval roof constructions or traces of such in the attics of almost 70 of these churches. 28 roofs can be regarded as well preserved roof trusses with tie beam, dating from the 12th century and the first half of the 13th century. Ten are only partly preserved and 18 remains as reused parts in later constructions.

Some of the early medieval churches have been dated with dendrochronology and span from the 1110s up to around 1250. A group of roof trusses with two carried struts (often meeting the rafters and tie beam) are found in the second half of the 11th century.

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**TH1-17 Abstract 06**

**The Cathedral of Anagni. A case study of the evolution of Southern Lazio in the Middle Ages**

**Author:** Dr. Nastasi, Arianna, Università di Roma Sapienza, Roma, Italy (Presenting author)

Keywords: buildings archaeology, cathedral, medieval Italy

**Presentation Preference:** Oral

The cathedral is one of the most distinctive buildings of the medieval city. Symbol of the power of the Bishop and of the Church and connected with the heart of Otranto represented by the city of Rome, the cathedral offers a valuable insight into medieval society. In Italy this type of building influenced settlement dynamics in different ways across the geographical areas. In particular, in Central and Southern Italy, the cathedral was often a site in conflict due to the proliferation of dioceses with limited territorial extension and uncertain borders subject to suppressions and unifications. It is within this context that the proposed case study of the Cathedral of St. Mary in Anagni – an important medieval city in Southern Lazio - is 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 Rumalik in 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 accessible to the same chartas ladinicae, namely a documentary epigraph, a copy of a notary deed which lists chattels 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.

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**TH1-17 Abstract 07**

**The medieval hospitals of England: a complex issue**

**Author:** Huggan, Martin, University of Sheffield, Sheffield, United Kingdom (Presenting author)

Keywords: Archaeology of charity, Hierarchies of space, Medieval Hospitals

**Presentation Preference:** Oral

This paper considers the churches of the medieval hospitals of England, and looks at some of the key misconceptions and assumptions that have been developed in relation to these hospitals. It is argued that these hospitals provide a unique insight into late medieval England and the ways in which society and values were expressed through the construction and function of these buildings and spaces. The paper focuses on the historical context in which these hospitals were constructed and how they were used, looking at the role of the hospitals in the wider society and how they interacted with other spaces and buildings. The paper also considers the ways in which these hospitals were constructed, looking at the architectural features and materials that were used, as well as the way in which the hospitals were designed and planned. Finally, the paper looks at the evidence for the ways in which these hospitals were used, looking at the evidence for the use of the hospitals and how they were used by the local community.
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 Chanceries Act, abolishing the practice of prayers for the souls of the dead. Despite the remarkable success of centuries of operation, their nature and function are still subject to discussion. The picture has only emerged from the last few years of research that this system is not surprising, given the mixed nature of these communities, with men and women, religious and secular, rich and poor, living together. Unfortunately this has often meant that examination of their underlying ideological foundation, especially architectural layout, has been limited to the small number of excavated sites. This paper will highlight some of the implications 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 later medieval period.

TH1-17 Abstract 08

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

Author - Ranzinger, Mario, Heidelberg, Germany (Presenting author)

Keywords: Geoarchaeology, Monastery, Settlement

Presentation Preference - Oral

This question is the central part of a beginning master's thesis dealing with geoarchaeological methods and how they can help us interpret archaeological evidence regarding 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, St Gunther, founder of the monastery, started the clearing of the forest and the building itself back in 1011 AD. Now this historical date is to be analysed with various methods. The research on geoarchaeological prospecting data, cores from swamps or columns and other archives could give us hints and reliable data about the first 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 insight into landscape, agriculture, the origin of building materials and perhaps the general human impact on flora, fauna and landscape itself. Furthermore with a large number of radiocarbon dating or archaeological reasearches, a chronological overview can be given.

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

TH1-17 Abstract 09

Medieval Oslo's Masonry Buildings Revisited

Author - Bauer, Erl. Norwegian Institute for Cultural Heritage Research, Oslo, Norway (Presenting author)

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 re-examine Oslo's masonry buildings and discuss the impression of the medieval town as an almost exclusively timber-constructed town, built around the high-status masonry complexes belonging to the bishop, the king, and the monastic orders. This paper will utilise both archaeological and written sources and address Oslo's known secular masonry buildings, their chronology, context, use, and owners. A central question is how the masonry buildings functioned as social markers in a town where the secular architecture mainly consisted of timber constructions. Oslo might have a greater number of medieval masonry buildings than hitherto believed. This possibly impacts earlier interpretations of the town's social topography. A central aspect considered in this paper is how the secular masonry architecture reflects the builders' status, motives, and activities.

TH1-17 Abstract 10

The 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: Buildings and property, medieval town, Norway

Presentation Preference - Oral

Since 2013 the Norwegian Institute for Cultural Heritage Research has been excavating several sites in the medieval town in Oslo, in connection with a major railway project. One of the sites contained remains from several phases of medieval buildings with domestic and industrial activity from the late 11th to the early 14th century. The paper aims to present one of the buildings in a Norwegian medieval town property, a “bygård”, literally “a farm in the town”. The building itself has at least two building phases, and possibly several phases of occupation and use. There are several ovens used for metalworking on the property, as well as evidence of domestic activities like a latrine and keeping animals. I will show how the use of the building and the surrounding property changes over time and how they fit into the context of the town.

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-mender’s law for the towns, was introduced around 1216. 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 products. The signs consist mostly of symbols that derive from the common medieval imagery - attributes of saints, apostrophic 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 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 early byzantine settlement of Caričin 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 an undisturbed insight into everyday life in an early medieval settlement of the 6th century. Excavations in Caričin 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 habitual function.

The interpretation of the building bases on the results of the interdisciplinary research. The simple configuration of the house and the multiplicity of potential types of use in a single room structure challenge the examination. This is 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 fulfilts in the settlement system 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 imbalanced between the inside of the house and its exterior which depicts the pattern of disposal organisation. This and other domestic activities display in little detail 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 unspecified 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.

The Alp Fenga - Analysis of a post medieval alpine dairy hut in the Silvretta Alps
Author - Dr. Sofield, Clifford, University of Oxford, Oxford, United Kingdom (Presenting author)
Keywords: architecture, deposits, place, oral

Deliberate burials 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 off evil, 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 cornerstones of an 'architecture' of destruction.

The Alp Fenga has been examined 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 huts has similarities in the 18th/19th century. Furthermore with the help of dendrochronological examination, analysing finds (e.g. the only complete and historical maps this dating could be verified. Although this building is meant to be built in the 18th/19th century, we also have clues and written evidences that the pasturing activities already started in the medieval period.

Another attempt in the whole region to record archaeological sites was to collect data with satellite images, drones and geoarchaeological methods. Beside the chronology it was possible to find evidences for almost constant human activities in this high mountain region. In conclusion the Alp Fenga is an important part for the archaeological research of dairy farming in the Silvretta Alps.
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 (Sarcevičius, Taraškevičius, 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 data of the newly found interesting brick of unknown chronology or to compare other features.

Geochemical investigations are understood as a complex of methods which includes: a) purposeful selection of brick fragment samples; b) multi-elemental method of determination of real total contents of elements; c) multivariate statistical analysis (cluster, factor analysis); d) analysis of the ratios of geochemical indices; e) graphical representation of data. Energy-dispersive X-ray fluorescence is usually used for investigation of chemical composition. Its advantage is that great number of chemical elements which can be determined including those related to clay minerals and their additives (Al, Ca, Fe, Mg, Na, K, Si, Ti) accompanied by specific trace elements (Ga, Co, Cr, Cu, Mn, Nb, Ni, Rb, Sr, S, P, Br, Zn, Pb, etc.).

Aiming to obtain more precise interpretation of brick origin and technological processes using geochemical methods it would be useful: a) to take more (³3) sub-samples from the same brick (avoiding the effect of random sample selection); b) to take samples from the inner part of the brick (reducing anthropogenic geochemical 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.

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) – Valenien Eriksen, Bent, 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 EBA/ 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 (Mont. III to 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).
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 Urnfield culture. The amount of imported metal had, however, not yet reached a level, which allowed the creation of formal hierarchies.

Painted and depictions show the display of wealth and surplus, probably deposited as the culmination of large gatherings and feasts, which included the distribution of food and drink. The variation in length evident in contemporaneous daggers type indicates furthermore that supreme examples functioned as elite items that were used as status symbols, bride price etc. What we see is probably the appearance of some kind of big-man competition for power and recognition through feasts and potlatch-like give-aways. However, this status was not yet formalised into fixed hierarchies. One of the reasons for this lack of formalised hierarchisation was probably that it was difficult to monopole the necessary raw materials (for example flint for the production of flint daggers).

Copper and gold, on the other hand, held opportunities for control by powerful and influential lineages or individuals, as these metals could only be obtained through exchange. Consequently, if upcoming chiefs were able to monopolise external exchange, increased demand for 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 used-up-to-date weaponry such as daggers, halberds and spearheads, as well as gold and bronze rings etc. The necessity of obtaining bronze and gold meant that it became more difficult to manifest oneself as an influential individual or ‘big man’ without access to these prestige goods. As a consequence, formal hierarchies and centralisation of wealth developed further and the classic Nordic Bronze Age became a reality.

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TH1-18 Abstract 03

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

**Author:** archaeologist Borup, Per, Horsens Museum, Horsens, Denmark (Presenting author)

**Presentation Preference:** Oral

At the location Dithtuk, 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 fulfilling a function of economy building or barns. Was it an increasing demand for storage that also soon affected the construction of the longhouses ending up with a three-aisled construction at the beginning of the Bronze Age? A moderate size indicates that the appearance of the three-aisle building here initially had a functional purpose related to the interior of the house.

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TH1-18 Abstract 04

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

**Author:** PhD Paulinerova, Karolin, Center for Theoretical Study, Charles University in Prague, Prague 1, Czech Republic (Presenting author)

**Keywords:** Early Bronze Age, individual, Late Neolithic

**Presentation Preference:** Oral

In the UK, the period of Late Neolithic – Early Bronze Age is the time of changes in pottery types, wider range of artefacts, use of metal, the end of the building of major communal monuments and an increased emphasis on the individual in burials. However, the exact boundary between the two periods is difficult to recognize.

The most common prehistoric monuments of the period in the UK are round barrows. They differ from the Neolithic practice of long barrows in that they do not evoke the same kind of monument 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.

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TH1-18 Abstract 05

**Investigation of transition phases by the example of the Bronze Age amber finds in northern Germany**

**Author:** Dr. des. Wollermann, Gisela, Postdoctoral Researcher, Germany, Münster, Germany (Presenting author)

**Keywords:** Amber finds, Bronze Age, Northern Germany

**Presentation Preference:** Oral

Multiple sociocultural processes are taking place at the transition between cultural phases. Their reflection by analysing the amber finds gives information about the influence of dynamic changes on the raw material accessibility and craftsmen production which point to a special demand of the Bronze Age Societies.

Amber finds were part of the ornamental art and were involved in complex social practices concerning the prestige system, the group identity and the individual representation. In the German Bronze Age, personal adornment was a discontinuous phenomenon, prevailed in different areas and appearing in varying sorts of jewellery types. This paper discusses the disparate effects of the Bronze Age transition phases (UN/SEA/ELBA) at the amber artefacts in northern Germany with regard to their special find context and the patterns of distribution. The results will lead to a nuanced view of the influence of sociocultural transmissions on the amber use.

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TH1-18 Abstract 06

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

**Author:** Caswell, Edward, Durham University, Durham, United Kingdom (Presenting author)

**Keywords:** Bronze Age, GIS, Settlement

**Presentation Preference:** Oral

The Bronze Age in Britain (c. 2200-800 BC) is the span of time in which inhabitants of the island truly shift to wholesale use of permanent sedimentary settlements. Before this period houses are largely limited to the Early Neolithic and are far fewer in number than those that may be attributed to the Middle Bronze Age and beyond. As such the Bronze Age provides an opportunity to truly understand a society which underwent profound social transformation as expressed in the shift to permanent settlement structures.

However, despite extensive archaeological 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. Popa 2003). Instead, this paper will present a new method that systematically compares the contents of settlement environs using the initial results of my PhD research, focusing on 60 settlements sites found solely within the southwestern part of Britain (Wiltshire to Shropshire to Dorset). It discuss the variations in these settlements’ placements over time in respect to contemporary and antecedent cultural and landscape features within their environs. These environs are defined through a custom cost surfaces model which has been used to estimate the maximum distances that might have been reached by occupants of these settlements, considering slope and terrain, within one day. The comparison of these environs’ contents has begun to identify trends in priorities of these sites’ inhabitants in relation to both “economics” 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.
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, Durrington Walls 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 factors, 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; Barnett, 1994).

They argued that functionalist, social evolutionary models like Renfrew’s (1973) were simply a means of making the historically specific and unfamiliar comprehensible (Barrett 1994: 161). In fact, the actions and experiences of individuals – the very things that actually constitute human history – were erroneously being written out of these overly generalised accounts of the past.

This postprocessual view garnered particular popularity within the field of British prehistoric monumentality and, from the mid-1980s onwards, there was a rapid move away from quantifying the intrinsic properties of Neolithic monuments towards a structuralist consideration of the kind of social orders their form, material, or position in the landscape could have embodied (e.g. Parker Pearson and Richards 1994). This theoretical shift allowed archaeologists to successfully rethink 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 Stirling 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 and spatial analyses within a GIS package. 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. Erik Jensen, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany (Presenting author)
Keywords: Bronze Age Denmark, craft specialization, 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 of artefacts analysis the paper will focus on the technological and socio-economic processes pertaining to raw material exploitation patterns and procurement strategies through time and it 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.

TH1-18 Abstract 09
Contact Networks in Metalcraft: the Nordic Bronze Age between 1500-1100 BC

Author - Dr. Nørsgaard, Heide, Moesgaard Museum, Aarhus, Denmark (Presenting author)
Keywords: Itinerant craftspeople, Metalcraft, workshop organisation
Presentation Preference - Oral

Different craftspeople and their area of influence could be identified, from a crafts-person's point of view, and as such also workshops and contact networks. With the knowledge of distinct techniques, the different skill levels of craftspeople and their affiliation to each other the organisation of metal craft and specific workshops were defined within the Nordic Bronze Age.

The intensive exchange of technical knowledge between workshops around the North Sea formed contact networks that are clearly visible in the material of the Nordic Bronze Age. This presentation will focus on distinct traces on bronze ornaments that show the development of specific technologies or techniques especially at the beginning of the middle Bronze Age and its end. The analysis of said technological peculiarities resulted in differently structured workshops, like kinship based workshops (spread over the entire area and probably related to villages), communities of practice (with an extended market and possibly some kind of relationship to the local elite) and occasionally also attached craft, in the sense that the craftspeople fully or partly conducted the technical process (raw-material supply, workshops and far reaching knowledge exchange), which will be shortly introduced.

Moreover, the focus should lie on the influence of the surrounding regions on specific technological developments. As technological innovation and the specific use of stylistic elements clearly separates single workshops from each other, and support the idea of regional groups within the specific social unit Nordic Bronze Age, this analysis tries to show the contact networks in between and explain how and why we can talk about one social unit during the Bronze Age.

TH1-18 Abstract 10
Dynamics and transformation during the Late Bronze Age of western Norway

Author - Ass. Prof. Aanestad, Nils, University of Bergen, Bergen, Norway (Presenting author)
Keywords: EBA-LBA, Materiality, Transformation
Presentation Preference - Oral

This paper aims to take an in-depth look at the changes that take place during the transition from the Early Bronze Age (EBA) to the Late Bronze Age (LBA) in western Norway. Traditionally western Norway had a central position during the Late Neolithic and EBA, but during the transformation of the Bronze Age, there is an apparent change in relations and material culture in the LBA. It has been argued that the region loses much of its significance to the cost of eastern Norway. Therefore, this paper will look at the materiality including changes in burial patterns and the use of various raw materials of the LBA in western Norway and correlate this with possible changes in economic structures and agricultural practice. This will be combined with the broader north European pattern of changes in order to understand the social dynamics involved in these processes.
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 Samarskaya 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 tools are very considerably in size – from microflints to unbroken blades of more than 10 cm. The tools made of blades are represented with end-scrapers, chisels, sharp points, arrow heads, and blades with vedging. 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, vestiges 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 Yamnaya culture.

Archaeozoological materials: the E-layer contains mainly the bones of domestic species: cattle and small cattle, dog, horse, and also of elk and beaver; the BA-layer contains predominantly the bones of domestic species and horse; the remains of wild, including elk, auroch, bear, beaver, and fox, are live in number.

The series of 15 radiocarbon data based on animal bones from all the sections of the settlement area, and from different depths was undertaken. The materials of E-complex have been dated approximately by 4900-4400 BC (cal). Above that, some materials have been dated approximately by 4200-3950 BC (cal).

The series of radiocarbon data based on animal bones from the upper cultural layer confirmed previously established data based on the shadings ceramics from Turganic settlement: Кi-15597 4710±80 ВР. In total, the BA-layer could be dated by 3900 – 3400 лет ВС (cal). The author thanks RFH for support with grant No. 14-01-00127 and Ministry of Education Russian Federation for help with the State Assignment No. 33.1471.2014K.

The development of cooking and food preparation practices transform raw ingredients into edible food. This transformation is not only chemical, but also cultural. This forms part of what the anthropologist Claude Lévi-Strauss suggested sets humans apart from apes and makes us a “cooking animal” (1964: Le Cru et le cuit). These complex actions (cooking and cultural assimilation) may take two forms, those which leave traces in the archaeological deposits and those actions which may leave no physical trace in the archaeological record. When examining preserved food remains on a supranational level the environmental record within Europe has facilitated some successful studies for some regions and periods (Livarda and van der Veen 2008; van de Veen, Livarda and Hill 2008). The evidence of preparation techniques is supported by the remains of flora and fauna that are indicative of food choice and alimentary practices. Later, from the historic period onwards, we have textual documents which add much detail in form of economic documents, recipes, and personal observations on food consumption.

But to what extent are these practices limited to different periods, cultures, peoples and places? And to what extent do modern political boundaries, differences in philosophical, or methodological approaches to archaeological remains limit our ability to create pan-European narratives on the nature of human food use from different periods? This session aims to explore how food choice and alimentary practices in Europe changed through time, but also how these changes may be linked to culture, technological innovations, shifting borders and the rise and fall of civilizations. The session encourages researchers who have successfully studied different cultures or periods, passing existing cultural or political borders (fa. from different cultures or European countries) or comparing rural environments to towns, but also those who have encountered difficulties when trying to operate such projects.

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Authors: Prof. Morgunova, Nina, Orenburg State Pedagogical University, Orenburg, Russian Federation (Presenting author)
Co-author(s): Turetskii, Michael, Volga Region Branch of Institute of the Russian History of Russian Academy of Sciences, Russian Federation
Co-author(s): Kulkova, Marianna, The Herzen State Pedagogical University of Russia
Keywords: Early Bronze Age, Eneolithic, Turganic settlement
Presentation Preference - Poster

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, vestiges 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 Yamnaya culture.

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The author thanks RFH for support with grant No. 14-01-00127 and Ministry of Education Russian Federation for help with the State Assignment No. 33.1471.2014K.
**TH1-19 Abstract 02**

**Bronze Age foodways in the Carpathian Basin: similarities and differences, continuities and changes**

**Author:** Prislan, AnnaMaria, University of Pécs, Pécs, Hungary (Presenting author)
**Co-author(s):** Szlavényi, Vajk, Hungarian Academy of Sciences, Budapest, Hungary

**Keywords:** Bronze Age, Carpathian Basin, Subsistence economy

**Presentation Preference:** Oral

The Bronze Age of the Carpathian Basin is characterized by a series of communities with stylistically rather diverse material culture. This has traditionally led scholars to believe that the area is divided 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 neglect field of Bronze Age research in the region, and its wide-ranging cultural implications are rarely considered. In our paper we will examine the subsistence economy and foodways of the study area through the review of the available palaeoethnobotanical and archaeozoological data, the study of macrolithic implements used in food production and of the ceramic repertoire used to prepare and serve meals. Our aim is to reveal 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.

**Keywords:** food remains, Bronze Age, Carpathian Basin, Subsistence economy

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**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-Melé, Antoni, Institut de Ciència 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 fragments produced prior to charring in Neolithic sites of the NE of the Iberian Peninsula. We were not only quantified but also the type of fragment and the size were recorded, as potential relevant variables to understand the process that generated these fragments.

**Keywords:** Archaeology, beeswax, honey, organic residues

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**TH1-19 Abstract 04**

**Finding broken grain in the archaeobotanical record: ethnoarchaeological and experimental approaches**

**Author:** Dr. Antoni Ferran, Integrative Prehistory and Archaeological Science, Basel, Switzerland (Presenting author)
**Co-author(s):** Atancos, Natalia, University of Lleida Lleida, 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 extremely difficult. In the last decade, a larger number of archaeobotanists have shown their concern for the identification of archaeological fragments of cereal grain produced prior to charring. Their identification seems to remain somewhat problematic, and their interpretation is open to discussion. They are often seen as evidence of bulgur production, but how can we exclude that they were not produced during cereal dehusking or threshing, or during flour production? During the last years we developed three independent lines of research that we would like to combine in this presentation. These are of different nature: ethnoarchaeobotanical, experimental and archaeobotanical.

**Keywords:** Cereals, archaeobotany, millstone, dehusking

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**TH1-19 Abstract 05**

**The diet of non-Romans living in the border area of the Netherlands**

**Author:** Drs. Hendeklik, Merit, ArcheoDST Nooi bv, Groningen, Netherlands (Presenting author)

**Keywords:** bio-archaeology, Food and alimentary practices, Roman Limes

**Presentation Preference:** Oral

The diet of non-Romans living in the border area of the Netherlands, as reconstructed by bioarchaeological research. The Roman empire has been the subject of numerous archaeological and historical studies over the past decades. In the Netherlands, Roman occupation of the southern provinces has been studied intensively via archaeological research. Forts, villas and vii have been excavated and some have been reconstructed. These layouts speak to the imagination, as well as the ships used for transport.

Recently, the Limes has been reconstructed to visualize the Roman border and demarcate the Roman province of Germany Inferior and the lands inhabited by the indigenous tribes. It used to be thought that the arrival of the Romans brought on a culture shock in the area south of the Limes, imposing an entirely different lifestyle on the tribes living under Roman rule. However, archaeological and historical research has shown that this was not the case. The indigenous people assimilated and took over some aspects of Roman life whilst at the same time continuing with some of their own traditions. Roman culture mixed with the traditional lifestyle of the peoples of Germany.

An important part of culture are food and alimentary practices. It is what you do and do not eat, how we eat how we prepare food and how we think about food. Its culture bound. It is assumed that in some way, the Roman food culture was the culture bound where necessary. This has been proven for some sites in the occupied area of Germany Inferior. However, little is known about the food and alimentary practices of the non-Romans living north of the border. We know that both sides of the border traded between each other supplying the other party with men, materials and perhaps produce. But to which extent was the diet of non-Romans living above the Limes border influenced by the neighbouring Romans? This paper tries to answer this question using archaeological, ethnoarchaeological and archaeo-zoological data retrieved from archaeological excavations in the area north of the former Limes.

**Keywords:** Roman Limes, diet, food and alimentary practices, Roman occupation, NL

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**TH1-19 Abstract 06**

**Islamic diet and agricultural practices in rural al-Andalus: new archaeobotanical evidences**

**Author:** Dr. Ros, Jerome, UMR7209, CNRS/MNHU, Paris, France (Presenting author)
**Co-author(s):** Dr. Gillette, Sophie, UMR6148, Ciham, CNRS, Lyon, France
**Co-author(s):** Dr. Gasc, Sébastien, Université de Picardie Jules Verne, Amiens, France
**Co-author(s):** Dr. Sévac, Niissip, Université Paris IV-Sorbonne, Paris, France

**Keywords:** al-Andalus, archaeobotany, islamic diet

**Presentation Preference:** Oral

In the literature (i.e. Watson, Aubâile-Sallenave, Decker), it is stated that the beginning of the Islamic period (7th c. A.D.) led to the development and spread of new type of agriculture, event often characterized as “the Islamic agricultural revolution”. This “new” agriculture would have been based on several criteria: spread of new irrigation methods, use of intensive fertilizers, spread and improvement of several agricultural practices (i.e. grafting), development of spring crops, broadening of the diversity of plants exploited and spread of new species, development of new varieties, etc. A recent synthesis led on agriculture in al-Andalus lists exploitation and spread of new species, introduction or spread by arabic-bankers populations. Nonetheless, the knowledge we have of Islamic diet and agriculture in al-Andalus is mostly based on three types of sources: written sources (i.e. agronomic, medical, food treatises, tax sources, etc.), iconographic sources (illustration of said treatises) and archaeological sources (i.e. excavation of irrigation structures). Data documenting directly these questions remain scarce, especially for rural areas.
Since 2013, archaeobotanical studies are led on the Islamic rural settlements of Albalat (Extremadura, Spain) and Las Sitñas (Aragon, 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 technical/ oil plants and 10 fruits, and approximately an additional 20 weeds/wild plants. This communication will characterise 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.

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

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. Stefanios Jacomet), University of Hohenheim in Germany (Dr. Hans Peter Stika) and University of Vienna (Dr. Andreas Heiss) this newly launched project seeks to identify the ‘food cultures’ of prehistoric Europe, and to reconstruct how cultivated and wild plant foods were transformed into dishes, exploring their underlying cultural and environmental contexts and their evolution through time. The project will explore how culinary identities were shaped through the selection of plant foods, both in terms of ingredients as well as processing and cooking practices. Through the examination of macroscopic and microscopic remains of plant foods, combined with experimental replication of various aspects of food preparation techniques originaligraphic investigations and insights of ancient texts, the project aims to provide a multifaceted and integrated approach of Europe’s cuisine during late prehistoric and early historic periods. In presentation we focus on the data and methods and 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.

Medieval alimentation habits deduced from archaeobotanical studies of cesspits

Medieval alimentation habits deduced from cesspits: a comparison of archaeobotanical results from cesspits of towns in eastern France and from the Baltic harbor towns of Stralsund and Greifswald in northeastern Germany

Cesspits fillings are the most commonly studied contexts in late medieval and early modern archaeobotany. In most cases, especially when waterlogged plant remains were retrieved, abundant plant remains were recorded, but the archaeobotanical data sets from cesspits are hampered by taphonomic problems. Oil plants, spices, collected and wild fruits are in most cases much better preserved than cereals and pulses. Nevertheless, despite quite different preservation conditions for different types of plant food these ecological assemblages of faecal remains and kitchen waste are most suitable for comparison due to a high number of recorded taxa of cultivated and wild edible plants used from human consumption. Rescue excavations conducted by the Institute national de recherches archéologiques préventives (Inrap) in the medieval towns of Sambourg 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 contexts are confronted with archaeobotanical results from late medieval and early modern cesspits coming from the harbor towns of the Hanseatic Stralsund 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 more modest role during late medieval and early modern times.

The communication aims to compare archaeobotanical data from two different regions without direct commercial contacts to study aspects of the social and economic background of plant food and alimentation and choices made by Man.

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

Archaeobotanical investigations from medieval sites in Northern France have provided charred and mineralised plant remains (seeds and fruits). Despite some taxonomical 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 remains, especially found in latrines and/or dump pits, were used to understand the alimentary practices of the populations studied.

The social context of the archaeological sites is heterogeneous. Therefore, it’s possible to compare and to discuss the potential of 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, taxonomic size spectrum,...) and indirect indicators (method of administration, food preparation, food quality, such associations ...) of the social status.

The contribution of pollen analysis to the archaeobotany of cesspits

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/ beet (Beta vulgaris), borage (Borago officinalis), capers (Capparis spinosa), spinach (Spinacea oleracea) and many other plants can be demonstrated by pollen analyses of archaeological remains of cesspits however. This paper now presents a first overview of a large set of pollen data from Roman, medieval and post medieval cesspits from Belgium and the Netherlands for several of these plants and discusses their use during the respective periods.
Interpreting the Archaeological Record

TH1-19 Abstract 12
Problems and progress in the study of postmedieval archaeobotany in London

Author - Stewart, Karen, Museum of London Archaeology, London, United Kingdom (Presenting author)
Co-author(s) - Maite I. Collado, Maite I., University of the Basque Country UPV/EHU, Vitoria-Gasteiz, Spain
Keywords: Postmedieval; Food choice and alimentary practices; Urban

TH1-19 Abstract 13
Unmasking millet from a multi-proxy approach

Author - Vogl-Escalera Guirado, Alfonso, University of Salamanca, Madrid, Spain (Presenting author)
Co-author(s) - Aceituno Bocanegra, Francisco J., Universidad de Antioquia, Medellín, Colombia
Co-author(s) - García-Collado, Maité I., Universidad de la Basque Country UPV/EHU, Vitoria-Gasteiz, Spain
Keywords: Millet; Invisible food; Starch

TH1-19 Abstract 14
Meals on Wings: Multi-strand investigation of avian contributions to diet and nutrition

Author - Dr. Best, Julia, Bournemouth University, Poole, United Kingdom (Presenting author)
Co-author(s) - Dr. Malloy, Mark, Bournemouth University, Poole, United Kingdom
Keywords: Avian Archaeology, Eggs, SEM

TH1-19 Abstract 15
Diagenesis, biostratigraphy and taphonomy: Seeking out the pathways to destruction or preservation

Author - O’Meara, Don, Newcastle, United Kingdom (Presenting author)
Keywords: Archaeobotany, Taphonomy

TH1-19 Abstract 16
Reconstructing the Greek Byzantine Diet using a comparative analysis of archaeozoology, isotope studies and literature

Author - Janine, van Noorden, Leiden University, Leiden, The Netherlands (Presenting author)
Keywords: Late Byzantine period, archaeozoology, faunal remains, Euboea, Chalcis, Venetians, dietary variation, animal exploitation

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TH1Interpreting the Archaeological Record
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): Moawad, Jacob, Museum of Copenhagen, Copenhagen, Denmark
Co-author(s): Magnusen, Birthe, Museum of Natural History, Copenhagen, Denmark
Co-author(s): Jensen Sø, Martin, Copenhagen University, Copenhagen, Denmark
Co-author(s): Fischer Mortensen, Morten, National Museum of Denmark, Copenhagen K, Denmark

Keywords: archaeobotany, diet

Presentation Preference - Poster

During archaeological excavations in central Copenhagen a latrine dated to the 1680s was uncovered. The poster presents results from the combined analyses of animal bones, waterlogged plant remains, pollen, and eggs from intestinal parasites found in the latrine. The results show how the diet of the local users of the latrine was varied, including several types of fish, pork, a range of cereals, herbs and fruits, some of which were exotic. The number of intestinal parasites also shows that hygiene was rather low. DNA analysis of the parasite eggs is carried out in order to get to a species determination as well as investigating the zoonotic potential. The archaeological material from the vicinity suggests that the local inhabitants would have been in contact with traders from the Netherlands, based on the architectural, numismatic and ceramic finds. This is corroborated from the find of buckeye 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 macroremains 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. Agropyron cf. repens, Medicago minima, Cichorium intybus, Oenothera acanthum, Plantago ovata, Silene ollaria, Verbascum sp.) favour dry and warm habitats. It is in this scenario that broomcorn millet started to be widely cultivated. The ecological tolerances of broomcorn millet should also be considered in order to explain its adoption in a multiple cropping system. It is a summer crop, sown very late in spring, as it does not withstand frost during germination. It grows well in regions characterized by warm and Mediterranean-type climate with a short rainy season, on poor soils and under severe droughts. The MBA Garđa 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 Garđa 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.

TH1-19 Abstract 19

Unravel the Medieval Islamic diet: preliminary data from the malacoфаuna of Tejo do Praio (Portugal)

Author: Branco, Rita, Universidade do Algarve - FCHS / NAP, Faro, Portugal (Presenting author)
Co-author(s): Valente, Maria João, Universidade do Algarve - FCHS / CEAAP, Faro, Portugal
Co-author(s): Aruza, Ana Margarida, Faculdade de Letras de Lisboa - UNIRAF, Lisboa, Portugal

Keywords: Diet, Islamic, Zooarchaeology

Presentation Preference - Poster

The Tejo do Praio site is a Medieval Islamic settlement dating from the 10–12th century, located in Quinta do Lago in Loulé, Algarve, Portugal. Nowadays, the site is approximately 1.6 km from the coastline, within the Ria Formosa Natural Park. The unique nature of the site - due to its rural nature, residential areas, types of structures and proximity to the coastline - raises several questions, such as the importance and characterization of the exploitation of aquatic resources for this Islamic community. The main objectives of this study are to understand the local diet, to characterize the exploitation strategies of wildlife resources and to do an environmental characterization of the area during the occupation period. The results will then be integrated in what is already known for other Medieval Islamic contexts in Algarve. For this we will do the zooarchaeological analyses (classification of remains, abundances, anthropic and other modifications, biometry) of the aquatic invertebrate remains. Ultimately, zooarchaeology informs us on diet behaviour by studying the mechanisms used in the exploitation of natural resources by past societies, the processing techniques developed for animal resources and the possible trade of resources and commercial routes. So far data show a greater abundance of Cerastoderma edule (common cockle), followed by Ruditapes decussatus (clams), species that presently are quite common in region, well known as the highest mollusk production area of Portugal. Among other identified species are Ostra edulis (oyster), Mytilus cf. galliponticus / mussel), Solen marginatus (razor clam), Venus verrucosa (venus) and remains of Pectinidae family (scallop). The level of fragmentation is very heterogeneous across the contexts, from a mix of pre- and post-depositional agents.

TH1-19 Abstract 20

Parasites in archaeological deposits. How to interpret their presence and how to recognize them?

Author: Desiderio, Anna Maria, INRAP, Paris, France (Presenting author)

Keywords: Parasites, Archaeological deposits, How to interpret their presence and how to recognize them

Presentation Preference - Poster

The study of archaeological deposits reveals a lot of information about the ways of life and the food economy of the ancient communities. Diet food, farming methods and the surrounding environment are not the only information that we find during the study of the finds. Often, pests and insects are part of the organic assemblages. Recognize and interpret these remains is not always easy. The following posters will analyze a study of a stabling area of the fourteenth and fifteenth century in the northeast of France.
TH1-20

REGIONAL AND CHRONOLOGICAL DEVELOPMENT OF FISHING: ITS SIGNIFICANCE IN PAST ECONOMIES AND THEIR SOCIOECONOMIC DYNAMICS

Fishing was one of the simplest sources of livelihood in prehistory. Where available, fish constitutes an important food resource. Apart from the nutritional value, all parts of the fish have been utilized for various purposes. Humans’ adaptive and innovative ability to conquer new ecological niches and to respond to environmental stress led to the invention of new fishing technologies and e.g., mass-harvesting facilities and highly organized procurement strategies.

Sometimes fisheries are labour-intensive and collective effort may have been required. Hence, fishing techniques may be closely related to the socioeconomic, cultural, and sociopolitical systems in fishing communities, as well as to population dynamics. 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 the importance of fish in prehistoric subsistence is often quite uncertain.

This session aims to deepen current knowledge within the framework of local, supra-regional, and diachronic development and application of active and passive fishing techniques in the harvesting of aquatic resources as well as other linked activities. Where direct evidence of fish utilisation is insufficient, various forms of indirect evidence are employed. Settlement patterns, site location, fishing technology, and resource specialisation reflect the utilisation of fish as a food source, or as a source of raw materials. Therefore, apart from 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 longterm dynamics.

TH1-20 Abstract 01

Introduction. Regional and chronological development of fishing

Fishing has been one of the simplest sources of livelihood since the early days of human prehistory and therefore fish constitutes an important food resource for human societies in water rich areas with access to lakes, rivers and coasts. Fish is a significant source of protein, an element vital to human nutrition. Apart from the nutritional value, all parts of the fish have been commonly utilised for various purposes. Fish are relatively easy to catch even with the simplest equipment and therefore this wild food resource was exploited with varying intensity through time employing different technologies in a wide range of aquatic landscapes. The fish remains, albeit few, were collected mostly by hand; and the role of fishing was probably more substantial. The occurrence of large fish hooks and fishing net weights speak in favour of such hypothesis, as well as the environment of the site, which was located in the very proximity of the river. In addition to the re-analysis of the faunal remains collected over the course of 1932 and 1969-1970 excavation campaigns (originating from both domestic and wild animals, waterfowl and fishes) we were previously published by Clason (1980), and are indicative of a fish-bearing economy.

Keywords: Ancient fishery, Human diet

Presentation Preference - Oral

TH1-20 Abstract 02

Discontinuities in fishing practices at the onset of Neolithic: a case study from Starcevo

Whereas the significance of fishing is well documented at a number of Mesolithic and Early Neolithic (c. 9500 - 5500 cal BC) sites in the Danube Gorges (the Danube stretch between present-day Serbia and Romania) and is corroborated by archaeozoological, isotopic and archaeological evidence, this important aspect has received less attention in the study of surrounding areas. The issue of determining the role of fishing is particularly relevant for the understanding of transitions from foraging to first food producing economies in the North-Central Balkans, the latter commonly associated with the Starčevo-Körös-Criș cultural complex (c. 8000 - 5500 cal BC). Existing data on isotopic dietary signatures of human remains from Early Neolithic Starčevo-Körös-Criș sites signal a more terrestrial diet (Whittle et al. 2002; 2005), however archaeological data from several Körös sites in Hungary (Bartosiewicz 2012) suggest that the role of fishing, in addition to being obscured by inadequate recovery techniques, would have varied greatly depending on site location and other socio-economic factors. In this paper, we present and discuss the results of the analysis of fish remains from the eponymous Early Neolithic site of Starčevo-Grad in Serbia. The site is situated at the former bank of the Danube at the edge of its floodplain, little over a 100 km upstream from the Danube Gorges as the crow flies. The faunal remains collected over the course of 1932 and 1969-1970 excavation campaigns (originating from both domestic and wild animals, waterfowl and fishes) were previously published by Clason (1980), and are indicative of both stock-breeding and a hunting/fishing economy. The fish remains, albeit few, were collected mostly by hand; and the role of fishing was probably more substantial. The occurrence of large fish hooks and fishing net weights speak in favour of such hypothesis, as well as the environment of the site, which was located in the very proximity of the river. In addition to the re-analysis of the remains from older excavations of Starčevo-Grad, our study also included the analysis of fish remains collected during 2003-2008 excavation campaigns. The aim of this paper, as well as future analyses of Early Neolithic faunal assemblages is to problematize the presumed dichotomy between Mesolithic and Early Neolithic subsistence strategies and to assess the role of fishing at the advent of food producing economies in the Central Balkans.

Keywords: Starčevo, Human diet, Fishing gear

Presentation Preference - Oral

TH1-20 Abstract 03

Comfortable fishers in Mesolithic western Norway

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 subsistence is often 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 techniques in the harvesting of aquatic resources as well as other linked activities.

In locations where direct evidence of the utilisation of fish is insufficient, 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.

Keywords: Mesolithic, Fishing, Fishbone

Presentation Preference - Oral
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

Fish constitute a significant source of essential nutrients in the human diet. Over time, people around the world have developed numerous different methods of obtaining vital nutritional elements from aquatic environments. Eels, with their substantial content of fatty acids, vitamins, and, not least, fat, are an example of an aquatic food source that has been prized in many parts of the world for millennia. Numerous different fishing methods have been employed, founded on observations of the mystical behaviour of this fish. Its remarkable biology did not begin to be understood until the 20th century and there are still some unanswered questions. The fishing methods and equipment required to catch eels, both on a daily basis and in large quantities as stored provisions, were developed on the basis of experience and oral traditions, handed down from generation to generation. In a Danish context, written sources such as 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 archaeozoological data show that eels have been part of Danish food culture for the past 8000 years. In 1988 and 1990, remains of fishing structures dating back between 4500 and 7000 years were investigated. These archaeological structures were interpreted as so-called åleåer - eel weirs, which the fisherman of historical times built on the coast and cut into the sea. They were used to catch the schools of silver eels which, then as now, migrated every year from Baltic and Danish waters to the Sargasso Sea to mate and reproduce. This interpretation provided grounds for examining a number of different ethno-historical source categories from Danish museums and archives in order to assess information on construction methods, choice of materials and landscape use in relation to the corresponding prehistoric structures. According to a Danish adage, it’s hard to catch an eel by its tail. This paper presents diachronous Danish examples showing how the skill, craftsmanship and know-how of the Stone Age fishers, in relation to the manipulation of both marine and terrestrial resources targeted at catching the ‘tricky’ eel with its high nutritional value, were apparently passed down from generation to generation until the demise of this activity in the mid-20th century. But everything has its price! Some Danish sources reveal how people risked both life and limb when fishing from stationary structures during autumn and winter storms. Still eels are a much sought-after and highly prestigious food source in many parts of the world. Danish eel stories, from museums and archives, reveal how the people of Denmark have, since the Stone Age, employed special methods, ranging from almost childishly simple tools to complicated wooden structures stretching out into the sea, to ensure that the strong eel ended up making a valuable contribution to humankind.

TH1-20 Abstract 05
Stone Age Spear fishing in the Baltic Sea region
Author - Dr. 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 (Ertebølle) and Early Neolithic coastal sites at the Baltic Sea is a specialised spear. This spear for active fishing was constructed with two wooden leister prongs and a bone point in the middle, which were very well preserved, were excavated during the years 1996 to 2008. Archaeological and dendrochronological 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 spear fishing, 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 Ertebølle 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 orhard 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 (Malusoeae) and red dogwood (Cornus sanguinea), as well as the flexible and common hazel (Corylus avellanea). A few other types were used very rarely. The proportions of material used show regional and chronological differences, as certainly a result of which resources were available.

Spear fishing is one of the practised 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 month. 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) - Kooß, Stefanie, Archäologisches Landesamt Schleswig-Holstein, Schleswig, Germany
Keywords: Baltic Sea, fishing, North-East Europe
Presentation Preference - Oral

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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 dogouts/rogbots, bark/skin canoes (studied by clay sculpture), wooden paddles (bark/skin preserved in peat bog layers), stone anchors, special bone points, fish hooks, fishing nets (studied by multiple imprints on ceramic vessels inner surface) and small sculptures of fish species (made of bone and flint). The main conclusions and problems of fishing gear investigation are discussed.

TH1-20 Abstract 08
Wood use and woodland management at Šventoji fisheries, SE Baltic, 3200-1000 cal BC
Author - Kępula, Peciauskas, Vilnius university, Faculty of history, Vilnius, Lithuania (Presenting author)
Co-author(s) - Piličiauskas, Gytis, Lithuanian Institute of History, Vilnius, Lithuania
Keywords: tree species, woodland
Presentation Preference - Oral

Šventoji Subneolithic – Bronze age (4000-500 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 cal BC) river channels and containing rich cultural layers with a wide range of artifacts and wooden fishing structures were added to the wetland archaeological complex. Until recently tree species of wooden artefacts found during the excavations at Šventoji were rarely identified, and then using mostly macroscopic evaluation. Fragmental data, in some cases collected using unreliable
methods, does not allow to get a full view of the wood use and woodland management strategies adopted by prehistoric fishermen. During the last few years this topic received more attention. All wooden finds from recent excavations at Šventoji archaeological complex were analysed using macroscopic-anatomical identification of tree species, in some cases also identifying fishing season and some tree growth conditions. This new data allows to draw some insights into woodland management strategies, adopted by prehistoric fishermen living on lagoon shores and riverbanks. In this report we would like to present the latest results of systematic analyses of wooden artifacts unearthed at Šventoji in 2014 and 2015.

**TH1-20 Abstract 09**

**Subneolithic fishing in the southeastern Baltic in the light of recent research at Šventoji 43**

**Author:** Gaižauskas, Lukas, Vilnius University, Vilnius, Lithuania (Presenting author)

**Co-author(s):** - Liščiauskienė, Gedrė, Vilnius University, Vilnius, Lithuania  
- Dr. Piličiauskas, Gytis, Lithuanian Institute of History, Vilnius, Lithuania

**Keywords:** Šventoji, fishing, Subneolithic

**Presentation Preference - Oral**

The prehistoric complex of Šventoji in SE Baltic is well known for its multiple archaeological sites, which range in timespan from Subneolithic to the Bronze Age (4000-500 cal BC). Surveys and excavations carried out there in 2013 and 2014 led to the discovery of several new sites, among them a Subneolithic site Šventoji 43, which is one of the earliest sites from Šventoji and includes a dwelling zone dated to 3900-3700 cal BC. The goal of the present paper is to present the results of the excavations at Šventoji 43 and also the analysis of the fish bones recovered at the site. Šventoji 43 is distinguished from later Subneolithic sites of Šventoji by the presence of blades and microliths in the lithic assemblage and pottery which bears close resemblance to the typical Comb Ware. It is also evident that amber was worked directly on the site and shaped into ornaments, whose forms are identical to those found at Comb Ware sites in the Eastern Baltic. Archaeological wood has already perished, but a great quantity of both burned and unburned, mostly very fragmented bone was 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. As the exploitation of salmon has already been widely published and discussed.

**TH1-20 Abstract 10**

**Backing up the frail evidence of the utilisation of Atlantic salmon in Mid-Holocene Finland**

**Author:** Köivistö, Satu, University of Helsinki / National Board of Antiquities, Espoo, Finland (Presenting author)

**Co-author(s):** - Numminen, Katarina, University of Helsinki, Helsinki, Finland  
- Kaivola, Jussi, University of Helsinki, Helsinki, Finland

**Keywords:** ethno-historical study, Fishing

**Presentation Preference - Oral**

The archaeological evidence confirming the significance of salmon fishing in prehistoric Finland is weak. Based on historic sources, mass-harvesting of migratory species, such as Atlantic salmon (Salmo salar) and whitefish (Coregonus lavaretus) formed the basis of the 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 Ostrobotnia suggest focusing on mass-harvesting facilities, utilising the regular migrations of specific species, and investing in storage techniques. Application of ethnographic, historic and anthropological data collected among the Atlantic (Salmon) 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 utilisation.

**TH1-20 Abstract 11**

**How much is the Fish? Roman Fishing on the Swiss Plateau**

**Author:** Koch, Pirmin, University of Zürich/Kantonsarchäologie St. Gallen, Zürich, Switzerland (Presenting author)

**Co-author(s):** - Ramírez, Milena, Fisheries and Food Institute, Santos, Brazil  
- Brandi, Rafael, Brandi & Bandeira Consultoria Cultural, São Luís, Brazil

**Keywords:** - north-western provinces, Roman fishing, Swiss Plateau

**Presentation Preference - Oral**

Our knowledge of Roman fishing is based on a wide range of written and pictorial as well as archaeological sources. The study of the latter came into academic focus in the past few years (cf. International Workshop “NETS AND FISHING GEAR IN CLASSICAL ANTIQUITY: A FIRST APPROACH”, University of Cadiz 2007). All sources teach us about techniques and fish consumption as well as fish processing to manufacture the famous garum. Ancient authors (cf. Olypius’ Hakeoutaca) and some rare inscriptions give us insights in the organisation and socioecononic 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- Vösendorf, Biberach/CH, Nellenbach/CH, Kempraten/CH etc.). The Roman poet Ausonius also reported that Romans fished with fishing rods and nets in the Moselle. Thus it must be assumed that fresh water fishing was more common than it seems.

Following this assumption, the paper provides a first comprehensive and interdisciplinary presentation of freshwater fishing during Roman times on the Swiss Plateau. This study area is chosen because of its diversified landscape with lakes, rivers and streams and its good state of research; find assemblages of several ancient cities, vicus, vilae 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 fish 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

**Presentation Preference - Oral**

The Steinhuder Meer is a lake of 30 sq. km northwest of Hannover in Northern Germany. Mesolithic artifacts indicate that people made use of the resources of the lake since that time. As it was an economically underdeveloped area at that time, the two bordering states were a matter of constant quarrels in 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 (Angelkahn) 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 fact the consumption of eel was for many people a reason to visit the lake. Because of this economic success only eels were caught and the rest of the catch was dumped back into the lake. This process lasts until today mostly 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 Forstensitze of the Halstätt Period, the Coppia of the Laétine Period or the Roman military forts. In these places there were not only many people who had to be fed, but there lived also a group of wealthier persons who were able to afford special food, like eels or other delicacies. On the other hand 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.
Co-author(s) - Guedes, Lídia, Brandi & Bandeira Consultoria Cultural, Sã Luís, Brazil
Co-author(s) - Weidemann, Maria, Brandi & Bandeira Consultoria Cultural, Sã Luís, Brazil
Co-author(s) - Begossi, Alpina, UNICAMP, Campinas, Brazil

Keywords: Latin America, Poverty alleviation, Pre-Columbian fish traps

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 the coastal areas of Maranhão (northern Brazil), this culminates in the use of historic fish traps (locally known as camboas), built by indigenous populations likely before the European Encounter. We will present the results of a multidisciplinary research effort aimed at exploring and documenting the contribution of this coastal cultural heritage to food security and community livelihood 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.

Co-author(s) - Begossi, Alpina, UNICAMP, Campinas, Brazil

Keywords: Latin America, Poverty alleviation, Pre-Columbian fish traps

TH1-21 Abstract 01

Cremation graves of the Western Balts in the Middle Ages. A comparative approach

Author - Dr. Shiroshkov, Roman, Vilnius university, Vilnius, Lithuania (Presenting author)
Keywords: Aschenplätze, Collective cremation graves, Prussians, Curonians, Scalvians

New Approaches to the Study of the Medieval Sites with Funeral Cremations in Northern and Eastern Europe

Friday, 2 September 2016, 09:00-13:00
Faculty of Philology, Room SF2

TH1-21

AFTER THE FLAMES. NEW APPROACHES TO THE STUDY OF THE MEDIEVAL SITES WITH FUNERAL CREMATIONS IN NORTHERN AND EASTERN EUROPE

Author - Dmitry Drozdnik, Maria, Institute of Archaeology, Moscow, Russian Federation (Presenting author)
Keywords: Cremation, Field and laboratory archaeology, Scalvians, Curonians, Prussians, Baltic Crusades

The funeral rites involving cremation of the body were particularly prevalent in Eastern and Northern Europe in the Viking Period and the Middle Ages. Our knowledge about burial developed with the improvement of the methods of field and laboratory studies. The term „cremation“ unites funeral rites with various forms of cremated bone remains depositions. We need to consider different aspects of the archaeological record to understand the cultural traditions associated with particular forms of funerary cremation. Here are some of them:

- The territorial setting of the cemetery in the context of settlements, economic zones, religious/mythological spaces, and natural landscape.
- The forms of deposition of the cremated bones in the grave (urn, pit, surface, etc.).
- The number of individuals in the grave, and their age and sex characteristics.
- The presence of cremated animal bones.
- The completeness of the cremated human remains.

It is thus possible to study the variability of cremation parameters and their spread over large territories, and to assume that the ideas and worldviews of the people who practiced this burial rite. Different variants of cremation funeral rites have been distributed in Eastern and Northern Europe. For example, one of the variants of burial which became widespread in Medieval North-eastern Russia is the burial of small amounts of cremated human and animal remains in the surface layers of the ground. The special importance of the East Baltic region, in particular Lithuania, in the context European burial rites is the last 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 expect presentations discussing new methodological and theoretical approaches to cremation burial, and cremation rites as unveiling the ideologies of past societies.

Presentation Preference - Oral

Comparative approach

Keywords: Aschenplätze, Collective cremation graves, Prussians, Curonians, Scalvians

TH1-21 Abstract 01

Cremation graves of the Western Balts in the Late Iron Age. Comparative approach

Author - Dr. Shirshakov, 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 Jotingians in the 10-13th centuries. Despite this each Western Balts area had its own form of cremation graves, often not typical to their neighbors. For example, so named “double layer” cremation graves of Prussians, when cremated deceased was buried in the upper part of the pit above the unburned horse, were practiced in the region of Sambia and Natangia almost unchanged from the 9-10th 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 Aklaža-3, Khmony and KI. Kaup represent „Aschenplätze“ as certain areas of individual double layer cremations erected very close to each other, and not at once. Their stratigraphy is very different from Curonian, Scalvian or Galindian "collective" cremation graves. Each grave literally has its...
Interpreting the Archaeological Record

Cremations in Sheksovo: new evidence of the Viking Age burial rituals in Central Russia

Author - Dr. Zaytseva, Irina, Institute of Archaeology of RAS, Moscow, Russian Federation (Presenting author)
Co-author(s) - Makarov, Nikola, Institute of Archaeology of RAS, Moscow, Russian Federation
Co-author(s) - Dobrovoltskaya, Maria, Institute of Archaeology of RAS, Moscow, Russian Federation
Co-author(s) - Krasnikova, Anna, Institute of Archaeology of RAS, Moscow, Russian Federation
Keywords: grave goods, Viking Age, burial rituals, cremations, bones

Cremation is known as a dominating funeral ritual in the Upper Volga in the IX-Xth cc, however present knowledge of cremation practices in this region in the Viking Age is based mainly on the documentation of the burial mounds excavated in the 1960-1980-ies and in the earlier times.

Recent investigations in Sheksovo burial site not far from Suzdal, produced with the implementation of modern excavation techniques (2011-2015), opened new research perspective, revealing important aspects of cremation ritual and transition from cremation to inhumation after conversion to Christianity. Field investigations in Sheskovo produced evidence of coexistence of the tradition of Curonian "Aaschenplätze" and Germanic "collective" cremations of the 11th-13th centuries, supported by the horse burials/sacrifices, the Germanic cemeteries are different. Such cemeteries as Birzai or Niekowica represent human cremated remains in form of small burned bone pieces and scattered with fragments of bones into depth of the 0,2-0,3 m. Their investigator Wojtek Wrobleski named them "The cemeteries without graves". Only few archaeological sites of a partially similar origin are known nearby, as Kricklen in the South Russian area. Furthermore attention is dedicated to the Western Baltic suspended female and adolescent cremations, graves with arms, imported goods and especially the horse burials/sacrifices, as an example of the "professional" cremations. The question of probable Western Balts cremation graves types interconnections, the same as their impact to their neighbors - Samogitians, Smergians and Central Lithuania tribes is also discussed here.

Cremations and funeral rites at the Merovingian cemetery of Broecem, Antwerp (Belgium)

Author - Amaert, Rica, Flemish Heritage Agency, Brussels, Belgium (Presenting author)
Co-author(s) - Lentacker, An, Flemish Heritage Agency, Brussels, Belgium
Co-author(s) - Quintelier, Kim, Flemish Heritage Agency, Brussels, Belgium
Co-author(s) - Deforce, Koen, Flemish Heritage Agency, Brussels, Belgium
Keywords: cremation, inter-disciplinary research, Merovingian cemetery

This paper discusses the preliminary results of the archaeo-anthropological analysis of the human cremated bone excavated at the Broecem cemetery and sheds light on early medieval funeral practices in the Schelde valley in Belgium. The cemetery was excavated in 2001-2003 and 2007-2010 by the predecessors of the Flemish 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 Brandgrabengräber or Knochenlager. The osteological analysis aims to provide a detailed description of the nature of the deposits, to identify and quantify the human and animal cremated bone, to assess taphonomic effects of thermal alteration and fragmentation, to estimate the minimum number of buried individuals, to assess demographic data (age, sex) and presence of pathological changes, to identify any evidence of pyre technology (used during the cremation process) and presence of type of goods. The analyses of anthropological and other dendrochronological characteristics observed in the charred fragments is expected to provide additional information on former wood use for fuel. Additionally for the study of the charcoal from Broecem, attention will be paid to possible differences in fuel selection between the different types of cremation graves.

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

Author - Dr. Syrovatko, Alexander, Municipal budget organization "Kolomna archaeological center", Kolomna, Russian Federation (Presenting author)
Keywords: cremation, The Great Migration period, Viking Age

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 burial sites are opened in the Middle and Upper Oka river, from Kolosmovo to Borovskoye, (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 the 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 these products. According to T. Radish and Finish jewelry and buckles can be present in the burials together. Melted beads, melted objects from the bronze and silver chain mail parts, sylgams and buckles go from different European, Byzantine, Syrian and other cultures. Glass beads and silver ornaments as well as jewelry from the different parts of Khazar Khanate characterize Viking Age burials. The latest burials contain grave goods that are typical for the period of Old Russian state. Most things badly damaged pyre, melted, and cannot be identified of cremated remains allows to discuss sex-age characteristics of the group from Shekshovo. The data on the ratio of strontium isotopes (87Sr/86Sr) in the cremated remains may be used for the reconstruction the level of mobility of the population and for the identification of individuals newly arrived from other areas.

Field research in Shekshovo proves that burial sites with superficial cremations could survive on the land plots after intensive long-term agrarian cultivation. Discovery of these sites becomes realistic with the introduction of the more advanced approaches to the correlations and processing osteological remains.
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 detect somatauma.

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.

However, a small number of cremated burials in the Old Russian barrows of the Xth beginning of the XIX centuries were excavated in the west part of Novgorod land. This group of burials has never been the subject of a special study for archaeologists. In the field reports and publications they have been interpreted as “a relic of paganism” without any arguments.

Micro-topography analysis of the cemeteries shows that such mounds with the cremated remains were not separated from the other mounds and located in the early part of the burial groups. The mounds with cremations and the mounds with inhumations of the same period are identical externally and internally. Simultaneously the cremated remains are quite different from the cremations of earlier times (for example, the Culture of Long mounds, Sopka culture, etc.) in size and in the degree of burning. The remains were scattered on the bottom of the burial pits, their size and shape are very similar to the inhumation graves. Finds (knives, iron weapon's heads, coins) are rare in the analyzed group and located like in inhumation graves. The subjects typical for female costume have not been found yet. It is important to emphasize that the found things have no trace of a fire.

Mentioned peculiarities give us an opportunity to clear why Christian burial canan was disrupted. Probably the cremation was the only possible way to deliver the body to the family cemetery, where the deceased can be 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 well) felt obliged to bring the body to their relatives for burial at home.

THI-21 Abstract 08
Underwater burial sites of the 14th century: Kernave case
Author - Dr. Velius, Gentaudas, Vytaus University, Vytaus, 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.

Burials 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 water burials in water was a long - time tradition or was it only the consequence of important historical events? The remains in the water 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 burials rituals (which were practiced comparably briefly) forces us to look for uncontrived causes of this phenomenon. Today's archaeological research methodologies do not allow us to state the final hypothesis on the possible origin of these burials.

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 not 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 personalization 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 1386 and 1390 Kernave town was left in ruins. Furthermore, precisely at that time the “black death” spread throughout Europe and perhaps plague could reach Kernave too.

THI-21 Abstract 09
Urn Cremation in the Southeast Balticas in the late Roman period.
Field record sand laboratory study
Author - Dr. hab. Mastovič, Anna, Institute of Archaeology, Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)
Keywords: late Roman period, Southeast Balticas, urn cremation
Presentation Preference - Poster
The cremation was the prevalent burial rite since Roman times and early Middle Ages in Western Baltas. 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 (Samibian-Netanian archaeological culture) discovered by Sambian expeditions Institute of Archaeology in recent years. Most of the vessels were desturbed, 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 (fire, taphonomical changes and so forth.)

Romanov-Pugachev 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, umbo and other fragments) tightly putted above of each of these two clusters of the crematedbones.

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, № 18-06-00058.

TH1-21 Abstract 10

“The largest cremation” of the burial ground Schurovo: typical or exclusive?

Author - Belkina, Moscow, Russian Federation (Presenting author)
Co-author(s) - Syrovatko, A.S., Kolomna archeological center, Kolomna, Russian Federation
Keywords: burial ground, cremation, Middle Oka
Presentation Preference - Poster

Multivariate of funeral rites of the Late Roman period - the Early Middle Ages in the central part of European Russia (Moscow region) are not studied in detail. A special place in this variety are the cremation. In particular, the burials differ in the way the localization of the burned burial (burned mound and burial ground). The batches of the burned bones may be scattered and compacted located. We consider all these variations, since they have a specific meaning and formal position in the funeral rites.

This report - the description of the unusual case of burial cremation of the first half of the 10th century. It comes out of the ordinary ones by “heavy weight” of all individual burials in the Middle Oka.

Schurovo archeological site is located on the first terrace of the right bank of the Oka (the middle reaches of the river) near the Kolomna town. There are kurgans and ground graves with cremations on this site territory. Systematic excavations take place since 2001 by Kolomna archeological center expedition (A.S. Syrovatko). According to the dating of the grave goods the site existed from VI till X cc. Ground graves with cremation is more late type of burials and associate with IX-X cc. The batches of the burned bones in pits and diffuse cremated bone fragments scattered on the ancient surface are variants of the individual burials. Only a few cases are placed in the pits. In 2013, well preserved burial pit has been discovered among others during field archaeological work. The bones of this burial were studied in detail. The number of fragments, size of the fragments, the color and weight, deformations and cracks were estimated. The color is invariable, light-grey. 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The temperature and time of pyre burning:

1 The study was supported by the RFBR, № 18-06-00058.

TH1-21 Abstract 11

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

Author - Dr. Tatiana, Shvedchikova, Institute of Archaeology Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)
Co-author(s) - Novikov, Vasily, ANO Historical-archaeological center Gardarika, Moscow, Russian Federation
Keywords: Gnezdovo settlement, cremation, human remains, taphonomy
Presentation Preference - Poster

Numerous post-depositional and post-burial agents affect and potentially alter skeletal material. Biochemical changes in soil surroundings in some cases has the same manifestations on the bones as fire influence. The difficulty to interpret and distinguish such agents also could be due to the unclear taphonomical situation. The case study from Gnezdovo settlement (9-11th cent. AD, Smolensk region, Russia) shows us the good example of application the different approaches to solve the hazard of black stains appearance on the woman’s skull found in the redeposited burial in the trench 2 (excavations of 2012 season). Archaeological center Gnezdovo is the biggest complex of settlements and cemeteries of Viking age period in Europe. Classical description, microscopic investigation, X-ray fluorescence analysis of the bone material, soil analysis in the context of stratigraphy situation are applied. The complex approach led us to the question of elaborating the objective criteria in the similar cases. Also the C14 dating got from the named bone material helps us to indicate the cultural layers of the second half of 10th century and get a new information about the early period of the Gnezdovo settlement in 9th century.
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: Cuenca-Solana, David, University of Rennes 1, Rennes, France (Presenting author)
Co-author(s): Marchand, Géorgie, CNRS/University of Rennes 1, Rennes, France
Co-author(s): Gutierrez-Zugasti, Igor, UPCI/University of Cantabria, Santander, Spain
Keywords: Mesolithic, Settlements, Spatial analysis
Presentation Preference: Regular session

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 organization. One of the most informative aspects is the study of dwelling structures identified in the archaeological record as post holes, stakes, pits, walls, floors, hearths, etc… The interpretation of their functions often leads to heavy assumptions (mobility system, storage, social hierarchy). The passage of these archaelogical 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, gisearchaeology, micromorphometry, 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.

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TH1-23 Abstract 01

Social organization behind shell-middens: ethnoarchaeological experiences from Tierra del Fuego
Author: García-Riquer, Albert, Autonomous University of Barcelona, Barcelona, Spain (Presenting author)
Co-author(s): Ezalez, Jordi, Autonomous University of Barcelona, Barcelona, Spain
Keywords: Ethnoarchaeology, Mesolithic, Shell-middens
Presentation Preference: Oral

Mesolithic shell-middens sites have been used to support the existence of economic intensification and reliance on maritime resources and sedentarism. The archaeological visibility of shell-middens and the good preservation of archaeological remains have led to a long tradition of research. Nevertheless, the stratigraphic analysis of shell-middens always carries specific problems, given their very heterogeneous nature and the successive post-depositional processes that may have occurred. Indeed, traditional methods and techniques of excavation as well as the character of unfiltered 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 main 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, Tuan-VII and Lanashua, both located on the northern coast of the Beagle Channel.

The ethnoarchitectic record, including pictures, descriptions of shape, size and the discontinuous but repeated use of circular huts by Yamana people, have 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 debris in order to get a complete understanding of human activity in the sites.

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 Tuan-VII site there were at least ten discrete re-occupations in different seasons, whereas in Lanashua 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.

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TH1-23 Abstract 02

Mesolithic dwelling Space in an interdisciplinary perspective
Author: Res. Associate Grøn, Ole, Norwegian Maritime Museum, Oslo, Norway (Presenting author)
Keywords: Dwelling, Interdisciplinary, Mesolithic
Presentation Preference: Oral

This paper discusses the authors’ development of an empirically based approach for analysis of the Mesolithic use of dwelling space based on theory, concepts and data from mathematics/physics, experimental social psychology, social anthropology as well as archaeology. The underlying assumption is that the space of hunter-gather 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.

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TH1-23 Abstract 03

Early Mesolithic site space in western Norway
Author: Dr. art. Ingelt, 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 debris. Specific lithic dispersal patterns are associated with both dwellings and “open air sites”. The dwellings are mainly identified as tent rings of stone cobbles and 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 false raises the apparent question concerning lithic tool sharing. Site evidence at the transition from Early to the Middle Mesolithic seems to indicate a change and different site pattern due to changes in the spatial configuration of activities related to the lithic debris.

Early Mesolithic sites in general, are small sites and among the few sites which it is realistically possible to analyse site structures and patterns on an individual spatial level. However, lack of identified structures makes a continued discussion concerning identification of dwellings through their relation to lithic dispersal patterns important.

More discrete site analyses are needed through a consideration of site characteristics, excavation methods and lithic technological, functional and spatial features, in order to analyze trends in Early Mesolithic site patterns. Aspects of this culture-historical development and methodological challenges will be discussed.

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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): Birchennell, J., University of Manchester, Manchester, United Kingdom
Co-author(s): Knight, B., York University, York, United Kingdom
Co-author(s): Little, A., York University, York, United Kingdom
Co-author(s): Miler, N., York University, York, United Kingdom
Co-author(s): Taylor, B., University of Chester, Chester, United Kingdom
Keywords: Early Mesolithic, Dwelling Space, Site Space, Star Carr

This paper considers how the dryland structures at Star Carr, UK were used and what can be learnt about people’s relationship with their environment. The paper will consider the Star Carr site as a case study to explore different approaches to understanding Mesolithic site space, and will focus particularly on the small structures on the shore. Mesolithic sites in Britain are often considered to be ephemeral and short lived, and are generally understood as a series of open areas with small associated structures, and activities related to lithic production.

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-gather 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.

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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 O. 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 describe the spatial variations of the archaeological remains. These taphonomic analyzes 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.

Keywords:
- Mesolithic, refitting, Star Carr
- Oral

TH1-23 Abstract 06
New insights into open-air Mesolithic settlement in northern Spain.

Recent research at El Alloru, Asturias, Dwelling structures, Settlement

Author - Prof. Arias, Pablo, Universidad de Cantabria, Santander, Spain (Presenting author)
Co-author(s) - Cubas, Miriam, University of York, York, United Kingdom
Co-author(s) - Fano, Miguel Angel, Universidad de La Rioja, Logroño, Spain
Co-author(s) - Alcázar-Fernández, Esteban, Universidad de Salamanca, Salamanca, Spain
Co-author(s) - Aragón, Ana Cristina, Dirección General del Patrimonio Cultural, Lisboa, Portugal
Co-author(s) - Cueto, Marían, Universidad de Cantabria, Santander, Spain
Co-author(s) - Duarte, Carlos, Universidad de Cantabria, Santander, Spain
Co-author(s) - Fernández Sánchez, Patricia, Universidad de Cantabria, Santander, Spain
Co-author(s) - Hernández, Enrique, Universidad de Burgos, Burgos, Spain
Co-author(s) - Jorquera, Pablo, Universidad Nacional de Educación a Distancia, Madrid, Spain
Co-author(s) - López-Doriga, Inés, Wessex Archaeology, Salisbury, United Kingdom
Co-author(s) - Nasey, Sara, Universidad de Cantabria, Santander, Spain
Co-author(s) - Salzmann, Christoph, Philipps-Universität Marburg, Marburg, Germany
Co-author(s) - Tapia, Jaime, Sociedad de Ciencias Aranzadi, San Sebastián, Spain
Co-author(s) - Tischner, Felix, Philipps-Universität Marburg, Marburg, Germany
Co-author(s) - Teira, Luis César, Universidad de Cantabria, Santander, Spain
Co-author(s) - Urquijo, Paloma, Universidad Nacional de Educación a Distancia, Madrid, Spain
Co-author(s) - Vallejo, Jorge, Universidad de Cantabria, Santander, Spain

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) - Cuenca-Solana, David, Instituto Internacional de Investigaciones Prehistóricas de Cantabria, Santander, Spain
Co-author(s) - González-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 middens, 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 Mazo Zacuto 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.

Keywords:
- Microstratigraphic investigations at the Mesolithic shell midden of El Mazo, Asturias, Spain
- Oral

TH1-23 Abstract 08
Microstratigraphic investigations at the Mesolithic shell midden of El Mazo, Asturias, Spain

Author - Duarte, Carlos, University of Cantabria, Santander, Spain (Presenting author)
Co-author(s) - Iriarte, Enrique, University of Burgos, Burgos, Spain
Co-author(s) - de la Fuente, Ignacio, University of Cantabria, Santander, Spain
Co-author(s) - Arias, Pablo, University of 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 matrices with different sedimentary compositions, some of them only a few centimetre thick.

Structures apparently well preserved were also identified, such as combustion features, also with homogeneous configurations (e.g. preservation/absence of stone structuration), which might be indicating different behaviours and types of occupations through time.

Undisturbed sedimentary block samples were collected to investigate into the microstratigraphy of this shell midden and the structures within the shell layers. The study under the microscope of the thin sections obtained allows to systematically identify sedimentary microfacies and ascribe them possible in-situ and reworked contexts, including those of fire combustion features. Ultimately, the identification of sedimentary structures resulting from human activities, that many times leave imprints visible only microscopically, might lead to the reconstruction of the behaviours behind the accumulation of the shell middens.

Keywords: Asturias, Dwelling structures, Settlement
Interpreting the Archaeological Record

TH1-23  Abstract 09
Can pits define a settlement?
One example from inland Iberia Mesolithic

Author - Gaspar, Rita, Portugal (Presenting author)
Co-author(s) - Carrondo, Joana, Porto, Portugal
Co-author(s) - Detry, Clelia, UNICAMP, Lissabon, Portugal
Co-author(s) - Martín Saipo, Maria, CIBIO-InBIO, Porto, Portugal
Co-author(s) - Terasi, Józef, CIBIO-InBIO, Porto, Portugal

Presentation Preference - Oral

In the last years new discoveries regarding Early Holocene human occupations have been made in inland Iberia, namely in northeast Portugal. One particular site, Foz do Medal, will bring important contributions to the study of Mesolithic communities due to its well preserved records as well as to its location in the border of Spanish Meseta. Foz do Medal has more than 60 pits within three Mesolithic phases, from the 8th to the 6th 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 11th 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 edible and edible resources.

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

Author - Dr. Osipowicz, Grażyna, 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: Sasiczno 4 and Ludowice 6 (eastern and western habitation). The studies included soil, geomorphological and hydrological analysis of the sites area, archaeozoological and palaeobotanical analysis of the bones, palynology, AMS dating and multihadanalysis of stone artifacts, including: petrology, technology, retouch 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, Denmark (Presenting author)
Co-author(s) - Dzbyński, Aleksander, University of Zurich, Zurich, Switzerland
Co-author(s) - Gralak, Tomasz, University of Wroclaw, Wroclaw, Poland

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. However, 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 metalurgy, 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, Rome, Italy (Presenting author)
Co-author(s) - Dr. Vacca, Agnese, Sapienza University of Rome, Roma, Italy
Co-author(s) - Prof. Poynter, Luca, University IULM of Milan, Milan, Italy

Keywords: balance weights, Ebla, hoards
Presentation Preference - Oral

The material remains of past cultures are conceptualizations of their creators. Artefacts associated with the application of weight standards from prehistory to the Middle Ages may be analysed in this way. Certainly, weights and scales facilitated trade and exchange, integrated different geographical spheres and cultures in economic terms and became in this way a medium in defining interpersonal and intergroup communication. Weighing is also closely connected the other kinds of measurements of concrete things as well as the conceptualization of numbers.

During this session we would like to raise the following topics:

• How were various weighing systems constructed and how were they transformed through time? Can we really define the origin and end of the use of specific weighing systems and units?
• What are the contextual associations of weighing equipment (scales and weights)? What does this tell us about the use of these tools and the social status of the users?
• Influenced weighing systems the perception and description of the world?

We would like to invite all scholars to this workshop who analyse such issues by the study of archaeological remains.

TH1-24  Abstract 03
Metrology, weights and measures in the Iron Age in Britain

Author - Dr. Heslop, Richard, University of Wales, Bangor, Wales, UK (Presenting author)
Co-author(s) - Dr. Martyn, H. R. S. P. J., University of Wales, Bangor, Wales, UK

Keywords: Iron Age, weights
Presentation Preference - Oral

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 metalurgy, abstraction, standardisation, metrology, trade and traders and even to the ancient perception and description of the world.

TH1-24  Abstract 04
Weights and Weighing from the Bronze Age to the Middle Ages: Perception, Context, Use

Thursday, 1 September 2016, 09:00-13:00
Faculty of Philosophy, Room 201

Author - Rahmstorf, Lorenz, University of Copenhagen, Copenhagen, Denmark (Presenting author)
Co-author(s) - Dzbyński, Aleksander, University of Zurich, Zurich, Switzerland
Co-author(s) - Gralak, Tomasz, University of Wroclaw, Wroclaw, Poland

Keywords: metrology, trade, weights
Presentation Preference - Workshop

The material remains of past cultures are conceptualizations of their creators. Artefacts associated with the application of weight standards from prehistory to the Middle Ages may be analysed in this way. Certainly, weights and scales facilitated trade and exchange, integrated different geographical spheres and cultures in economic terms and became in this way a medium in defining interpersonal and intergroup communication. Weighing is also closely connected the other kinds of measurements of concrete things as well as the conceptualization of numbers.

During this session we would like to raise the following topics:

• When emerged the concept of weighing and under which circumstances? How closely was it related to the increasing importance of metalurgy?
• Whether and to what extent weighing units were abstract concepts?
• Why were certain shapes of weights chosen and preferred in certain regions and periods?
• How were various weighing systems constructed and how were they transformed through time? Can we really define the origin and end of the use of specific weighing systems and units?
• What are the contextual associations of weighing equipment (scales and weights)? What does this tell us about the use of these tools and the social status of the users?
• Influenced weighing systems the perception and description of the world?

We would like to invite all scholars to this workshop who analyse such issues by the study of archaeological remains.
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", and as such they were often ratified through royal edicts and enforced by public officers. 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 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 Maridith/Ebla (2000-1680 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 the 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 main 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.

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**TH1-24 Abstract 03**

*Weight - highly abstract measure*

**Author**: Dr. Ślusarska, Katarzyna, University of Gdańsk, Gdańsk, Poland (Presenting author)

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

**Presentation Preference**: Oral

Nowadays in most countries of the world we have one coherent metric system in which every phenomenon can be described using 7 base units. But even in not very remote past every unihd its own scope of references and one quantity could be measured using different units depending on physical state, purpose and other properties. Among other measures invented or negotiated the weight is the most abstract one. It is hard to point any natural equivalent that can be used as a comparative amount as e.g. feet, elbow length or the number of eyes, heads of fingers. Even if these units/numbers differs between people there is something like the "ideal model": every man has 2 eyes, 1 head and 5 fingers in each extremity - except for some rare exceptions.

Or it is possible to establish one benchmark, in which the majority of people fit into with their feet or elbow length. Other quantities were usually counted using proper container, in which the product was consumed in an ordered way.

The earliest weight units seem to be connected solely with metal production. This particular activity - starting from ore acquisition, extraction, alloy preparing, up till the end-product - requires very specific knowledge and ability to abstract thinking taking into account that at every stage of this process the material has completely different properties. So in this meaning the beginning of the Bronze Age can be also perceived as a moment of emergence the new, abstract unit - the weight.

In the second moment we can observe among metal objects has also comparable sizes and shapes. Wherefore we should consider whether this comparable weight was exactly the characteristic that the producer had meant to achieve or it was rather unplanned and unaware result of planned size and shape of the end-product. If the first thesis is true we should conclude that the existence, not necessarily metal, weight equivalent. In the Bronze Age Central Europe, the evidence for the existence of comparable weight units are scarce and disputable, though we can trace them in the Mediterranean World.

The main aim of the paper is to reconsider whether, and to what extent, the idea of weight in Central Europe is connected with metal production itself. Or whether it is the product of highly organized communities (with well-developed and centralised markets), then adopted, without understanding its essence, by Central-European societies of the Bronze Age.

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**TH1-24 Abstract 04**

*Identifying weights in later Bronze Age Western Europe*

**Author**: Associate Prof. Rahmtorf, Lorenz, 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. Price for Central Europe, by Andrea Cardarelli and others for Italy, and Raquel Vargas 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.

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**TH1-24 Abstract 05**

*The social use of metrology in the western Mediterranean Iron Age*

**Author**: Dr. Gorgues, Alexis, University of Bordeaux Montaigne, Pessac Cedex, France

**Co-author(s)**: Poigt, Thiabaud, UMR 5608 TRACE, Université Toulouse Jean-Jaurès/Université Bordeaux Montaigne, Toulouse-Bordeaux, France (Presenting author)

**Co-author(s)**: Comte, Florent, Free Lance Arcaecologist, Bordeaux, France

**Keywords**: Iberian Peninsula, Institutions, Weighing

**Presentation Preference**: Oral

In this paper, we would like to present the first steps of an investigation aimed at discussing the nature of metrology in a specific context of the Mediterranean Iron Age. The Iberian one. Metrology is basically an institution, whose materiality in the Iron Age is mainly linked with weighing. It can take different aspects. When based on experience, on practice and on spontaneous and mutual agreement, we can speak of a practical institution. When enforced by law, and guaranteed through the activity of magistrates, it is a formal institution that may have, much more than the first one, a secondary impact on the material record: its existence will promote normative behaviours, as the fabrication of standardized pottery vessels.

The use of weights and scales during the Iberian Iron Age is well known and has generated an extensive bibliography. These works rely mostly in two assumptions. The first one is that weighing has to be understood on the widest frame of the trading practices connecting at this time the Iberians with others peoples of the Mediterranean area, namely the Greeks and the Punics. The second one is that the weights themselves are characteristics of a metrology having a wide range of application, including – and often predominantly- the proto-monetary sphere. In other word, the adoption of such technology would have meant the deliberate development of an exotic, formal institution, whose imitation aimed at inserting the native networks in the wider Mediterranean ones. This convergence of the Iberian institutions of trade with those of the "Classic" Mediterranean is considered as part of a widest 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 10th cent onward, metrology is quite coherent from one place to another. However, through the contextual analysis of the weighing instruments, we will argue that weighing is not prominently linked with long distance trade, but rather with one’s patrimony management, and was a highly performative activity.

In a second time, we will examine the evidence for normative behaviours, much sketchier. 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 seems indeed to result from the productive routine. On this ground, we will conclude, that in the Iberian context, metrology is not a formal institution enforced through legal control and public coercion, but a practical one, aimed at diminishing the transaction costs in a trade context, but at creating interpersonal trust between partners whose association went far beyond the strictly economic sphere.
Metal ingots as a medium of exchange in the Bronze Age and the Iron Age

Author: Pho Grašal, Tomasz, Wrocław University, Wrocław, Poland (Presenting author)
Keywords: medium of exchange, metal ingots, trade
Presentation Preference: Oral

Metal ingots constituted a long-standing phenomenon that occurred from the beginning of the Bronze Age to the late Middle Ages. They appeared at the earliest in the Stele culture in Central Europe. Specimens made of bronze are rib-shaped, while gold ones were made of spiral coils of wire. In the era of the Urnfield complex, longitudinal ingots of bronze and tin appeared. Sometimes they had strap-like and pointed constructions which facilitated their breaking. They were often found in contexts associated with metalurgy. 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 spiral wound ingots and coils of wire are also known. Silver ingots in the medium of exchange in mediaeval 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 bullion money. Their form facilitated their breaking up to its smallest 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, Benedeguz, Institut für Archäologien, Universität Innsbruck, Stans, Austria (Presenting author)
Keywords: Byzantine, glass weight
Presentation Preference: Oral

Byzantine glass weights are essential tools of a regulated and controlled coin circulation. To understand the financial management and ultimately the Byzantine tax system of the 6th and 7th century AD they are of a great use. They are made of transparent glass of different colour. Domains 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.

Multifaceted Head of Neck Ornaments “Perm Type”

Author: Archaeologist Khan, Nikolay, Vjatskaja Archaeologcal Expedition Ltd., Moskow, Russian Federation (Presenting author)
Keywords: EAA Khan, Managing the Archaeological Heritage
Presentation Preference: Oral

The neck silver jewelry of the Viking Age in a large number found in hoards in the Kama River basin, had multifaceted clasp, which was a truncated pyramid. The usual method of archaeological search for analogies, is comparative benchmarking, let still detect only similar things. In fact, many-sided fastener rings “Permian” type is half the geometric figures tetrahedron with truncated corners, which found in Hungarian antiquities originating in the territory of Bulgaria by Alexander Spytnik. It is an object against a fastener ring and a size two times greater than it.

Therefore the search for the source of a head, which said Ture Arne even have continued in Iran and the African side. Finding head of the Hungarian antiquities 9-10 centuries suggests that the remnants of the Persian such as appeared in the area between the Vyatka and Kama in the ancient homeland Udmurt-Finn-Permic population as cultural synthesis (cultural genes). But they began to fall out in hoards with the Arabic coins first on Gotland, and then Southern Sweden and Denmark and is only the latest in Vyatsk and Kama. With 833 for 845 years.

Neck decoration Scandanivains were of iron, they were not used and the Slavs. Slavs used as an expensive silver jewelry and fashion item 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 places, besides multi-faceted neck rings head marked by 2 things: bracelets on hand, chains-rings-sheafs. Mass discoveries brooches, buckles during archaeological excavations in the Baltic States are talking about ethnic identification of this type of things, but in the entire Baltic region is alien neck rings and bracelets. Some of the findings of these items without heads arrived in the Eastern Baltic from different ethnic backgrounds, because they are known only in hoards. All three subjects costume complex served as money, and the neck ring served as ring money By Br. Hard. Cash and weight standards allow a very high degree of accuracy to determine specific ethnic identity even hoards. If weight hoards standards correspond to the different ethnic groups, and it indicates the direction of trade relations or to cultural and consumer preferences cash holders. Treasures, consisting of the neck rings is preferable to studying in weight than coin treasures, as things that are hidden in them larger and the measurement error is small. Weight measurements artifacts ncessary. They may correspond to the Nordic, Byzantine, Iranian, Prussian, Danish weight standards: 343, 327, 404, 190, 200 grams. Alone or in combination. Neck rings in hoards have tangible evidence of large wholesale trading or tax collection.
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

In 1981 in the delta of the Po river, in Valle Ponti near Comacchio, was found one of the wrecks 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 provenience, lamps, wooden beams, fourths of meat and various small objects, including several little lead temples.

A turn-over steelyard for retail trade and a big stone weight were also found in the cargo. They were part of the ship’s equipment. The turn-over steelyard has two capacities and a stamp with the mention of one personage, probably the mensor who built the instrument in according to similar finds. The stone weight, a centussis (100 librae), was used instead for wholesale trade. This 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 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.

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

Author: Dr. Rodriguez del Cueto, Fernando, Universidad de Oviedo, Oviedo, Spain (Presenting author)
Keywords: Bronze Age, Hillforts, Weights and measures

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.

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

Animal deposits are perhaps the most frequent type of sacrifice in Danish wetlands, and they appear in most of the prehistory. However, in Danish 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 Søpetersbo have 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.
Archaeological finds of human and animal remains in bogs and wetlands are random and unpredictable causing trouble for both archaeologist and antiquarian authorities. In Sweden new finds are scarce but searching museums and archives you can find numerous notes of earlier discoveries. This paper asks the question what is the potential in these old notes 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 recollect 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 than 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 spreads out for about 1000 years from 300 AD until 1300 AD, which is quite remarkable since it means well into the Swedish middle ages and Christian period... It’s interesting that both the humans and the animals have been exposed to similar types of violence on this site, and this might be one of the clues in how to interpret the mysterious bog bodies. Lake Bokaren is placed near double parish boundaries, between Rasbo and Stavby parishes. This can be interpreted as if this was a place where various localities got together around sacrifice. It’s also challenging to try and put the place in perspective in connection to folklore and oral traditions in the neighborhood. For instance many holy springs are known in the area.

TH1-25 Abstract 03
Place-lore concerning bog bodies and a bog body concerning place-lore

Author - Kama, 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 Lawin’s ‘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, drownings, suicides and executions in wetlands: actions that may result in bog bodies. In oral tradition, there is also place-lore describing finds of human remains from peat. This refers to incidents where bog bodies were found in the past of which we do not have any knowledge based on archaeological records. In more details I show how a real archaeological find, a Rabiire 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. Christina, Fredengren, Stockholm, Sweden (Presenting author)

Keywords: Bog bodies, Necropolitics, Sacrifice

Presentation Preference - Oral

This paper will analyse mechanisms of inclusion and exclusion in Late Bronze Age and Iron Age Scandinavia (with case studies mainly from Sweden) manifested in the deposition of human and non-human remains in places outside burial grounds such as in wells, rivers, wetlands and bogs, traditionally seen as sacrifices. 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, Braidotti 2013).

TH1-25 Abstract 05
Peat Pits practical or ritual constructions

Author - Magister (M.A.) Wåhlin, Sidsel, Vendsyssel Historiske Museum, Hjørring, Denmark (Presenting author)

Keywords: Bog sacrifice, Iron Age, 1. cen. AD, ritual practice

Presentation Preference - Oral

In the sacrificial bog of Svennum (Vendsyssel, Denmark) six sculls were deposited in a group of 13 small peat pits (2013 excavation). The deposited is dated by ceramics to the first century AD. In the pits were also deposited stones, ceramics animal bones and white stones placed meticulously as querns and rows in an ornate practical way. In 2015 the bog was further excavated and here it became clear that pits was not the most common way of extracting peat from the bog, large scale vertical stripping of peat was by far the norm this stripping is also dated to the Iron Age by ceramics. New deposits of animal bones, stones and wooden objects came to light, the deposits were different in form than the ones excavated in 2013, some were very organized and some random in character. A survey of older finds of bog deposited sculls in Vendsyssel suggest that they also were found in small peat pits. In Denmark it is generally held that Iron Age peat digging is always conducted in form of small pits but Svennum clearly shows that this is not the case. Most cases of Iron Age peat digging are registered because deposits come to light and are found to be rich pits. The question raised is are the pits actually dug for practical reasons or are they in fact in theirselves a result of ritual practice. The very elaborate placement of stones at the bottom of the pits before any new peat growth and the alternative form of peat extraction could suggest this.

TH1-25 Abstract 06
‘Well-preserved’ human remains – cultural paradigms on conservation

Author - Dr. Giles, Melanie, The University of Manchester, Manchester, United Kingdom (Presenting author)

Presentation Preference - Oral

This paper explores the marvellous accident of natural preservation which characterizes bog bodies, and the deliberate conservation choices which then determine their future. We’ll as well-preserved corpses. It critically examines the different paradigms which have governed cultural choices over whether to re-bury, curate or conserve bog bodies, from the 17th/18th centuries within UK and Ireland. It will contrast both changing attitudes to the body, with developing ideals on conservation philosophy during this time. By contrasting these case studies with wider examples from northern Europe, it will show how they can be a lens through which we examine societal attitudes to bodies that confound our expectations of corporal decay. The paper hopes to share current ideas about ‘best practice’, pointing to the vital relationship between curator and conservator, in terms of the long-term future of such internationally significant remains.
THE LIFE BIOGRAPHY OF ARTEFACTS AND RITUAL PRACTICE

Author - Bye-Jensen, Peter, University of Southampton, Hayling Island, United Kingdom (Presenting author)
Co-author (s) - Rosenlund, Anna, University of Southampton, United Kingdom

Keywords: life biographies, artefacts, ritual practices, material culture

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 (Northamptonshire) and Windmill Hill (Wiltshire); for southern Scandinavia, Sarup (Denmark). Results from the use-wear analysis offer a way of characterizing activities at these sites that has not been attempted before. In particular, use-wear analysis has been able to reveal some of the encapsulated life biographies of artefacts from the Stone Age via practises and activities that the material culture reflects.

TH1-26 Abstract 03

The ritual use of flint

Author - Dr. Hensey, Robert, National University of Ireland, Galway, Galway, Ireland
Co-author(s) - Dr. Hensey, Robert, National University of Ireland, Galway, Galway, Ireland

Keywords: Digital methods, Megalithic art, Neolithic Ireland

Presentation Preference - Oral

From the Megalithic period onward, sometimes even up to the Iron Age, lithics are frequently found in funerary context. Evidence of ritual use of flint is known from Neolithic settlements, enclosures, ritual houses and graves. Several traditions of treatment and handling of flint such as ritual destruction, burning or scratching the surface of the artefacts were recognized.

In this paper, special emphasis is placed on possible role and meaning of lithics in TRB burial rituals. Artefact analyses were divided in two major parts. First, the technology of production and the possible traces of use found on flakes, blades and tools were discussed. The second part consisted of statistical analysis of lithic artefact type variation and their possible relation to other grave goods. The results were then compared to the ones obtained from material from TRB settlements.

This leads to the general discussion about the interpretation of role and meaning of flint in the burial context. By using such combination of methods, it is possible to discuss different reasons for placement of lithics in the burial context. Various artefacts could be interpreted either as a part of the grave goods set (accessories for further life in 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

Lithic artefact deposits in TRB burials in Jutland

Author - Cendrowska, Marzena, Aarhus University, Wroclaw, Poland (Presenting author)
Co-author(s) - Dr. Hensey, Robert, National University of Ireland, Galway, Galway, Ireland

Keywords: burial, lithics, TRB

Presentation Preference - Oral

Deliberate deposition of axes in Southern Scandinavia chiefly occurs in a large number in wetland but also at and in megalithic graves. The transformation of flint tools could also involve changing the material through heating. The use of heat differs depending of tool types. A small number of sites have a large amount of material from deliberate heating, while the majority of other sites, such as megalithic graves, causewayed enclosures and pit-houses have a smaller number of objects partly altered by fire, primarily axes. These deposits are also combined with waste from the manufacturing of axes, combinding "birth" and "death".

TH1-26 Abstract 05

The biography of megalithic art at Millin Bay, Northern Ireland

Author - Dr. Robin, Guillaume, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)
Co-author(s) - Dr. Hensey, Robert, National University of Ireland, Galway, Galway, Ireland

Keywords: Digital methods, Megalithic art, Neolithic Ireland

Presentation Preference - Oral

The megalithic monuments of Western Europe are famous for their engraved and painted decoration which adorns the walls of their chambers, passages and sometimes their external features. While most of that art was primarily created to be seen within the fixed setting of the monuments, excavations and studies in Iberia, France and Ireland have shown that a surprising percentage of this art was hidden in inaccessible parts of the architecture, or was erased from the walls, and that many decorated stones were broken and reworked before being re-employed as the structural components of new monuments. This raises at least two important questions: what was the earliest history of the decorated stones before they were placed inside the monuments? And, what was the role, if any, of such 'un-displayed' art in their final monumental contexts?
The life biography of grave goods from prehistoric burial sites

Author: Kopalinciana, Raluca, Institute of Archaeology, Bucharest, Bucharest, Romania (Presenting author)
Keywords: grave goods, Prehistory, South-East Europe

Presentation Preference - Oral

Neolithic communities used to send their members, on their last road, accompanied by various things, from pottery and animal bones to personal adornments, and other objects such as flint blades, axes, clay figurines, etc. The grave is supposed to be the final resting place for the human individual, but also the end-place of the objects accompanying the deceased. The analysis of grave goods usually focuses on typologies, quantities, whether they are gendered grave goods or not, and how they help create the identity of the deceased. More rarely, they focus on whether they were especially created for the particular event of somebody’s burial or they had been previously used. The work done on the Neolithic and Copper Age funerary contexts from Romania shows that, in spite of the traditional view that most objects were especially created for the burial, in reality, they, in fact, had a life of their own before that. The longest chain of events in an object’s life identified so far belongs to the adornments made of Spondylus shell that underwent long-distance trade, manufacture, short-distance trade, wear, repair or transformation (or both), wear, and deposition. Another object with a medium life was the stone axe, 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 such type seems to be illustrated by clay figurines or pottery objects 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 deposited in connection with 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) Kiemeder-Gubala, Katarzyna, Institute of Archaeology and Ethnology Polish Academy of Science, Warsaw, Poland (Presenting author)
Co-author(s) - Boruc, Tomasz, Institute of Archaeology and Ethnology Polish Academy of Science, Warsaw, Poland
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 cornerstone with stone floors, as well as with a grave goods are known. The Wilczycze site is located in southern part of Poland, in the Sandmierz Upland. The site is well known from earlier publications, as a symbolic (imaginative) settlement, but it concerns also traces of neolithic occupation, connected with Globular Amphora Culture and Corded Ware Culture. There were few graves of this culture, where especially one is unique. It contained three human skulls probably originally situated on the stone or clay soil platform on the perimeter of grave pit. In the vicinity there were also equipment, such as wrist guards, copper daggers or battle axes, sometimes appear in wealthy female graves, too. Arrowheads are commonly interpreted as a typical attribute of warriors because alimentary importance of hunting is minimal in that époque. Nevertheless, their presence in burial grounds and settlements is low. Only a small part of male graves include arrowheads. And only a small part of them include more than a single specimen. Archery sets are not frequent. Together with other indicators – rare goods of shooting injuries on axilitars, questionable functionality of wrist guards, low percentage of diagnostic impact fracture of arrowhead tip - it makes us to interpret arrowheads as only a symbolic attribute of male warrior tropas crystallizing in that turbulent times. Nevertheless, our results testify to a long practical life of the majority of analysed arrowheads from different contemporary cultures, despite the fact that the deposition of arrowheads in graves is undoubtedly symbolic. We see a cyclical operational sequence with several reparations of tip fracture, practical ergonomic-ballistic features, hafting, occasionally even as a repair and systematic care for functional condition of projectiles. This kind of manipulation is not only practical or useful. Weapons repair, sharpening, inspecting etc. plays an important role in warlike/ritualized inter-community behaviour. Warrior grave goods are accompanied by trophy artefacts in graves of some cultures; and we can suppose that the deep symbolism of trophy game hunting was closely tied with ritualized fraternisation of members in male warrior brotherhoods.

TH1-26 Abstract 08
Useful, beautiful or ritual? The life biography of grave goods from prehistoric burial sites

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. The final form of the sculpture is often, but not always, the third and terminal stage of a long sequence of transformation. The focus is on the examination of megalithic sculpture through the lens of the life biography of artefacts, and its potential use in understanding the transformation of the rock art. The workshop will include the use of techniques such as 3D scanning, digital photogrammetry, and modern techniques for converting the scanned data into models. This examination allows us to infer the multiple stages and ‘chains of practices’ involved in the production, use and reuse of megalithic art in Ireland and Europe, and will discuss the reuse of artefacts that were moved, transformed, decorated, reworked, sometimes broken, and eventually brought together and reused as structural elements to create the architectural setting of the monument.

TH1-26 Abstract 06
Between the profane and sacred. Endless life of tools and vessels

Author - Dr. Kufiel-Dzialkowska, Bernadeta, Wrocław University, Wrocław, Poland (Presenting author)
Keywords: Eneolithic, grave goods, usewear and GC-MS
Presentation Preference - Oral

This contribution presents the biographies of the artefacts found in funerary contexts. We chose archaeological material retrieved from the Early Bronze Age site Domasław in the Lower Vistula Valley, near Sandomierz, Poland, excavated in 2011/12. The artefacts were evaluated by the Polish Academy of Sciences. The Jordanów Group, considered as a late phase of the Lengyel-Polgar complex in the middle and upper Odra river basin, was represented by 24 graves. Male and female graves were equipped - in many cases very wealthy - with vessels, copper and shell jewelry, copper tools, antler axes and flint retouched tools and blades. It is believed that at least some of these tools have been made especially for the ceremony. However, many types of objects placed there, such as antler or stone tools, are often found in settlement structures as well. In respect to the position of the artefacts within the burial pits we may suppose that those grave gifts were intended to express someone’s personal equipment or were exactly personal equipment. Usewear analysis of flint artefacts from Domasław show that tools were intensively used for various, but limited purposes. Chromatographic analysis of ceramic vessels found in these graves indicate that different forms of vessels were used for storing and preparing particular vegetal or animal products and their contents precisely correspond with the filling of similar vessels found in settlement pits. As the comparative materials we used examples of ceramic vessels and flint tools from the Lengyel-Polgar sites in Zaryca, Kisieliniec Wielkie and Tyniec Mały in SW Poland, also analysed by the authors. We may suppose that analysed assemblage consists of a set of elements that were used and played different roles in everyday life, and later became part of the religious area. Here we discuss the problem of the life-cycle of two types of objects: sickle and sickle and frilled tools. Both are known from the Eneolithic graves and settlement pits. The act of placing them into the graves reflects symbolic character but is highly connected with everyday life. The complex behavior associated with the rituals, but also social structure of the group, led to the selection of items, known from daily activities.

TH1-26 Abstract 07
Practical and symbolic aspects of arrowheads life cycle in Central Europe (2,500 – 1,800 BC)

Author - PhD Kanakova, Ludmila, Masaryk University - Faculty of Arts, Brno, Czech Republic (Presenting author)
Keywords: arrowheads life cycle, Eneolithic/Early Bronze Age, practical vs symbolic
Presentation Preference - Oral

Despite the descending importance of lithic industry at the end of Eneolithic, highly attractive morphotypes – lithic arrowheads – play an important symbolic role. The symbolic communication in Central European societies is more complex than previously thought, because stone tools were used for several practical aim (e. g. hafting, transport, cutting, etc.). The present paper will focus on the amount of arrowheads found in graves of different classes (warriors, middle and lower classes). The question is whether they were used as grave goods or tools. The role and meaning of arrowheads in different social classes are discussed. The study of the surface condition (heat treatment, wear, and deposition) of arrowheads will give insights into the use of this typology in the funerary context.

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 1950s, 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-removal/over-print 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 structure-from-motion photogrammetry, we examine technical signatures in the making of the art as well as overlapping art indicating sequences of art production, together with evidence of intentional breakage and other alterations of the stones. This examination allows us to infer the multiple stages and ‘chains of practices’ involved in the production, use and reuse of Millin Bay stones as ritual artefacts.

Here we approach megalithic art not as a spatially and temporally 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 the monument. 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 05
Function, form and meaning of bronze axes from the Bronze Age site of Wilczyce (Poland)

Author - Zdzislaw Gubala, Institute of Archaeology, Warsaw, Poland (Presenting author)
Keywords: bronze axes, Prehistory, South-East Europe

Presentation Preference - Oral

The Wilczyce site is located in southern part of Poland, in the Sandmierz Upland. The site is well known from earlier publications, as a symbolic (imaginative) settlement, but it concerns also traces of neolithic occupation, connected with Globular Amphora Culture and Corded Ware Culture. There were few graves of this culture, where especially one is unique. It contained three human skulls probably originally situated on the stone or soil platform on the perimeter of grave pit. In the vicinity there were also
other fragments of stones, probably primary being the part of these platforms or some kind of coffers (?) and grave goods in form of stone tools, as well as animal bones and pottery. In the upper layer there was the skeleton of aurochs. Some of the stones have traces of primary use as grinding, polishing or hammer stones, but there are also stones without any traces of use. This paper concerns on stone artefacts from the Globular Amphora Culture grave from Kwiczowie and the possibilities of interpretation of their primary function as well as traces of its intentional ‘ritual use’ and/or ‘use in rituals’, on the base of the analysis of their spread in the grave, as well as macro- and microscopic features.

TH1-26 Abstract 11
Ornament biographies in amber and antler from the late Neolithic in north-western Norway
Author - PhD Henrikas, Merete, Norwegian University of Science and Technology, Trondheim, Norway (Presenting author)
Keywords: depots, biographies, amber, antler, Norway, ornaments, late Neolithic
Presentation Preference - Oral

In the coastal region of north-western Norway, pendants of amber constitute a characteristic element amongst the many objects deposited mainly in bogs in the late Neolithic (c. 2350-1700 BC). The pendants are of different shapes and sizes. Of particular interest are the crescent-shaped pendants that originally formed part of larger composite ornaments. These ornaments are also found in antler in the same area. This group of ornaments stand out from the other pendants of amber in terms of shape, but also by having been created and used as composite ornaments from the outset. Whether manufactured locally or imported as finished products, the amber itself had to be imported, suggesting these ornaments were highly valued items, used for expressing both social status and identity.

Belonging to a rich and varied group of deposits from the late Neolithic and early Bronze Age in Norway, the crescent-shaped ornaments have been interpreted as votive offerings. However, this hypothesis does not necessarily provide the best tool for understanding the ornaments and their deposition. In the present study of the ornaments in both amber and antler, a biographical approach is applied, focusing on the relations tied to the objects during their life-course. Against this backdrop, an alternative view of the ornaments, their role in society and the final deposition is presented.

TH1-26 Abstract 12
A biographical analysis of Mesolithic hoarding in South Scandinavia
Author - PhD student Jensen, Mathias P.B., Aarhus University, Højbjerg, Denmark (Presenting author)
Keywords: hoarding, Mesolithic, ritual
Presentation Preference - Oral

Hoarding has often been characterised as a ritualised post-Mesolithic phenomenon, but when similar Mesolithic deposits are identified they are often considered ‘unique events’ and as profane caches of raw material. These Mesolithic hoards, which are often carefully arranged or bundled, contain a wide range of objects: from blades, cores and debitage, to axes, beads and unusually large or unique objects. Preliminary results from this study indicate that some of the objects appear to have been produced immediately prior to deposition, whilst others appear to be well-used, and even burnt or broken. All too often hoards are just considered as an isolated event of deposition, instead of the final stage in a chain of practices that led to the act of deposition of particular objects. Without understanding the pre-depositional life history of the objects in these deposits we severely limit our interpretation of the deposits themselves, the possible pre-depositional ritualised practices that culminated in these hoards and why specific objects were deposited in this manner.

This paper seeks to address the following questions: Are there any large-scale patterns or are they all idiosyncratic and isolated events? Do these deposits represent profane caches, ritualised hoards, neither or a mix? What, if any, relationship is there between the pre-depositional life history of the objects and the mode of deposition? By understanding the biography of these objects and practices we may further our understanding of both Mesolithic ritualised practices as well as the longue durée of hoarding practices in Southern Scandinavia.

TH1-26 Abstract 13
Ritual Objects as Offering at the Eneolithic Shrine
Author - Kolostohitska Nasteva, Irena, Archaeological Museum of Macedonia, Skopje, Macedonia (Presenting author)
Keywords: ritual objects, shrine, traces
Presentation Preference - Poster

At Eastern part of Macedonia, near Kocani few years ago the archaeologists discovered an Eneolithic shrine St. Atanas) which is nearby 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 (sacrificial 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.

TH1-26 Abstract 14
Amber Disc from Daktariške 5 Neolithic Site: Archaeology, Use-Wear, Infrared and Raman Spectroscopy
Author - Prof. dr. Butrimas, Adomas, Vilnius Academy of Arts, Vilnius, Lithuania (Presenting author)
Co-author(s): Rimkus, Tomas, Klaipeda University, Institute of Baltic region history and archaeology, Klaipeda, Lithuania
Co-author(s): Siaih, Gvidas, Klaipeda University, Institute of Baltic region history and archaeology, Klaipeda, Lithuania
Co-author(s): Ulozaitė, Regina, Lithuania National Museum, Vilnius, Lithuania
Co-author(s): Matulionienė, Ieva, Center for Physical Sciences and Technology of State science institute, Vilnius, Lithuania
Keywords: Amber, Daktariške 5, Late Neolithic
Presentation Preference - Poster

Traditions of amber collecting, production and distribution in the Eastern Baltic – at least in Lithuania, Latvia and territories later inhabited also by Baltic tribes – mainly, Prussians, reach back as far as the very beginnings of Early Neolithic and has an uninterrupted history of 6400 years.

The large Stone Age amber collection are known from Baltic Sea coast settlement complex in Šventoji and Curonian peninsula (Juodkrantė, Nida). From the area of big lakes, mainly Biržulis Basin the largest collection of amber artefacts are collected in Daktariške 5 Neolithic settlement located in the wetland area.

The Daktariške 5 disc is 3.6 cm in diameter and has a fine-shaped cross-section with a small hole in the centre; it has a fine polished surface and is made from good-quality yellowish amber. One side of artefact is divided in four unequal parts by a triple cross made of slight indentations. Along the edges one, two and four small triangles are formed in single and double lines of indentations. The other side of this disc is also ornamented: along its edges eight differently sized small triangles are formed by slight thin lines rather than indentations. This disc, due to the very good preservation to bear special coded information unlike any other artefact found in Lithuania or the rest Eastern Europe. It appears that the remains of dark resin can still be seen in some of these indentations.

By this reason special traceological, infrared and Raman spectroscopy investigation were carried on by the scientists of Vilnius Academy of Arts, Klaipeda University, Lithuanian National Museum and Center for Physical Sciences and Technology of State science institute.

Traceological analysis was conducted on amber disc from the Daktariške 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
of tools could have been used. Visible ornaments on the outside and backside of the artefact differs not only in the geometrical pattern, but also differences are observed in the manufacturing of the ornaments, which shows that ornaments could have been made using different type of tools, i.e. flint and/or metal implant.

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 two scrutinies 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 traces – aluminium silicate, red ochre and bees wax. The origin of the brown yellow spot on the surface of the artifact 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 for non-destructive analysis of such significant archaeological objects.

TH1-26 Abstract 15

Color Symbolism and its Reflection in Prehistory of Latvia

Author - PhD candidate Kokins, Aigars, University of Latvia,
Faculty of Geography and Earth Sciences, Riga, Latvia (Presenting author)

Keywords: color red, ochre, symbolism

Presentation Preference - Poster

There are many ways how to approach the study of history - archaeological evidences in excavation sites, dating methods, pollen analysis as well as stratigraphy of geological layers, DNA sequencing techniques for tracing migration roots, admixture analysis etc., to capture in a frame of reference physical evidences of early humans and their past. By studying physical evidence, we see close links to psychological, social and behavioral traits, as well as development of societies, evolutionary perspectives of human mind and material culture. Harder to approach are the development of linguistic capacities, cultural activities as dance and religious beliefs - cosmology and symbolism, primarily - color symbolism through prehistory.

Stone Age cemetery Zvejnieki (8-5. BCE) is closely associated with the usage of ochre 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 messalistic and religious nomadic tribes.

The archaeological site Zvejnieki was excavated in 1960, and physical evidence of the colors that were used is no longer available. However, it is still possible to study indirectly the question about the mental and physical capacities involved, in order to recreate a span in time, where such activities as coloring a deceased family member was a task for the living.

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 purify of the tone. Further research was directed to find out if modification of natural ochre could take place and what could be the range of colors possible to obtain from local material. At the same time information about similar symbolic behavior in other archaeological sites were studied.

During the research the ochre source minerals were found near Stone Age cemetery Zvejnieki. The laboratory analysis for characterization of the material included granulometry evaluation, color spectrum, mineral treatment in various temperatures to alter the color and different natural binders were tested. In order to compare the color variation defined by impurities in the material, iron rich minerals were collected from different parts of Latvia.

It should be noted that considerable amount of ochre color source material can be found in less than a 500 m distance near Zvejnieki archaeological site, but the colors are yellowish or brown (gottite). 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, which could be used to create a consistent red color (hematite).

The experiments were conducted, using a mixture of pine resin and various natural binders, such as beeswax and fat. The mixture was applied to the surface of ochre color source material, and the resulting color was compared to the color of the original ochre material.

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.

TH1-27

What's it all worth? Material possessions and value in past societies

Thursday, 1 September 2016, 09:00-18:30

Faculty of Philosophy, Room 307

Author - Martin, Toby, University of Oxford, Oxford, United Kingdom (Presenting author)
Co-author(s) - Kivilaan, Ailise, Department of Archaeology and Classical Studies, Stockholm University, Stockholm, Sweden

Presentation Preference - Regular session

That objects do not possess innate value but have it projected upon them by people is a fundamental precept of archaeology. Objects may possess value through their materiality and its affordances (gold, wood, silicon, clay), but this value is far from static: it varies according to social, cultural, and environmental conditions, on timescales ranging from seasonality to the long durée. Moreover, worth and meaning may be gained or lost at any stage of an object’s ‘biographical’ progress from raw material to workshop, from use to exchange or deposition. A key recent theoretical concept considers modes of perpetual becoming, where the object in its final form never comes to fruition but flows from one state to another, re-purposed, re-envisioned and revalued. Further, an object’s biography does not end when it is put into the ground. Some objects are buried with a view to their retrieval; others are isolated from their contexts and are treated as artefacts.

Realizations such as these have disrupted our belief in a neat, terminal and unidirectional ‘biography’ and complicated our understandings of value. The field of economic anthropology has long directed archaeological approaches to value, with concepts of inherent/valueless possessions in particular being widely applied in archaeological interpretation. This borrowing often lacks contextual grounding, and is recently part of an overwhelming focus on elite prestige valuables. Now that the commodity/gift division is understood to be varied and mutable, we can move on to develop more nuanced understandings of the fungibility of different forms of possessions in past societies, and relationships between the values of different forms of property? This session will explore where the archaeology of value might take us in the context of contemporary material culture theory and works papers from all periods across ideas of value and worth from the material record.
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 age-related status –, so far no empirical study on that question has been conducted.

The intention of my research was to investigate if we can tell from the brooches themselves whether they were inalienable personal possessions of the deceased or not. Can the theory that brooches were received at a certain age, were worn the whole life-time of the bearer and only after her death, be proven? If this was really the case, there should be a clear correlation between the age at death of a woman and the degree of 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 models consistent with the empirical data were considered plausible and were examined in more detail.

The results indicate that Merovingian brooches were neither inalienable personal possessions, as traditional research saw them, nor symbols of an age-related role as some scholars suggested as an alternative explanation. My conclusions rather suggest that they were personal possessions which the women priviledged to wear them were able to replace if they wanted, in compliance with certain rules.

TH1-27 Abstract 03
Jewels between genders: the shifting values of bodily adornment in England AD 350-700

Author: Dr. Martin, Toby, University of Oxford, Oxford, United Kingdom (Presenting author)
Keywords: Dress and identity, Early Medieval, Gender
Presentation Preference: Oral

Stiffly 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 their frequent occurrence 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 interrelated reasons including the materials from which they were made, the skills invested in them, the known individuals through whom the items had been exchanged, and the repeated use of these objects on a daily basis in close association with their wearers’ bodies. This paper concentrates on that final category and contends that a large part of the value of these items came from their implementation in the construction of elite and gendered identities. This usage and these values, however, were highly dynamic. In late Roman Britain exceptionally large and decorative brooches were closely associated with high status 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 gemset jewellery predominently associated with men replaced it. Thanks to recent advances in chronological research, an horizon of particularly richly ornamented female burials has emerged dating the latter part of the seventh century, which may well represent a final swing of the pendulum before furnished burial ceased entirely. This flip-flop of emphasis between the bodily adornment of men and women in graves through these centuries can tell us much not only about these objects were valued, but also about the dynamic meanings and values of the bodies of men and women through late Roman Britain to early Anglo-Saxon England. This paper explores these relationships in comparison with other regions in Europe including Western Frankia, southern Scandinavia and the Eastern Baltic.

TH1-27 Abstract 04
How much is that necklace in the coffin? Grave wealth and grave robbery in early medieval Europe

Author: Dr. Klevnäs, Alison, Stockholm University, Stockholm, Sweden (Presenting author)
Keywords: Artifacts, Burial, Early medieval
Presentation Preference: Oral

Grave robbery – a practice of reopening recent burials and taking objects from them – was widespread across early medieval Europe, peaking in the seventh century. Afflicted graves have been recorded in hundreds of cemeteries from eastern Austria to southern England. Their disorder and depletion contrast markedly with the carefully laid out and often lavishly furnished burial displays of the period. Many explanations have been put forward for the reopening practice, but common interpretations are that high-value 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 it only limited range of artefact types were taken, but that the selection was not based on raw materials or use value.

Many apparently highly valuable objects were deliberately left behind. What lies behind the selection? It will be suggested that the life trajectories which could end in graves differed significantly between artefact types, especially in the degree and nature of objects’ connections with their owners, leading to different capacities for separation 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 continuities needing further research are observed between the understanding of artefact worth in this period – in particular its emergence from interactions of human and object life courses.

TH1-27 Abstract 05
‘Cheap’ bone things, games and travel – on the value of gaming-pieces in an early medieval grave

Author: Zintl, Stephanie, Bayerisches Landesamt für Denkmalpflege, Thierhaupten, 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 ‘real’ value perceived by onlookers at that time. It is a single grave of a man dating roughly to the late 6th or early 7th centuries AD. Buried with weapons, a silver buckle, a glass beaker, a bribe 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 parallelism found in the exceptionally richly furnished burial mound in Taplow, Buckinghamshire, England. While the grave’s furnishings in Leipheim are poor in comparison to Taplow, they still allude to the same lifestyle – which is, in short and clichéd: horse-riding warriors drinking and playing board games (or maybe rather: high-ranking men entertaining guests with drinks and games). Both the context of gaming-pieces are usually found in, i.e. very richly furnished graves of men, and their general rarity seem to indicate board games were restricted to a rather exclusive echelon of society. At the same time, their material value can be estimated as quite low, as both the raw materials and the skills to produce gaming-pieces – even the nicely turned Leipheim and Taplow ones – were easily available. Thus, gaming-pieces highlight how value might often be not so much in the things themselves but rather in how and by whom they were used. They raise questions of where, how and from whom both the gaming accessories and, more importantly, familiarity with the concept of board games were acquired, and also whether their rarity in graves mirrors their restricted use in the living society, or only representational needs that only were relevant for some funerals. The presentation aims to explore these and also some more thoughts on where the idea of board games might have come from, and why gaming-pieces were so rarely put into graves.

TH1-27 Abstract 06
“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 Romano-British glass such as crystal, chalk or animal teeth. Some elements of necklaces such as pierced Roman or Iron Age coins can also be seen in this context. Bags containing one or more of these items have been found by Fielder (2014) to be associated with girdle-hangers, and interpreted as indications of the special status of the women who wore them: not straightforwardly social or wealth status, but relating to the role these women played possibly in connection with birth and death. This paper will look at some of these items to
see how their significance and use changes over time in different contexts, for example from a functional glass vessel to a worn broken fragment carefully kept and deposited in a grave. Questions to be asked include: what kind of ‘value’ did these things have for the woman who were buried with them? Is the name ‘amulet’ appropriate? Do these objects provide a link between pre-Christian and Christian burial practice in Anglo-Saxon England? Fiedler, X. 2014 Girdle-hangers in 5th and 6th century England. A Key to Early Anglo-Saxon Identities. Unpub PhD University of Cambridge Meany, A. 1981 Anglo-Saxon amulets and curving stones British Archaeological Reports 96

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 contact-era Blackfoot, flexible concepts of the value of different material objects enabled individual bundle-holders to respond creatively when presented with historical, environmental, and social contingencies - and this fluidity is mirrored in ceremonial bundle materials. This study seeks to illuminate the relationships between bundle contents and their distribution in various bundle types as indicators of socially-prescribed and maintained traditions. As such, we hypothesise that rules prescribing a communal value to specific bundle contents were more or less flexible depending on the level of social significance attributed to the ceremonies connected to each bundle under the assumption that the greater the overall social significance of a bundle’s associated ceremonial practice, the more constrained bundle-holders were in the development or maintenance of particular contents. In contrast, bundle-holders in possession of bundles associated more closely with personal practice were able to embellish the contents of those bundles under less-prescribed social constraints.

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significance can be interpreted from evidence of extreme curature, intense wear, modification and repurposing over the longue durée, mass manufacture by primary, or even secondary, on the typology of these items: their size, shape and a relative weighing of the 'excessness' or economic value of material would miss this information. Beads can be vessels of meaning, not only vessels conveying meaning and, as material objects, beads are both cultural products and cultural producers, because of the ways in which they may have circulated in the community, driving interaction and sustaining community ties beyond visual signaling.

TH1-27 Abstract 12
More luxury for common people than we thought before: Asian items in medieval and later Europe
Author - Dr. Jente, Garson H., University Bremen, Bremen, Germany (Presenting author)
Keywords: different knowledge and social environments, globalisation and global interacing, 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 lordy circles. The reason for this assumption was the focus of outstanding and curious collector's items in the lordy treasuries and cabinets of wonder. However the archaeological research of the last decades in the whole of Europe added numerous 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. Thereby it makes no difference if this knowledge was reality or wishful thinking. Often this knowledge concentrated in lordy 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 steadily 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 region had an impact? How tall was a mutual influencing? A higher measure of a mutual interacing 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 metalurgy, Roman coins are an astonishing opportunity for examining pellets of copper-alloy that are often stamped with a date, place, and value.

Due to the richness of the data immediately associated with the coins, it is sometimes hard to consider them within the broader context of Roman metal use. This paper highlights new approaches to synthesising and characterising the large corpus of chemical data taken from Roman coins over the last two hundred years. These approaches emphasise the flow of metal and ideas, and the negotiated creation of value and identity. The contemporary domestic metal assemblage has been interpreted using the same methods, which reveals close links between the Imperial control of mints and the wider availability of metal. This work aims to contribute to the broader debate on the creation of economic and social value, as well as discuss the changing prevalence of recycling and debase.

TH1-27 Abstract 14
Moulding meanings. Late Bronze Age valuable through the organisation of metalworking
Author - PhD student Sörman, Anna, Stockholm University, Stockholm, Sweden (Presenting author)
Keywords: Craft organisation, Late Bronze Age, Prestige goods
Presentation Preference - Oral
Metalwork from the Late Bronze Age of southern Scandinavia includes a wide range of high-quality prestige goods for personal display, ritual and gift giving. The production of these highly valued bronzes is generally understood as centralised by community elites and assumed to have been carried out at exclusive workshop sites. The investment of socio-political and religious power into these prestige objects is thus typically portrayed as an outcome of ritualised and highly esoteric specialised cranking linked to ritual and exclusive settings in aristocratic milieus. This reflects a common notion where exclusive objects are assumed to gain their value in exclusive settings and through exclusive skills. However, tracing the production contexts of prestige goods in the archaeological record shows that the manufacturing of these valuables was staged in many different ways, none of which seem to reflect exclusive and exotic workshops sites. Looking closer at the organisation of production of valuable craft objects shows that crafting events were staged in many different arenas. In this paper I will discuss how the organisation of metalworking can illuminate the creation of power and value of prestigious possessions of Late Bronze Age Scandinavia beyond the assumption of exclusive workshops for exclusive values. I will discuss how (1) the context and staging of production, (2) the intended bearer of the object, and (3) the citation to other objects all worked as important ingredients in the act of producing powerful possessions.
THI-27 Abstract 17
A stitch in time: Use and reuse of funerary textiles in pre-Modern northern Finland

Author - PhD Student Ruih, Erika, SUNY at Buffalo, Buffalo, NY, United States of America (Presenting author)
Co-author(s) - Lippin, Sanna, University of Oulu, Oulu, Finland

Keywords: secondary use, textiles, value

THI-27 Abstract 18
Valuable pots made with cheap clay.
A biographical approach of the pottery from Sultana-Malu Rosu

Author - Opris, Vasile, Bucharest Municipality Museum, Bucharest, Romania (Presenting author)
Co-author(s) - Ignat, Theodore, Bucharest Municipality Museum, Bucharest, Romania

Keywords: biography, Eneolithic, pottery

THI-27 Abstract 19
The transvaluation of pottery manufactories in the Basque Country along the Middle Ages

Author - Dr. Escriche-Ruiz, Bergo, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain (Presenting author)
Co-author(s) - Azkara, Agustin, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain
Co-author(s) - Ibañez, Jose Luis, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain

Keywords: secondary use, textiles, value

The patterns of domestic pottery consumption progressively changed over the Middle Ages in the Basque Country. Although some productions present since the 7th Century remained beyond the 15th Century, the ceramic record was completely transformed both quantitatively and qualitatively up to the point that the in the ceramic record of the 15th Centuries they have barely any points in common. One of the implications of this process is the change of value of the productions prevailing in the light of the implosion of new products, generating a progressive lateral transvaluation in the ceramic record. Thus, the new also constantly determined the value of the old.

Another important aspect in this comparison is the change in the techniques of manufacture of pottery, which represent the change in the society and economy of the region. With the mass production of pottery, the ceramic record from the 15th Century onwards is completely different from that of earlier periods.

The transvaluation of pottery manufactures from crushed shards used as temper (grog) to whole vessels assembled in burnt houses or used in mortuary practices.

This paper examines the life cycle of these textiles, including their material and cultural value, use, reuse, intermittent and eventual excavation. This sample includes materials crafted from silk, wool, and bast fibers. While some items indicate local craftsmanship, 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.

THI-27 Abstract 20
Interpreting Clay Objects in Neolithic West Asia: Reconsidering “tokens” as early accounting tools

Author - Dr. Barron-Chapman, lucy, bilant ecevit University, Zonguldak, Turkey (Presenting author)
Co-author(s) - Opris, Vasile, Bucharest Municipality Museum, Bucharest, Romania

Keywords: Neolithic, token/crystal object, West Asia

The Neolithic period in West Asia (6,000 BCE) 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.15-3.50cm. 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 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. These objects, and the way they were formed, represent the initial stages of the development of writing systems throughout the world. This paper is part of an ongoing project investigating the use of clay objects in Neolithic West Asia, with a focus on their function and role in accounting systems. The project is based on an extensive analysis of clay objects from over 200 sites across the region, with a particular focus on the sites of Trench 29 and Tell Asmar, both in Mesopotamia. The study of clay objects is important for understanding the development of writing systems and the transition from oral to written communication. The project is expected to provide new insights into the role of clay objects in Neolithic West Asia, and their potential as an early form of accounting tool.
This paper will address diverse “regimes of value” which were brought together by the booming medieval trade along the Volga River during the 9th-10th centuries CE. The paper will focus on how value was attributed to different goods and objects in various cultural contexts, and how fungibility of goods was fluid among different trading communities. The latter included the nomads of the Khazar Empire, the Viking Rus, and a variety of local sedentary communities, who lived along the Volga River. While we possess some textual narratives about the Volga trade, its participants, their rituals, goods, and fungibilities, archaeology speaks louder than words in terms of the meaning of value in this trade. By looking primarily at the archaeological context of medieval burial practices, it is possible to see how new meanings (objects and goods) were put to old ends in the process of social exchange. Namely, how items such as coins, belt sets, and beads, were circulated among the specific communities, and then taken out of circulation in the process of ritual (burial) action—and in some instances, extracted again. The aim is to show how the politics of value developed during this period of trade and affected the participating communities. The problems connected with archaeological interpretation of these processes will also be addressed.
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 Gàelig, ‘kéac’). 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.

TH1-28 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 located on what appear to be freestanding sites. In addition to identifying different types of churches, some sense of chronology and religious development within the Orkney Earldom will be presented, mapping the transition from the forced conversion of the islands by Olaf Tryggvason in 995 to the creation of an urban diocesan centre, part of the newly created archdiocese of Nidaros, in 1152/3.

TH1-28 Abstract 04
Chapels, Church sites and Settlement in Medieval Faroe Islands

Author: Arne, Simun Vilhelm, Faroese National Heritage, Tórshavn, Faroe Islands (Presenting author)

Keywords: chapels, church sites, settlement

Presentation Preference – Oral

In the Faroes a group of sites has, because of their characteristics and associated placenames, been interpreted as medieval chapels - maybe even remains representing the early Christianisation process. But because of the lack of church archaeological investigations our knowledge of the Faroese Medieval church is quite limited. The paper will discuss the characterisation of the archaeological material at hand based on an ongoing project involving surveys and investigations of possible church ruins. In an attempt to understand these relics - their relation and function within the Medieval church in the Faroes - they will be placed in a settlement-historical as well as in a North Atlantic context.

TH1-28 Abstract 05
Novel topographical surveys and analysis of ecclesiastical sites in the Faroe Islands

Author: Michelsen, Helgi Dal, Faroese National Museum, Hoyvik, 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 bæðan (Faroese for chapel). The lack of historical and archaeological data has made questions regarding the date and function of these sites difficult to answer. Nevertheless they have been used e.g. in explaining when and by whom the Christianisation was introduced. Only one of the sites has partly been excavated in the 1960s, and only two other sites had been archaeologically surveyed before 2013. To get a better understanding of the variety of ecclesiastical sites the Faroese National Museum started a surveying project in 2013. The aim is to create a platform for future archaeological work and to create a basis of comparable archaeological data to use locally and across the North Atlantic region.

The methods used in the project are a combination of topographical surveying, georadar survey and archaeological test excavations. The topographic mapping is made by a combination of Structure from Motion (SFM) and Direct Surveying Methodologies (DSM). The collected data are analysed, visualised and compared in an ArcGIS environment. This paper will present the preliminary results of the project.

TH1-28 Abstract 06
The geography of a cemetery – the early Christian cemeteries of Skagafljótur, North Iceland

Author: Zoega, Gyðna, Skagafljótur Heritage Museum, Saudarkrokur, Iceland (Presenting author)

Keywords: burial customs, cemeteries, churches

Presentation Preference – Oral

In the last decade early Christian churches and cemeteries in the region of Skagafljótur, 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.

TH1-28 Abstract 07
Hofstaðir in Mývatnsvei, An early Icelandic religious landscape

Author: Dr. Gestsdóttir, Hildur, Institute of Archaeology, Reykjavik, Iceland (Presenting author)

Keywords: church, Iceland, religion

Presentation Preference – Oral

In 2015 the excavation of the early Christian church and cemetery at Hofstaðir in Mývatnsvei, 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, almost 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 early Christian church and the pagan feasting hall at Hofstaðir 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 Hofstaðir 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 Hofstaðir will be discussed, and placed within the context of the archaeology of early religion in Iceland in particular, and the North Atlantic in general.
TH1-28 Abstract 08

Communities of death in medieval Iceland

Author: Prof. Vætaðisson, Orn, University of Iceland, Reykjavik, Iceland (Presenting author)
Keywords: church, Iceland, Medieval
Presentation Preference: Oral

In Iceland, the introduction of Christianity around 1000 AD was associated with fundamental changes in burial customs. In pre-Christian times each farm had had its own cemetery but under the new custom only about a half of the farms had churches with cemeteries. Farms without a church and cemetery are as a rule those of lower status and their occupants presumably buried their dead either in their neighbours’ cemeteries or (if different) in the cemetery of their patron or landlord. Already within the first century of Christian practice the small farm-based churches began to lose their number and the 12th and 13th centuries are characterized by their continued decline and by increasing centralisation of functions in churches which would eventually become parish centres. The paper will explore how this development, from private to communal cemeteries, reflects fundamental changes in community organisation and social structure.

TH1-28 Abstract 09

"Small churches" in Norse Greenland – what became of them?

Author: Dr. Arneborg, Jette, Danish National Museum, Copenhagen, Denmark (Presenting author)
Keywords: Churches and church-farms, Norse Greenland, reorganisation of ecclesiastical landscape
Presentation Preference: Oral

Greenland was settled in the later part of the 10th century when Christianity had been introduced in northern Europe. Christianity was a part of the settlers' kit, and churches and churchyards were built on the farms from the very beginning of settlement. The churches were built close to the farmhouses, and they were characterised by their "secular" architecture, small size, and a surrounding circular, or sub-circular, enclosure. During the 13th century the early churchyards were taken out of use, as were apparently the church buildings, and a number of farms lost their status as church farms. In the same period new and larger churches were built either on earlier church farms or on newly established ones, now adapting "traditional" church building architecture known in Scandinavia. Based on archaeological excavations of "small churches" 2001 - 2010 I will explore the changes in Norse Greenlandic church building in the context of ecclesiastical and community organisation.

TH1-28 Abstract 10

A World apart? Burial rites in a Scottish Carmelite friary

Author: Hall, Derek, Stirling University, Perth, United Kingdom (Presenting author)
Keywords: Carmelites, leather shoes, wooden staffs
Presentation Preference: Poster

Ongoing excavations of the site of the medieval Carmelite friary of Tullilum 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 footwear. This paper will consider the meaning and significance of these and other unusual burial rites from the site in comparison with other similar examples from England and Scandinavia.

TH1-29 Abstract 01

Rocking the Cradle of Scotland

Author: Prof. Driscoll, Stephen, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Keywords: 3D animation, Excavation, Museum
Presentation Preference: Oral

The Cradle of Scotland was a museum exhibition generated by the 10-year long research project into the archaeology in the heart of Scotland, the Strathtawe Environ & Royal Forteviot project (http://www.gla.ac.uk/schools/humanities/research/archaeology-search/projects/stratf/). Although opened at the 2015 EAA Annual meeting in Glasgow, it was oriented to a popular audience which could not be expected to be familiar with technical archaeological evidence. The project was a multi period study including landscape survey and numerous excavation and has generated data spanning 5000 years. In order to engage with a range of audiences and communicate different kinds of information we drew upon a techniques including the reproduction of artefacts, the recreation of a Bronze Age burial, scale drawings of sculpture reproduced life size, 3D digital animations of sculpture scars and detailed paintings illustrating key moments in narratives of different sites. The exhibition provided a great stimulus for interpreting the site and allowed us to work with a range of and interpretative artists, from traditional archaeological illustrators to re-enactors and digital designers. The exhibition generated a series of striking and successful representations of the discoveries. This paper provides the first public opportunity to reflect on questions about authenticity, accuracy and accessibility raised by these efforts following their exposure to audiences. This paper also constitutes a step in critical process leading to the final academic publication of the results of the study.
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 an archaeological open-air museum can experience what the meaning and importance of these objects was for their original creators and owners. Spread throughout Europe, there are about 300 archaeological open-air museums that have these kind of reconstructions forming their main collection. This research will look at what archaeological reconstructions are: what the definition of an archaeological open-air museum is and how the reconstruction process of an archaeological reconstruction works theoretically from a museological perspective.

The research will give an insight into the different types of archaeological reconstructions. This can occur both in physical form and in intangible form. Each different form has its own character and method for transferring the knowledge of the past to the public. Every form has its own function or significance, and some forms are more complete than others.

Often these reconstructions are necessary to make the information of the original such as drawings and plans are understandable for visitors. This is due to the visitors often not being able to interpret the information themselves. The presentation in form of reconstruction can, moreover, convey a sense of realism, since not only sight but also other senses are triggered during a visit to a reconstruction.

An archaeological open-air museum is a permanent non-profit institution. This is characterized by outdoor true to scale architectural reconstructions and representations of how people lived and acted in the past. It holds collections of intangible heritage resources and provides an interpretation of how people lived and acted in the past. This is accomplished according to sound scientific methods for the purposes of education, study and enjoyment of its visitors. 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.

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5 EXARC, *Definitions*.
6 Paardekooper, *The Value of an Archaeological Open-Air Museum is in its use*, 23.

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**TH1-29 Abstract 03**

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

**Author:** M.A. Postma, D. Groningen Institute of Archaeology, Lelystad, 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 archaeologi- cal reports too, reconstructions, or reconstruction drawings to be precise, help to convey the archaeological message to a larger audience. Is it what exactly is this message? And how do we ascertain its academic quality?

This paper is not intended to simply repeat best practices in making reconstructions based on archaeologically excavated building remains; these points have been outlined and discussed on numerous occasions before. Instead, the question is raised why these practices seem so resistant to be adhered to in practice. Perhaps museums prioritise differently than academic building researchers? Perhaps academic researchers lack sufficient knowledge and experience regarding ancient building techniques? And from this: should we not distinguish more clearly between different kinds of reconstructions, each aimed at different kinds of audiences?

These and may remain rhetorical questions; the concern of this paper is with demonstrating that ‘playing by the rules’ is something necessary for us to do.

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**TH1-29 Abstract 04**

**Using Archaeological Reconstructions for Outreach and Community Engagement**

**Author:** Dr. Thomas, Ben, Archaeological Institute of America, Boston, United States of America (Presenting author)

**Keywords:** Archaeological Reconstruction, Community Engagement, Outreach

**Presentation Preference:** Oral

It has become increasingly more common, when presenting the results of archaeological projects, to include some form of physical or digital 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.

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**TH1-29 Abstract 05**

**The Reconstruction of the three Roman Houses at the Archaeological Park at Xanten (Germany)**

**Author:** Dr. Kienzle, Peter, LVR Archaeologischer 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 replicated tiles produced in a wood-fired kiln. Many materials and building techniques from Roman times were studied and re-invented for its practical use. The aim of the reconstruction work was to get as close as possible to the Roman original building methods in order to understand the ancient construction processes and the time and knowledge necessary to execute the work.

The scholarly results of the building process will be published while the physical reconstructions will serve the visitors to learn more about the Roman past, the ancient building technologies and modern conservation methods and will serve the scholars to learn more about the long-term performance of the building materials and construction techniques from the Roman period.
The “ArtY” Way - Dutch Approach to the Presentation of Archaeological Heritage

Author - Dr. Koezen, Marc, MARC heritage consultants, Bemmelen, Netherlands (Presenting author)

Keywords: Interpretation, reconstruction, visualization

Presentation Preference - Oral

This paper is aimed 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 (IC) 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 reconstructions and a new trend 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 Huis Moerenenburg 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. J. Kraese, Jeannette, Office du Patrimoine et de l’archéologie du canton de Neuchâtel, Hauterive, Switzerland (Presenting author)

Co-author(s) - Thew, Nigel, Office de la culture (OCC), section d’archéologie et de paléontologie, canton of Porrentruy, Switzerland

Co-author(s) - Von Burg, Alexander, Federal Roads Office of Switzerland (FEDRO), Bern, Switzerland

Co-author(s) - Emilier, Chloé, Office du Patrimoine et de l’archéologie du canton de Neuchâtel, Hauterive, Switzerland

Co-author(s) - Rampaz, Katherine, Office du Patrimoine et de l’archéologie de Neuchâtel (OPAN), Hauterive, Switzerland

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 portraying these data, or an absence of information. Finally, the composite drawing techniques used for the creation of the illustrations will be explained.
TH1-29 Abstract 10
As Planned, As Built, As Found: Reconciling Written and Field Records at Ksar es-Seghir (Morocco)

Author: Eli, Martin Malcolm, Portuguese Studies Review / Baysoft 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 interpretative 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 palaeographic 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), Nazaré Antigo 769). This baseline material was then set in the context of all other relevant written records, structural proposals, funding appropriations, Crown instructions, and other documents (1458 - 1549) germane to spatial and structural modeling of the locality. For broader context, the results were correlated with an area-wide (Strait of Gibraltar) analysis of related sites (partly forthcoming as “Keys to the Strait: Fortifications in the Strait of Gibraltar from Abu Ta’iq to Yagual to Abu al-asan ‘Ali”, in Stéphane Pradines, ed., Architecture militaire du littoral, de la conquête Arabe à l’Empire Ottoman (Cairo: IFAO, 2016) and partly published as “Contours of Battle: Chroniques, GIS, and Topography – A Spatial Decoding of the Portuguese Siege of Tangier, September to October 1437”, Portuguese Studies Review 21 (2) (2013, rel. 2016: 1-135 (Portugal and its Empire, 1129-1580: A Volume of Papers in Honour of Francis Dutte ). The resulting dataset was correlated, iteratively, in detail, and from a variety of critical perspectives, with data generated by past archaeological projects (1970s and 1980s) that had commenced with the 1974 field season, as well as with data resulting from the post-2010 resumption of work at the site under the auspices of CHAM / Escola de Arquitectura da Universidade do Minho and of the Direction of the 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.

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

Author: Dr. Klára, Jarczová, Institute of Archaeology CAS, Prague, Praha, Czech Republic (Presenting author)

Co-author(s): Vasečka, 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 12
From archaology to the restoration: the reconstruction of tile stoves in the New Jerusalem

Author: Glaunovna, 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 stoke 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 Balkans, 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. Archaeologists 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 13
3D modeling, RTI: non invasive and non contact methods for documenting a stamped amphora from Padova

Author: Tomai, Francesca, Universitá di Padova, Padova, Italy (Presenting author)

Co-author(s): Ceres, Filippo, Universita di Padova, Padova, Italy

Co-author(s): Galeazzi, Gian, Universita di Padova, Padova, Italy

Co-author(s): Viiati, Danilo, Universita di Padova, Padova, Italy

Keywords: 3D modeling, open-source, RTI

Presentation Preference: Poster

This work aimed to develop a non-invasive and non-contact approach for studying a stamped Dressel 6B amphora from an urban excavation in Padova (Italy). We created a 3D model of the amphora using two methods of acquisition, laser scanning and photography, and processed with an opensource 3D modeling software (MeshLab) and an image-based 3D modeling software (Agisoft Photoscan). Then we focused on the stamp on the rim of the amphora, taking a number of vertical photos to be processed with the opensource software RTIBuilder. We got a PTM file viewed with the RTIViewer, which permits to observe the images using various rendering modes. The realistic and measured 3D model of the amphora let archaeologists to analyze diagnostical parts, i.e. handles, neck, rim, the position and dimension of the stamp, in typological and technological researches. Moreover, the RTI image permits us to get a clear image of the shape and the letters of the stamp, useful for who is carrying studies on stamps and amphora workshops, without handling the object.

Further applications for both 3D models of amphoras and RTI images of stamps might be the creation of online databases of amphoras and stamps from the Mediterranean, measured and scaled reproductions of amphoras using 3D printers, to be used for: teaching purposes in museums or schools.
EVALUATING THE IMPORTANCE OF OSSEOUS TOOLS IN THE EARLY HOLOCENE: A EUROPEAN PERSPECTIVE

Friday, 2 September 2016, 09:00-13:00
Faculty of History, Room 214h

Author: Dr. Zhilin, Mikhail, Institute of Archaeology RAS, Moscow, Russian Federation (Presenting author)
Co-author(s): - Zhilin, Mikhail, Institute of Archaeology RAS, Moscow, Russian Federation
Keywords: Bone technology, Central Russia, Mesolithic

Presentation Preference: Oral

Keywords: Organic tools are an important aspect of prehistoric societies, especially in the Stone Age. Therefore the analyses of these can give deep insight into people's typological and technological constraints such as behaviours. Being widely available in hunter-gatherer communities osseous materials have to be considered as one of the main resource for tool production in the past. However, in a European scale, the discovery of objects made with bone, antler and tooth is very irregular. Obviously, these contrasts are related to taphonomic issues but also to 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 very own perspective and contribute to our session.

THI-30 Abstract 01
Evaluating the importance of osseous tools in the Early Holocene

Author: - Zhilin, Mikhail, Institute of Archaeology RAS, Moscow, Russian Federation (Presenting author)
Co-author(s): - Dr. Zhilin, Mikhail, Institute of Archaeology RAS, Moscow, Russian Federation
Keywords: Early Holocene, introduction, osseous tools

Presentation Preference: Oral

Keywords: Organic tools are an important aspect of prehistoric societies, especially in the Stone Age. Therefore the analyses of these can give deep insight into people's typological and technological constraints such as behaviours. Being widely available in hunter-gatherer communities osseous materials have to be considered as one of the main resource for tool production in the past. However, in a European scale, the discovery of objects made with bone, antler and tooth is very irregular. Obviously, these contrasts are related to taphonomic issues but also to economical and cultural aspects.

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THI-30 Abstract 02
Evolvement in bone exploitation during the Late Mesolithic at Zamostje 2 (Russia)

Author: - Dr. Zhilin, Mikhail, Institute of Archaeology RAS, Moscow, Russian Federation (Presenting author)
Co-author(s): - Dr. Zhilin, Mikhail, Institute of Archaeology RAS, Moscow, Russian Federation
Keywords: Bone technology, Central Russia, Mesolithic

Presentation Preference: Oral

Keywords: 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 (Зоозвяк 2003, Лоцковский, 2003). Past typological studies have long stressed the importance of such productions (Lozovskiy, 1999, 1999; Xieunis, 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 Zamostie 2 offers the opportunity to do so (Lozovzki et al., 2013; Lozovzki et al., 2014). Throughout this period, communities mainly hunted elk (Chaix, 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 technical and economical shifts around 6000 cal. B.C which in turn illustrate some conceivable social evolutions at this time.
Excavated in the 1950s, Hohen Viecheln 1, Lkr. Nordwestmecklenburg, is one of the most striking sites of the early Mesolithic in the Eastern European Lowlands. The abundance of finds and good organic preservation characterise the site, which is located north of Lake Schwerin in eastern Germany. Among German scholars, Hohen Viecheln is ranked alongside Bedburg-Königshoven, Friesack, Duvensee, Mulperup, and Stari Can, but internationally it usually is not accorded this significance. This relative obscurity seems even more surprising, given the abundance of finds made from different raw materials, but it is grounded in the site’s research history.

In this presentation we will present first results of an ongoing research project on Hohen Viecheln which aims at clarifying the present state of the research methodology. By this it will be possible to adequately position the site within the Mesolithic and add valuable chronological and technological information to the understanding on osseous tool development in the Early Holocene. The re-evaluation also allows the accurate dating of the numerous bone points, for which the site is known.

The modern re-evaluation also renders possible to solve problems on the stratigraphic sequence. Due to the fact that the site represents a former shore area of the modern Lake Schwerin its stratigraphic sequence with different layers of peat, sand and gyttja is typical for overgrown lakes. The direct dating of several artefacts therefore allows us to understand when different areas were siting up.

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 allow us to discover well-preserved sites in the valleys: evidence of Mesolithic industries are now increasingly numerous, even if the data still remain occasional. In addition, in the last few years, the development of use-wear analysis of lithic tools give us new informations about the place occupied by osseous materials in the Mesolithic groups. This communication will be the occasion to make an assessment about the available datas from bone technology, archaeozoology and use-wear analysis. When all the approaches are brought together, the place occupied by bone tools seems to be a more complicated question than previously thought. Taphonomic issues, as well as mobility patterns of Mesolithic tribes, have to be considered in order not to under-estimate the role of antler, bone and teeth in the daily life of hunter-gatherer communities. Finally, we will compare the situation of Northwestern Europe with neighbouring regions, in particular to the Maglemosian techno-complex, well known for its abundant bone industry.

The use of osseous raw material of Vlakno cave (Croatia)

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 material it is natural to expect correspondingly high amount of tools made of bone, teeth and antler. Here we integrate results of archaeological analysis and the study of osseous tools. Raw material selection, technological and typological aspects were analysed. Availability of skeletal elements is compared with raw material choices. Recovered bone and antler tools show very little typological diversity between Epigravettian and Mesolithic layers. However there are some interesting small-scale temporal trends (e.g. retouchers and 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.

Osseo tools in the Mesolithic and Neolithic in the Iron Gates

Not that simple! A debate about the apparent decrease of bone tools in the Paris Basin Mesolithic

A replication of Neolithic bone harpoon with engraved concentric circles from Šventoji, W Lithuania

Post-depositional alterations on the bone surfaces – experiments with different agents of abrasion

The use of osseous raw material of Vlakno cave (Croatia)

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. While concentric circles were widely used to decorate bone and antler tools and ornaments in different chronological and geographical contexts, there are no analogies for the find from Šventoji 6 from the same period even in the neighbouring regions. The problem is that this type of engraving is mostly associated with metal tools, which could have appeared in the region only in the Bronze Age, after 2000 BC. The foreign origin of the harpoon with concentric circles is confirmed by another find from the same site – a worked piece of bone, on which the manufacture tried to imitate the same decoration of concentric circles, but instead produced polygons with a dot in the center, which took 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 Paleoindian stone tools in North America, the single- and double-scribe compass gravers. In my experiment I try to replicate the harpoon using similar stone tools and then compare it to the production of the same artefact using metal tools.
In present session we would like to focus on different approaches to the reconstruction of cultural situation in Eastern Europe in the Roman and Migration periods (4th to 7th c. AD) based on the newest archaeological materials and investigations. The main content of these periods in East European Barbaricum was spreading of Roman and Byzantine influences together with massive migrations resulting the rise of the Gothic Kingdom and its consequent fall under the Hun invasion, the emergence of the first proto-Slav, Baltic, Finnish cultural traditions and the formation of a new cultural landscape on this territory. To the end of the Migration period a new pattern of settlement was formed in Eastern Europe which in general exists up to date. The themes of the session include: different forms of interaction of “Barbarians” of the forest and the forest-steppes zones; communication between “Barbarians” and the late antique population; trade and cultural exchange; formation and advance of artisanal traditions; evolution of social structures.

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**TH1-31 Abstract 01**

On the nature of Baltic impact in elaboration of eastern European enamal style in Dnepr region

Author - Dr. Khomiakova, Olga, IA RAS, Moscow, Russian Federation (Presenting author)

Keywords: Eastern European enamal style

Presentation Preference - Oral

Lecture reviewed a problem of Baltic impact in formation of eastern European enamal 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 fibula. In A. Obolinska’s and R. Terpilovskij’s view their origin is connected with forms of Almen group IV fibulae. The morphology of the body and tail narrow-width form of the comb most probably are close to fibulae of group IV of B2 period from Southwest Baltic, and forms relevant to Lithuanian territories in B2 and B2/C1 periods. Series of bracelets from Baltic lands dated to the same period are supplied with similar narrow-width formed combs. Drinking horns were furnished with strong profiled endings.

Openwork elements in decoration of enamal T-shaped fibulae, elements of pectoral ornaments, chains of drinking horns, lunula pendants from Central Dnepr associated by similar ornamental motifs close to opus interrasile style. Closest analogous these elements with geometrical motifs find in contact zones of Baltic lands, in artifacts dated to the beginning and the mid-3rd century. Decorations supplied with openwork ornamentation and strong profiled elements find sustained conjunctions in dress both in Dnepr region and Baltic lands.

In decoration of enamal artifacts from Dnepr jewelry technique with imitation of granularity and filigree has been used. Combs of enameled fibulae, lunulae, elements of pectoral ornaments, chains of drinking horns, lunula pendants from Central Dnepr associated by similar ornamental motifs close to opus interrasile style. Closest analogous these elements with geometrical motifs find in contact zones of Baltic lands, in artifacts dated to the beginning and the mid-3rd century. Decorations supplied with openwork ornamentation and strong profiled elements find sustained conjunctions in dress both in Dnepr region and Baltic lands.

Among the types 1 and 2 “diadems” there are no specimens that are correlated with the late period of the “enamel” style development. The type II, in contrast, includes items pertaining to the early and the final stage of existence of enamelled ornaments in the Dniepr region. The exceptions are a few items from the Upper Sula and the Lower Dnieper regions, which may mark the direction of cultural influences from the eastern part of the Eastern European forest zone to southern forest-steppes and steppes territories. The majority of the type 3 ornaments are found in the Middle Dnieper region and on the Dnieper left bank. Perhaps, in the Upper Dnieper region, these ornaments as well as ornaments of the type 2 can be explained by the find from the villages (the middle of the 3rd century) Kashinka – Sedeleck cultural group was formed. According to peculiarities of shape and ornament the array of “diadems” was divided into three main and two additional types. Their mapping shows that the main types are local. All copies of the type 1 come from the Baltic region, mainly from the territory of modern Lithuania. Most of the type 2 finds are connected with Upper Dnieper and the Lower Dnieper region. The exceptions are a few items from the Upper Sula and the Lower Dnieper regions, which may mark the direction of cultural influences from the eastern part of the Eastern European forest zone to southern forest-steppes and steppes territories. The majority of the type 3 ornaments are found in the Middle Dnieper region and on the Dnieper left bank. Perhaps, in the Upper Dnieper region, these ornaments as well as ornaments of the type 2 can be explained by the find from the villages (the middle of the 3rd century) Kashinka – Sedeleck cultural group was formed. Among the types 1 and 2 “diadems” there are no specimens that are correlated with the late period of the “enamel” style development. The type III, in contrast, includes items pertaining to the early and the final stage of existence of enamelled ornaments in the Dniepr region.

The report is prepared on the RGNF project No. 14-01-00269.

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**TH1-31 Abstract 02**

About two areas of adornments with champlevé enamels hoards

Author - Dr. Rodinkova, Vlasta, Institute of Archaeology Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)

Presentation Preference - Oral

Adornments with champlevé enamels of the East European style are dated to the end of the 2nd – 4th centuries. Its area covers all Eastern, part of Central, and Northern Europe. There are 2 areas of hoards with these adornments: Western (the Dnieper and Upper Oka river basins) and Eastern (the Upper Don area). In Western area 10 hoards are known (Machigorye, Moshchina, Borina, Glazhovo, Bryansk Region, Shishino and others). The artifacts in these complexes have certain stylistic unity. In the majority of the hoards female artifacts of different preservation level are present. There are artifacts of men’s subculture of prestige (Bryansk, Novolukoml’, Moshchina). The belts from Krasny Bor are unique, but they make a single ritual or ceremonial set. These artifacts were used as intended by their owners before they came to hoards. The majority of adornments in these hoards relate to the middle stage of enamel style development. Artifacts of degradation stage were found in two complexes (Moshchina and Bryansk) together with them. Thus, all the 10 hoards belong to the same chronological period. In the wide framework they are dated to the end of 2nd – 3rd centuries, in the narrow – about the middle of 3rd century. In the Dnieper area attires with enamel adornments belonged to Late Zabuzhnyi and Kiev population. All hoards were found in the area of Kiev culture or near its border (Moshchina). Thus, the Dnieper hoards area is directly related to Kiev culture. In Eastern area 4 hoards were found (Zhuravka, Panikovets, Zamyatino-Yuryevo, the Labelednyy district). Three of four complexes are hoards of scrap metal for recasting. It is unknown, which population used adornments with enamels in the Upper Don area. As well as in Western area complexes, the majority of artifacts from Don hoards relate to the middle stage of enamel style evolution. In the same complexes adornments of the degradation stage were also found. In Don hoards, as well as in Dnieper/Oka complexes, hinged bracelets, “Ohu” fibulae, single late Sarmatian and Central European artifacts are known. So Don complexes belong to the same period, as Dnieper/Oka hoards. Western area hoards are complexes of female dress accessories sets and items of men culture of prestige. The Don hoards are complexes of handicraftsmen raw materials. The two territorial groups are essentially different. The mass spread of adornments with enamels in the Don area may be explained by attacks of this region population on the Dnieper/Oka territory. The Don population was not interested in adornments, but in scrap metal. Perhaps, these attacks were also the main reason for hoards holding in Western area. The Upper Don region was attacked by the third force soon after these campaigns, therefore, the Don hoards were hidden. This force could be the groups of Chernyakhov culture population. As a result of their advance to the Upper Don region in the middle of the 3rd century, Kashinka – Sedeleck cultural group was formed.
Glass vessels of the Chernyakov culture – technology and origin

Author: Liubtchev, Mikhail, Karazin University Kharkiv, Kharkiv, Ukraine

Keywords: Eastern Europe, enamelled ornaments, Roman time

Presentation Preference - Oral

During the first centuries AD comprehensive settlement activities took place in the expanse of the watershed between the Dnieper and the Southern Donets rivers, processes in which the Chernyakhov and Kievan cultures as well as nomadic Sarmatian tribes were involved. The interactions between these groups are considered on the base of recent investigations in this area. Special attention will be paid to material of the Chernyakhov culture concerning indicators for influences of other groups on the burial rites, the geographical position and structure of the settlements. Furthermore imported objects from the sites like amphorae, glass beakers and others will be discussed as evidences for the exchange between the “barbarians” and the ancient cities of the Black Sea coast.

TH1-31 Abstract 06

Glass vessels of the Chernyakov culture – technology and origin

Author: Liubtchev, Mikhail, Karazin University Kharkiv, Kharkiv, Ukraine

Keywords: Eastern Europe, enamelled ornaments, Roman time

Presentation Preference - Oral

There are different kinds of glass vessels – the study of the manufacturing technique allows 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.
Interpreting the Archaeological Record

TH1-31 Abstract 09
Sites of the late stage and the end of the Imenkovo culture in the Middle Volga region

Author: Dr. Vyazov, Leonid, Institute of Archaeology named after A.Kh.Khalikov, Tatarstan Academy of Science, Kazan, Russian Federation (Presenting author)

Keywords: early medieval archaeology, Imenkovo culture, Middle Volga region

Presentation Preference - Oral

The issue of defining the time and circumstances when the one of the largest early medieval archaeological cultures of the Eastern Europe ceased to exist is the most debated 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 the presence of Imenkovo culture is related either to the leaving of population from the region at the end of the 7th c. - the beginning of the 8th c. (Alexey Bogachev) or at the end of the 7th c. (Irenej Kazakov) or to the slow dissolution in the culture in the early Volga Bulgarian culture in the 8th-9th centuries (Galina Matveeva, 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 6-8th c. The chronological framework of the last stage was determined according to details of heraldic-style belt-sets, Sassanid coins, several furniture and costume details.

The researches of the collections allowed to determine the late Imenkovo materials from Komitmens 2 burial ground and Malishevskiev archaeological complex in trans-Volga area. ‘Osh-Pando’ hillfort in the Middle Sura region. These sites are very similar in culture and dated 6-8th - 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 8th-the first half of the 7th c. The ceramics and artefacts found in the site have visible traces of the ‘southern-western’ direction of cultural ties.

The hillforts ‘Ashna-Panda’ and ‘Shom’ in the Middle Sura area are related to the ‘final’ stage of the Imenkovo culture. The both of the sites are the second half of the 7th c. (the beginning of the 8th c. is also possible). These sites have a significant difference in ceramics and artefacts, therefore, the 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 6-7th centuries bear an evidence of this.

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 7th century. However, in the eastern part of Imenkovo culture area remain later, probably even until the beginning of the 8th c.

TH1-31 Abstract 10
A new view on the chronology of fibulae of Dolkiev/Kovrovo type in the light of new research data

Author: Dr. Prassolov, Jaroslav, Institute of Archaeology named after A.Kh.Khalikov, Tatarstan Academy of Science, Kazan, Russian Federation (Presenting author)

Co-author(s): Skvorzov, Konstantin, IA RAN, Kaliningrad, Russian Federation

Keywords: fibulae of Dolkiev/Kovrovo type, Kaliningrad region, former East Prussia, Sambian-Natangian culture, chronological frame

Presentation Preference - Oral

Further development of the existing fine chronology of one of the most characteristic find categories – fibulae, remains an important task in the archaeological research of the Iron Age Sambian-Natangian culture (also known as the Dolkiev-Kovrovo culture) in the south-eastern part of the Baltic Sea basin. Actual investigation focuses primarily on the verification of the chronological frame of fibulae of Dolkiev/Kovrovo type. For this purpose presumed mutual occurrences of several fibulae types as well as other characteristic artefacts (i.e. chronological markers) in the burials complexes are discussed in detail in archaeological data. The transition from the Late Roman period to the Early Migration period and the diachronec typological tendencies within the framework of the later period are demonstrated by means of the comparative analysis results of the so-called big crossbow fibulae, characteristic for the Late Roman period/ the very beginning of the Migration period, the so-called fibulae with the star-shaped foot, fibulae of type Schönwarling/Skowarcz and Dolkiev/Kovrovo, which are found in the cremation graves in the area of Sambian-Natangian Culture starting from the Early Migration period. Comparative analysis results of further chronological markers of the periods in question (brooch-daggers, shoulder straps, jewelry, belt ends, buckles as well as specific poxy forms) apply to the investigation as well. Most of the discussed burial complexes were discovered during excavations performed in the historical East Prussian districts of Sambia and Natangia on the flat burial sites Bo’i’shoye Isakov (former Lauth), Schossejne-1 and Schossejne-2 and are published for the first time.

TH1-31 Abstract 11
Salt production in the Landscape of the Polish Lowlands in the Roman period

Author: Dr. Ruža Del Arbor Monró Moro, Maria, Institute of History, CSIC, Madrid, Spain (Presenting author)

Co-author(s): Bednarczyk, Józef, Institute of Prehistory Amu, Poznan, Poland

Keywords: Poland, Roman period, Salt production

Presentation Preference - Oral

The aim of our paper is to present the recent developments and achievements of our project about the study of ancient exploitation and production of salt in Poland, which implies both the study of salt production processes and its role in the organization and articulation of the territory during the Roman period. The geo-historical framework for this study is the north western part of Poland (Kuavia and Great Poland), during the period of the Roman influences (II-III AD). The essential underlying idea of our investigations is the role of salt as a structuring territorial resource and its importance to understand the complexity of social transformations of indigenous communities in the period of the contacts with Rome. Thus, this study involves both the examination of the archaeological evidence for salt resources and its historical interpretation within a regional context and the global perspective of the contacts between the barbaricum and Rome.

TH1-31 Abstract 12
Langobards necropolis on the Danube: material culture and social identity

Author: Cec donorza, Federica, Università degli Studi di Trieste, Gorizia, Italy (Presenting author)

Keywords: Migrations, necropolis, society

Presentation Preference - Oral

During their migration from Scythiania to Italy, the Lombards settled for about 40 years in Central Europe, in the Danube river area and Pannonia, between Vienna and Budapest, where a lot of burial areas have been found, here, with Franks people at east, Gepids and Slavs at east, and a lot of autochthonous people of roman tradition, the Lombards feel threatened in their political and cultural independence. Their society was still heterogeneous and various and, to keep their social and political unity, they developed a strongest material culture, that is the expression of different social meanings. This development has a great reflection in the funerary practices. Here, will be analysed few Austrian and Hungarian cemeteries; the study and the analysis of burial customs and material culture of these sites are essential to understand how they developed their identity, through the diffusion of different customs and the integration of people of different origins. These sites, as well as illustrating the more important methodological problems of this type of approach, present the starting point and the further developments of Lombards’ culture, and allow to draw some important conclusions about the change of the society, and thus the construction of the ethnic identity of this people, that evolved in the middle of Europe during the migration age and that they took to Italy in 588.
The presentation is going to discuss results of our research, in which we explored the possibility that we can draw conclusions about the settlement of a certain cultural group indirectly from information about a certain other group, and also define possible dates of their settlement. It shall present a possible interpretation of events in the middle of 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 area of the western 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 Murška Sobota revealed the previously little-known early Slavic burial sites.

The coins not only depict a diverse and deep-ranging picture of how such elites saw and expressed there identity, both with reference to Rome and to each other. They also provide new and revealing insights into the interaction and communication between the northern and eastern barbarians, in particular the Goths on the one hand, and the imperial administration and the population of the provinces of the Roman Empire in Late Antiquity on the other.

**TH1-31 Abstract 16**

**A Barbarian, meaning who?**

Author - Dr. Narloch, Krzysztof, University of Warsaw, Chojnice, Poland (Presenting author)

Keywords: Identification, Relationship and influence, Romans and Barbarians

Presentation Preference - Oral

In late antiquity, due to a change in social relations inside the barbarian societies, perception of Barbarians themselves changed as well. As a result of the intensification of contacts which less and less frequently took a form of a one-sided dialect, the late-antique community was formed. The perception of the identity of this community was the interaction of the races, which led to reorientation 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 defined particular barbarian populations, which made them create permanent state organs.

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 Donieper version of the Zarubintsy culture**

Author - Voroninskaia, Lariia, The State Hermitage Museum, St. Petersburg, Russian Federation (Presenting author)

Keywords: upper Donieper, weaponry, Zarubintsy culture

One of the specifics of the upper Donieper version of the Zarubintsy culture making it different from the Polesie and middle Donieper 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 Yurkovichi in 1 out of 19 (5.3%). On the burial ground Goroshkov spearheads have been found in six investigated burials out of 32. All the heads are of iron, socketed, with a leaf-like feather, and bear traces of having been in fire. On the outside of the socket of one of the heads of the Goroshkov burial ground (burial No.9) there are prints of fabric preserved. In Goroshkov the heads lay in different parts of the burial pit parallel to it. In most cases, the burials with weapons, apart from模式ized bowls, contained horseshoe-like iron fibulae of syulgama type and (or) iron knives with hunched bases. 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 Goroshkov burial ground). The custom of driving weapons or labor implements through the remains of the buried person placed in an urn or a pit is widely distributed territorially and chronologically. It is noted in the Przeworsk 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 (driving) of a spearhead into a burial pit had apparently some ritual or magical significance.

This custom is interpreted variously. On the one hand, there is a rich mythology existing about spears that pierce the vault of heaven and thereby give humans access to the sky. On the other hand, the weapons were driven into the remains of the buried man demonstrated that there were wide-ranging exchange networks across much of the northern “Barbaricum” during the Roman and Migration periods. Furthermore, both official Roman coins and medallions, as well as their imitations, played an important role in the self-representation of the barbarian elites.

However, the discovery of large quantities of new material, above all from the Ukraine, has radically changed and extended this picture: we now know that the phenomenon was much more widespread and intensive that had previously been appreciated, and that such networks in fact stretched from Moldova and the Ukraine to Scandinavia. The new material allows us to produce a narrative that can be closely linked with the rise of the Gothic Kingdom and its subsequent displacement in the face of the Hunnic invasion.

The numismatic material is the subject of a 3-year joint DFG/NCN Beethoven project “IMAGMA. images maiestatis” by the University of Warsaw and the Römisch-Germanische Kommission that aims to understand how these imitations of Roman coins were produced and used by the developing elites right across the northern and eastern “Barbaricum” to demonstrate their status.

The picture that is emerging is one of disparate groupings linked together by common elements of material culture and of a wide-ranging exchange network, but above all of the crystallisation of the Gothic power centre on the territory of the Chemnitz/ Sintana delMures Culture.

The coins not only paint a diverse and deep-ranging picture of how such elites saw and expressed there identity, both with reference to Rome and to each other. They also provide new and revealing insights into the interaction and communication between the northern and eastern barbarians, in particular the Goths on the one hand, and the imperial administration and the population of the provinces of the Roman Empire in Late Antiquity on the other.

**TH1-31 Abstract 15**

**Barbarian Coins, Elite Identities and the Birth of Europe**

Author - Dr. Wiggo-Wolf, David, Römisch-Germanische Kommission des Deutschen Archäologischen Instituts, Frankfurt am Main, Germany (Presenting author)

Keywords: Coins, Goths, Imitations

Presentation Preference - Oral

A commonality of the cultures of “Barbarian” northern and Eastern Europe was the production of coins imitating the issues of the Roman Empire. Analysis of die-linked coins (i.e. struck from the same die and thus produced in the same workshop) has long
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 Zanzubiray 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 Goroshow.

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 Zarubintsy culture are dated to the late LTA periods. In general, the burial Goroshow can be characterized as a monument left by a militarized group of people at the turn of our era.

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

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

Keywords: Champlèvre enamels, Geoinformation methods

Presentation Preference - Poster

In the last decade the objects made with champlèvre enamels have attracted the attention of many researchers once again. Increased volume of incoming information from different regions of East Europe have expanded significantly the current understanding of the spread of this category of things, 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, Ligings, Rinnings, 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-Okha regions.

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

Thus, even on the example of existing source corpuses it is obvious that a significant part of the findings is not related to the archaeological fieldwork. 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 much more intense since the late 90s-early 2000s. Nevertheless over the past 10 years hundreds of things in museum’ collections have replenished range of enamels. Regular work on fixing findings is carried on in a number of regional museums.

At present day we have information on more than 2,000 items. Such study full database (source corpuses by Korzukhina 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.

Work was financed on RGHF grant N14-01-00269

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

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

Keywords: Dnieper–Okha 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 ring-shaped ends, are a conservative stuff category. In the South Eastern Baltic Area, these are known from stray finds (Taurage) and from burial complexes (Mažonys, Verbliai). In the Dnieper–Okha region, such neck-rings originate from hoards (Moshchinshy, Muzhiye, Yel, Glazhevo, Ualat). Amongst the neck-rings of the Mažonys 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–Okha region, cut-neck-rings are known, too. The latter could indicate the sacrificial or votive character of the hoards of enamelled ornaments.

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

Author - Dr. Nieszabitowska-Wiśniewska, Barbara, Institute of Archaeology, Maria Curie-Sklodowska University in Lublin, Lublin, Poland (Presenting author)

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

Presentation Preference - Poster

In the vicinity of Uów (Middle Rzucowce, SE Poland) the complex of multicultural archaeological sites was found. Among them two bi-natural cemeteries (site 3 and 7) originating from the late Roman Period and the early Migration Period were discovered. On the map of archaeological cultures, Uów is located in the settlement zone F of the Wielbark Culture. Therefore, the features typical of this culture dominate over the cemeteries discovered in Uów. However, no fewer is the number of features of funerary rite, location of the site, as well as grave goods possessing parallels in other cultural units from the Eastern 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 a such a ware (apart from one “episodic” from Wielok). According to many archaeologists, wheel-made potteries from the Wielbark Culture sites are in most cases imported from the Chernyakhov or Sántana de Mure Cultures. In the light of this fact, surprising is the extraordinary number of wheel-made pottery and its fragment discovered in Uów. 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 Ctb/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 Mure Cultures.

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 existence 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 S, Opole Lubelska 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 Vistula 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 provenance 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 systematically fulfil the still up-to-date postulates of the internationalisation 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 "crouch-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 complexes 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 Kolochino, Mochochino, culture of Volga Finns, Imenkov. 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 point 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 arisen from the mid-1980s and still are working. These include typology of AM Oblomsky, OS Rumyantseva, AM Vorontsov, VV Grishakov. 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 BY Magomedov, O. Petruskas GI Malueva, 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 Imenkov 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 collation with a models collection, developed on the basis of Samara expedition to the forest-steppe and define status of the complex.

The research was identified the several traditions to varying degrees dominant in different territories. However, the general of most traditions are the selection skills potters of "low-fat" clays and adding a grogmade of splintered vessels in the composition. We suppose that the detected affinity of pottery traditions is reflecting the close connection within the studied population.

TH1-31 Abstract 23

Glass beads of Imenkov culture (on the materials from the Tetushskoe II settlement, Middle Volga)

Author - PhD Stolyarova, Elaterina, Institute of Archaeology RA, Moscow, Russian Federation (Presenting author)
Keywords: glass, beads, Imenkov 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 sites 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.Khalikov, 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 develop 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 (Izmaylov, 1990) 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 final 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 Azatino 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. In spite of the chronological entity of the group of other artefacts, stylistically they can be divided at least into three groups: (1) golden belt-set and two pommels of swords with torquise insets, (2) silver stamping belt-set with lead filling, charactarous for 3rd horizon of Volga region heraldic-style, (3) two cast silver strap ends of Arzayashchev type. Other finds can not be attributed to any of these groups. The presence of these artefacts in the one closed complex is considered to be extremely unlikely.

Apparently, "Komintern hoard" is not the single complex and is an accidental selection of random finds collected from destroyed sites of the left bank of Aghay stretched from 'Devchik Gorodok' to Beganchik island. The island is considered to be the most likely place of finding of the main part of the hoard and is related to the several destroyed burials of Komintern 2 burial ground.
TH1-32 Abstract 01

Basque Iron metallurgy, habitat and social complexity during the Middle Ages (7th-14th A.D.)

Author - Dr. Jose Luis, Solan, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain (Presenting author)
Co-author(s) - Azkarate, Aguñín, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain
Co-author(s) - Escalante-Ruiz, Sergio, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain

Presentation Preference - Oral

The historiography of the Basque Country has traditionally related the Early and High Medieval iron and steel production with the mining families, situated on the Cantabrian coast. That is, with ironworks located generally on the top or flanks of mountainous terrain, equipped with one or more slag-tapping furnaces. These are the so-called haizeolak, which in the Basque language are wind ironworks, as opposed to the zeharrolak or hydraulic ironworks. Just as a result of recent discoveries, it seems more likely that this impression is a result of the nature of archaeological investigation itself, which, traditionally, had been prioritizing very precise prospections and interventions in the mountainous zones of the Basque Country. Nothing, however, was known about the inland flatlands except, paradoxically, that there was a major metallurgical activity judging from textual information. The so-called “Reja de San Millán”, dated 1025 A.D., gives the list of the de la Cogolla (La Rioja) demanded the payment of iron taxes, in stark contrast with these arguments, recent archaeological excavations on rural settlements from Early to Late Medieval times (Quirós Castillo 2011) carried 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 metalographic analyses of eighteen iron implements reveals that these are very acceptable quality items made of low carbon steel by piling, employing occasionally sophisticated techniques such as hardening and even the complex pattern-welding technique so far 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 reviewed point to that matter, 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 smelting. Substantial iron production was initiated in the island of Saaremaa in Estonia and in the land of Livonia on the Swedish east coast in the county of Småland. Here there was what has to be described as a mining area of lake and bog ore with over 1000 known bloomery sites with a minimum of 144 000 tons of produced iron. A production on such a scale during a period of 200 to 300 years evidently had a great impact on the whole Scandinavian and Baltic society, despite the fact a new more efficient technique, the blast furnace, was to be developed in the mining area of Bergslagen further north in Sweden around AD 1000.

The bloomery processes of iron production survived the whole period and a regional specialization and social differentiation developed. As a result peasants on the plains founded their economy on grain production and peasants of the transition regions between plain and woodland produced a surplus of animal products, while woodland peasants often sold handicraft articles, but iron opened up a new need for labor and produce, where the forests, lakes and bogs contributed with raw materials. Under these conditions iron production was introduced and raised within the peasant society linked to the emerging states, for example through towns like Kalmar, Gotland, Kurseäare 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.

TH1-32 Abstract 04
Bergslagen - a medieval innovation Centre
Author - Fil. Dr. Karlsson, Catarina, Berglagens medeltidsmuseum, Skarpxön, Sweden (Presenting author)
Keywords: Bergslagen, Iron production
Presentation Preference - Oral
Changes in production, consumption and economic thinking require innovative environments and networks. Which settings, systems and actors enable innovation that can change the conditions for a whole society? In Sweden, the rapid emergence of Bergslagen was vital. The blast furnace was developed, perhaps as early as the 1000 AD, and around it extensive technical systems took shape, which grew exponentially during the 11-1300’s. Metals were recovered from rock ore in a new way and on an unprecedented scale. In Bergslagen, Sweden’s economic base was built in a sparsely populated outland. This setting was characterized by diversity and flexibility which characterizes resilience. This paper will discuss Bergslagen as a system network focusing on innovation, expansion and resilience.

TH1-32 Abstract 05
Iron in the everyday life in the medieval rural sites of Western Nyland (Fi. Uusimaa) in Finland
Author - M.A. Teräsä, Elna, University of Helsinki, Helsinki, Finland (Presenting author)
Keywords: Iron production and circulation, Material culture, Medieval countryside
Presentation Preference - Oral
During the last decade several medieval rural sites has been under a research in the Western Nyland and from these excavations quite nice amount of objects telling about making, repairing and consuming iron objects has appeared. In this paper the aim is consider the recent finds from a couple well researched villages as well as the castle of Raseborg, which was the administrative center of Western Nyland from the end of the 14th century to the middle of the 16th century. The question is, can the iron production, the trade of iron and making objects be reached by analyzing these objects? Also the life course and use of iron objects found from these sites are considered, as it can give us access to the production as well. The castle of Raseborg had of course a very special need for iron products. For example, the historical sources tell about making firearms and other weapons in the castle at issue and a part of a European modernization.
TH1-33

Methodologies to Investigate Social, Cultural, and Demographic Processes in Migration Periods

Saturday, 3 September 2016, 16:30-18:30
Faculty of Philosophy, Room 207

Abstracts of the presentations are available online.

- Oral Presentation Preference
- Alessandri, Luca, University of Groningen, Groningen, Netherlands
  Co-author(s)
  - Van Gorp, Wouter, University of Groningen, Groningen, Netherlands
  - Doorenbosch, Marieke, Leiden University, Leiden, Netherlands
  - Field, Mike, Leiden University, Leiden, Netherlands
  - Sevink, Jan, University of Groningen, Groningen, Netherlands
  - Codromaz, Federica, University of Vienna, Vienna, Austria

The presentation provides an overview of the dataset and maps, which possibly relates results from different disciplines and researchers.

TH1-33 Abstract 01

The Avellino Event: investigating the migration resulting from the Bronze Age eruption of Vesuvius

Author - Dr. Van Leusden, Martijn, University of Groningen, Groningen, Netherlands (Presenting author)
Co-author(s) - Attema, Peter, University of Groningen, Groningen, Netherlands
Co-author(s) - Sevink, Jan, University of Groningen, Groningen, Netherlands
Co-author(s) - Field, Mike, Leiden University, Leiden, Netherlands
Co-author(s) - Doorenbosch, Marike, Leiden University, Leiden, Netherlands
Co-author(s) - Van Gorp, Wouter, University of Groningen, Groningen, Netherlands
Co-author(s) - Alessandri, Luca, University of Groningen, Groningen, Netherlands

Keywords: Bronze Age Italy, disaster impacts, migration

A round 1995 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 escape with their lives. Italian archaeological research since the 1980s has conclusively shown that the population of the Campanian plain did not fully recover from several eruptions after this so-called 'Avellino Event'. Oddly, no one has yet contributed toward 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 Latium, the region immediately to the north of Campania. Long-standing Dutch geochronological research in this area has already shown the presence of a continuous sedimentary record for the period of interest, and the team recently identified, besides the Avellino volcanics, ash layers that will function as chronological markers for any victims of this catastrophic eruption. Using a combination of archaeological, geochronological, and paleo-archaeological 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 Latium. This year 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.

TH1-33 Abstract 02

Phenomena of migration on Chalcidice

Author - Danik, Olivia, University of Basel, Basel, Switzerland (Presenting author)
Co-author(s) - Chalcidice, colonisation, local identities

The Chalcidice, a peninsula in Northern Greece, formed 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 chalcios (copper), from the city Chalkis or the name of a Greek tribe which settled in the area during the migrations of the 2nd millennium (Hdt. 7.158).

Beside the Chalcidians settled numerous populations on the mainland and the three prongs Pallene, Sithonia and Aitol. 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 Aneas by Aeneas 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 Euboea, Andros, Corinth 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 ethnically complex the social dynamics of the microcosm of the Chalcidian peninsula should be investigated.

The presentation provides on the basis of literary, epigraphical, numismatic and archaeological sources an overview of the methodological 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 03

A Regional Assessment of Migration in Roman Britain: The Cultural Narratives of Decapitation Burials

Author - Christie, Shaeheen, University of Wisconsin-Milwaukee, Saint Charles, United States of America (Presenting author)

Keywords: Isotope Analysis, Migration, Roman

The Roman Iron Age in Britain (A.D. 43-410) is marked by progressive change in settlement and agricultural organization, population increase and diversity due to migration, evolution of social hierarchies and religious practices, particularly in formal cemetery contexts following the Conquest. Archaeological investigations of Romano-British burials have revealed differential burial treatments and attitudes toward the dead. Decapitation burials are the most common and diverse form of differential burial representation in this period. The idea that decapitation is an act of sacrifice, including infanticide, penal execution, trophy taking, fear of the dead, or veneration practices toward individuals of presumed low, criminal, foreign, or slave status in Roman society. In addition, it has been suggested that the known decapitation practices stem from internal cultural development with little foreign influence from elsewhere in the Roman Empire. However, these interpretations have been based mainly on assumption rather than evidence from the archaeological contexts, and have yet to be systematically approached from the perspective of the archaeology of difference. This paper will use a multi-scalar holistic approach combining mortuary, bioarchaeological, and biochemical (strontium, oxygen, nitrogen, and carbon) analyses to test the idea that decapitated individuals in Roman Britain were associated with a single set of social norms by their communities, and address whether the presence of foreign individuals may have informed the practices of decapitation. Drawing on multiple lines of evidence may illuminate previously overlooked social and biological patterns linking cultural behaviors and diverse ideologies of those individuals on the fringes of Roman society during the “migration period”. Through the application of the available archaeological, conceptual, and physical evidence and techniques, our reconstructions of how ancient populations conceived of themselves and each other in Roman Britain will become more complete.

TH1-33 Abstract 04

Working bone and antler at Star Carr: Gaseous technology in space and time

Author - Dr. Elliott, Ben, University of York, York, United Kingdom (Presenting author)
Co-author(s) - Little, A., United Kingdom
Co-author(s) - Knight, B., United Kingdom
Co-author(s) - Conneller, C., United Kingdom
Interpreting the Archaeological Record

Co-author(s) - Taylor, B., United Kingdom
Co-author(s) - Milner, N., United Kingdom
Keywords: Craft Theory, Mesolithic, Organic technology
Presentation Preference - Oral

Since its original excavation in the 1940s and 50s, the Early Mesolithic site of Star Carr has dominated discussions of obsesse technologies within the British Mesolithic, and made an important contribution to wider debates over the significance of bone and antler materials within the economies of Early Holocene Europe. However, due to the resolution of on-site recording in the 1940s, and subsequent conservation and curation of the original finds, many questions concerning the precise character, context and duration of bone and antler working at the site have remained unanswered.

The recent, ERC-funded excavations at the site have yielded an extensive assemblage of bone and antler artefacts, the context of which has now been fully recorded and analysed for the first time. This paper will present the results of these new investigations at Star Carr, combining contextual and spatial data with chronological analysis and microwear studies to allow an unprecedented discussion of the ways in which antler barbed points, antler headdress, elk antler mattles, bone bodkins and aurich bone scraping tools were made, used and deposited at c.9000 cal. BC in North Eastern Britain.

TH1-33 Abstract 05

Bone functional adaptation in the femur: a quantitative analysis in historical populations

Author - Dr. Simonit, Francesco, Monfalcone, Italy (Presenting author)
Keywords: computed tomography, migration period, moments of inertia
Presentation Preference - Oral

Bone is responsive to mechanical stimulation. Working aspects and social conditions are able to bring out significant skeletal alterations, which can be revealed in postmortem. Quantitative evaluations of the markers of occupational stress (MOS), in particular in the lower limbs, have been provided through the analysis of the cross section geometry of the diaphysis.

Some historical populations of Friuli Venezia Giulia (North-Eastern Italy and Slovenia) have been studied with quantitative MOS methods. The activity patterns were already known for every group, especially about the loads to the lower limbs. Femoral cylindroids were obtained by Multitector CT scan of midshaft femur. Average values of the cross section geometrical properties (areas and second moments of area) have been calculated to evaluate bone functional adaptation in each cylindroid. Furthermore, the evaluation of the moments of inertia for two individuals have 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 usage 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 bioarcheology and could be useful to evaluate and compare the MOS of historical populations.

TH1-33 Abstract 06

The investigation of Early Slavic sites in North-Eastern Germany in the last 25 years. A review

Author - Dr. Schneeweiss, Jens, Institute for the History of Material Culture RAS, Saint Petersburg, Russian Federation (Presenting author)
Keywords: Historiography, Slavic archaeology, Western Slavs
Presentation Preference - Oral

The development of Slavic archaeology in Germany is closely connected to political history. Thus, with the political turn in 1990 began a new period in the archaeological investigation of the Slavic past as well. The advancement of a new generation of researchers went hand in hand with re-evaluations of old paradigms and reorganisation 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 new directions in archaeology 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 reorganisation of research.

Keywords:
- Oral

Presentation Preference - Oral

TH1-34 Abstract 01

From Temples to Towns: The Role of Sanctuaries in Urbanization Processes

Author - Dr. Fernández-Gótz, Manuel, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)
Keywords: Identity, Religion, Urbanization
Presentation Preference - Oral

From the Mesopotamian ziggurats to the urban sanctuaries of the Greek poleis and the public spaces within the Late Iron Age oppida of temperate Europe, religion appears to be an essential element in most urbanization processes, being at the root of the fusion of previously scattered communities. In some cases it has even been determined that the existence of a place for cult activities preceded the concentration of a significant number of people or even the fortification of the area. Drawing upon different archaeological case-studies and historical comparisons, this paper will explore the crucial role of sanctuaries as focal points for social aggregation and collective identity construction.

TH1-34 Abstract 02

Taxonomy, Archaeology, and Ethnology:
Myths and Realities for Prehistoric and Modern Settlements

Author - Prof. Zubrow, Ezra, University at Buffalo and Toronto, Buffalo, United States of America (Presenting author)
Keywords: Demography, settlement, archaeology, Ethnography, ethnology, international, Taxonomy, classification, ontology
Presentation Preference - Oral

This study examines ethnographic and archaeological settlements on a worldwide basis, and presents the results of testing various models against the available archaeological and ethnographic data. Generalized settlement taxonomies from several...
Interpreting the Archaeological Record

THI-34 Abstract 03
How clustered were clustered settlements really?
A case study on the Gátáthüyük West Mound
Author - Prof. Balázs, Peter F., University at Buffalo, Buffalo NY, United States of America (Presenting author)
Co-author(s) - Regaschi, Jana, Flinders University of South Australia, Adelaide, Australia
Keywords: Architecture, Chalcolithic; Neolithic
Presentation Preference - Oral

This paper will demonstrate how modern, small-scale approaches towards architecture analysis question traditional views on the inner workings of a clustered settlement. Using our recent excavations on the Gátáthüyük 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 Gátáthüyük experienced fundamental changes in its socio-economic makeup, which are expressed in alterations of the settlement layout and organization. In the uppermost building levels of the Neolithic East Mound, the settlement transformed from a tightly clustered and large agglomeration of houses into a series of individual houses or house clusters with open areas between them. At the same time, the tightly integrated social structure that characterized the site before 6500 BC loosened when households started to be economically more independent. During the following Early Chalcolithic period (ca. 6000-5500 BC), there seems to have been a return to dense clustering on the West Mound, suggesting another change in social structure. However, ongoing work on the formation processes of the built environment on the West Mound questions whether the buildings were actually 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.

THI-34 Abstract 04
Spatial and social patterns in LBK Neolithic settlement
Author - Michalak, Katarzyna, University of Gdańsk, Gdańsk, Poland
Co-author(s) - Potoczynski, Lukasz, University of Gdańsk, Gdańsk, Poland (Presenting author)
Keywords: built environment; community organisation; spatial organisation
Presentation Preference - Oral

This paper focuses on the results of a study aimed at examining the relationships between neighbouring LBK houses based on analysis of location of activity zones related to the houses. The social and spatial organisation of LBK settlements is still under discussion. Usually the houses are perceived as independent, self-sufficient units within a village. Based on the research on 59 longhouses recorded at two large, multi-phase LBK settlements in southern Poland we would like to present more complex image of the settlement organisation.

Considering chronological relations between the houses, we analysed the spatial and functional diversity of features located around the longhouses and artefacts found there. This analysis allowed us to identify (1) "dirty zones" interpreted as possible places of household activities and intense deposition of waste, and (2) "kitchen zones" interpreted as places associated with processing and/or storing of food. The "dirty zones" are associated with accumulation of artefacts (pottery and flints) recorded usually in lateral pits and rubbish pits, and situated on one side of the house. The "kitchen zones" are characterised by the presence of features associated with direct use of fire, sunken-floored huts and grain remains.

The location of the zones around particular houses was various. 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.

THI-34 Abstract 05
Activity Zones and Community Formation: The Role of Spatial Structure in Early Nucleated Villages
Author - Dr. Salisbury, Roderick B., University of Vienna, Vienna, Vienna, Austria (Presenting author)
Keywords: Neolithic Europe; social organization; spatial analysis
Presentation Preference - Oral

Spatial relationships are among the most important sources of archaeological evidence, and one of the most important aspects of social organization. Spatial structure, including the locations of altar areas and activity zones, is an essential aspect in understanding craft specialization, cross-craft interactions, power structures, inclusion/exclusion, and a host of other social relationships. Along with multiscalar and diachronic approaches, comparative spatial analyses are an essential tool in understanding the influence of nucleation on the processes of everyday life. Drawing on ethnographic and archaeological comparisons from the Near East, Europe and eastern North America, this presentation examines different use of space in different types of sites during the Late Neolithic on the Great Hungarian Plain. I argue that different types of sites, even if the differences are sometimes very subtle, show different spatial patterning of houses and activity zones. Furthermore, by increasing the social significance of identity while exposing people to a greater number of communities, these differences were instrumental in facilitating the socio-political changes that accompanied settlement and population aggregation.

THI-34 Abstract 07
What’s outside an Eneolithic tell settlement?
Case studies from the Balkans
Author - Craciunescu, Ionela, National History Museum of Romania, Bucharest, Romania (Presenting author)
Co-author(s) - Lazar, Catalin, National History Museum of Romania, Bucharest, Romania
Keywords: Eneolithic; spatial analysis; tell settlement
Presentation Preference - Oral

The aim of this paper is to investigate the surroundings of the Eneolithic tell settlements in the Balkans (Romania and Bulgaria), from the 5th millennium BC. The traditional biases are that the prehistoric habitation was limited to the tell area and that the
deceased were buried in the nearby cemeteries (most of them discovered by chance) or, in few cases, inside the settlement. This situation is a consequence of the actual state of research, with systematic excavations performed mostly on the mounds. Recently new post-disciplinary research made in Bulgaria (e.g. Podgoritsa) and Romania (e.g. Pietrel, Sutana) 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 function of the sites. Further research will focus on analysing these variables in searching for rules and exceptions, with the help for GIS analysis techniques. The main advantage of GIS approach is the ability to model and visualize spatial trends that would be hardly noticed and time consuming if only traditional methods were used.

This work was performed through the Partnerships in Priority Areas Program – PN II, developed with the support of MEN – UEFSCDI, project no. PN-II-PT-PCCA-2013-4-2302.

TH1-34 Abstract 10
Uncovering Medieval Urban Planning:
the case of Oslo and Magnus Labagaye

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 Labagaye bylov, in the light of the ongoing archaeological excavations. Issued in 1276, Magnus Labagaye bylov 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.

TH1-34 Abstract 11
Emergent Complexity and Neolithic Settlement Nucleation
on the Great Hungarian Plain

Author - Gyocha, Attila, University at Buffalo, Buffalo, United States of America (Presenting author)
Co-author(s) - Parkinson, William A., The Field Museum, Chicago, United States of America
Co-author(s) - Yerkes, Richard W., Ohio State University, Columbus, 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, sizeable centers in the region.

In this paper, we focus on tells 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 adresses 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.

JN
TH1-34 Abstract 12

Nucleated settlements in the Eneolithic of south-eastern Poland?

Author - Dr. Nowak, Marek, Institute of Archaeology, Jagiellonian University, Krakow, Poland (Presenting author)
Co-author(s) - Kołodziejczyk, Małgorzata, Institute of Botany Polish Academy of Sciences, Krakow, Poland
Co-author(s) - Korczyńska, Marta, Institute of Archaeology, Jagiellonian University, Krakow, Poland
Co-author(s) - Wojcik, Bartłomiej, Institute of Archaeology, Jagiellonian University, Krakow, Poland

Keywords: Eneolithic, nucleated settlements, south-eastern Poland

Presentation Preference: Oral

At the beginning of the fourth millennium BC, in south-eastern Poland (historical province of Lesser Poland - Podlachia Minor) appears a new archaeological unit called Funnel Beaker culture (TRB), in the place where earlier units of the so-called Danubian Neolithic originally settled. From ca. 3600 BC, the growth of the area occupied by some settlements of this culture can be seen; this process seems to intensify with time. It is possible that such big settlements gained the status of micro-regional centers, around which the whole settlement network was organized. There are opinions that a two- or even three-tier hierarchical system of the TRB settlement was formed in that time. At the end of the fourth and in the first half of the third millennium BC, the biggest sites of the TRB reached a size of approx. 20 hectares. Because of this fact and due to the disappearance of most of the smaller sites, one can assume that a greater part of the local populations concentrated in these big settlements. Interestingly enough, such large sites are often characterized by archaeological materials of a mixed character. The so-called Beaker-Baden Assemblages are the classical example of such correlation, i.e. they are known from phases IV and V of the site of Brzozów, the Przecław district (ca. 2100-2000 BC). A phenomenon of this kind has also been observed in Lesser Poland beyond the TRB. For example, in the large settlement in Ziotka, the Sandomierz district (ca. 2900-2600 BC), the widespread coexistence of elements of the Baden culture, the Globular Amphora culture and the Corded Ware culture were recorded. It is significant that this site is actually the only settlement of the local archaeological unit called Ziotka culture. Other sites of this culture are cemeteries and numerous small graves. Therefore, it can be assumed that this result was caused from the concentration of the whole population in one central point of the settlement area, this time of the mezzo-region scale. The presentation has the objective of clarifying what kind of economic processes and social structures conditioned the emergence of big. Eneolithic 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 comparative analytical 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 structures in the surrounding area. All these analyses have been recently performed, i.e. at the TRB site of Mozgawa (Pińczów district). They are based on the results of surface surveys, geomagnetic prospectations, excavations as well as palaeoenvironmental studies.

TH1-34 Abstract 13

Organizational variability of Bronze Age nucleated settlements in Hungary: a long-term approach

Author - Szeverényi, Vajk, Hungarian Academy of Sciences, Budapest, Hungary (Presenting author)
Co-author(s) - Kiss, Vítóbia, Hungarian Academy of Sciences, Budapest, Hungary
Co-author(s) - Kuczyk, Gabriella, Hungarian Academy of Sciences, Budapest, Hungary

Keywords: Bronze Age, fortified settlements, Hungary

Presentation Preference: Oral

Large, nucleated settlements – tells, hilltop sites, fortified settlements – are ubiquitous phenomena in the Bronze Age of Europe and specifically the Carpathian Basin. Recent research on microregional settlement patterns in Hungary has revealed a great variety of such settlements in varied regional contexts with apparently varied internal structure and connections to the wider social and natural landscape. Building on an earlier paper where we reviewed the history of Early Bronze Age and Middle Bronze Age fortified settlements in Hungary, the aim of our contribution is to provide an analysis of the changes of such nucleated settlements throughout almost 2000 years of the Bronze Age (2600-2500–800/700 BC) within their internal structure, built remains, and internal and macroregional organization principles. Data on changes in settlement structure and changes in the locations of major centers and populated areas will provide a wealth of information on the socio-economic history of Bronze Age communities in Hungary.

Our goal is to examine the settlement networks in this longer period in the central, southeastern and southwestern part of the Carpathian Basin/Hungary, with special attention to: 1) the function and position of the fortified sites in the landscape, 2) their role within the settlement or economic units of the period and 3) their role in the cognitive and symbolic systems of the period, to decide whether their foundation was accidental or the result of a premeditated/intentional decision.
such structures. Due to the relatively small size of palisades and ditches enclosing chieftains’ farmsteads, their defensive function seems rather unlikely. The purely prestigious function cannot be ruled out. Assuming that they were used as cattle kraals. Horses breeding cannot be ruled out either. The term chieftain’s farmstead suggest that they were used by people with higher social status. Archaeological finds from these sites, however, do not confirm it. A good example is the site Wojkowice 15. Both a chieftain’s farmstead and an open settlement organized along a communication route were discovered here. No significant difference between finds from the two areas was noted. On the contrary, they were characterized by high similarity. In terms of forms of features related to production no major discrepancies were noted either. But the question remains why two groups of people living next to each other opted for completely different forms of spatial organization.

TH1-34 Abstract 16
Settlement mounds: A long-term analysis of the settlement organization in the Iron Age
Author - PhD Hauge, 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 village sites revealed 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, Sønderask Museum, Brøgup, Denmark (Presenting author)
Keywords: Early Roman Iron Age, farmsteads, nucleated settlements
Presentation Preference - Oral

During the Danish Late Pre-Roman Iron Age in parts of western and southern Jutland there was a shift from a dispersed to a more nucleated settlement structure. This is best illustrated by a handful of villages that were enclosed by common fences. At the start of the Early Roman Iron Age there is a dramatic increase in the number of nucleated settlements, some of which seem to emerge rather suddenly, often where there has been little or no previous occupation.

Rescue excavations have brought to light a number of structured villages from the beginning for the Roman Iron Age that 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 homogenous character. When comparing different settlements to each other, there are variations in settlement and farmstead layout that are more similar than there are differences. This may indicate that there were underlying social-cultural norms or rules in how these village communities should structure their settlements and farmsteads which were maintained by these communities over several generations. In this paper, I will present several Early Roman Iron Age settlements excavated by Sønderask Museum in a limited geographical area of southern-central Jutland.

TH1-34 Abstract 18
What does settlement layout tell about the community?
Author - Prof. Yalman, Emine Nurcan, Cultural Awareness Foundation Istanbul, CIEC Center for International Heritage Ac, Istanbul, Turkey (Presenting author)
Keywords: ethnoarchaeology, interpretation, settlement
Presentation Preference - Oral

The layout of a settlement reflects long-term processes and mutual interactions that occur among many variables. Sometimes the factors that shape a settlement are the result of various deliberate decisions, but indirect effects also play a role in these processes. In an archaeological site, we usually excavate and observe only parts of settlements, and thus we find that many of the components are missing. Therefore, especially in prehistoric sites where there is no predictable site plan, it is difficult to interpret the community by studying the site. This paper will discuss the relationship between the structure of a community and the settlement layout and the factors that make a settlement nucleated, dispersed or agglomerated, with an ethnoarchaeological study in Central Anatolia.

TH1-34 Abstract 19
The creation of powerful places in Etruria
Author - Dr. Stoddart, Simon, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: Etruria, Genealogy, Heterarchy
Presentation Preference - Oral

The paper will examine the processes underlying the construction of powerful places in Etruria. On the one hand, the landscape of much of Etruria was dominated by what have been defined as primate centres in studies of political geography. On the other hand, burial evidence indicates the retention of counterweighing political genealogies that apparently contrasted with the apparent centralisation of power in the large centres. This paper will examine the resolution of this tension by matching emerging evidence from the nucleation of settlement (layout and organisation) with evidence for succession amongst political elites and their individual participants (the sequence and content of graves). The variation of this pattern at an interregional level will be added to the complex, often heterarchical, pattern of Etruria.

TH1-34 Abstract 20
Communication network structure in Latium vetus and Etruria: Two faces of the same coin?
Author - Dr. Fulmini, Francesca, University Roma Tre, Roma, Italy (Presenting author)
Co-author(s) - Prof. Guidi, Alessandro, University Roma Tre, Roma, Italy
Co-author(s) - Dr. Lozano, Sergio, IHEES, Tarragona, Spain
Co-author(s) - Dr. Prigiano, Luca, University of Barcelona, Barcelona, Spain
Co-author(s) - Morer, Ignacio, University of Barcelona, Barcelona, Spain
Keywords: central Italy, communication networks, urbanism
Presentation Preference - Oral

Communication infrastructures are emerging complex structure: they are not completely random, neither are they entirely planned according to a predefined project especially when there is no unified political framework. Transportation networks can be regarded as an epiphenomenon of social interactions and interactions between societies and environments. At the same time, they influence the development of past societies (they enhance trade dynamics affecting the prosperity of a civilization) and their complexification (e.g. emergence of urbanism). There is a feedback loop. By analyzing and comparing fluvial and terrestrial communication networks in Etruria and Latium vetus between the Final Bronze Age and the Archaic Era with a newly developed Network approach this paper shows the similarities and differences between the two regions and contributes to explain why in the 8th-7th century bc Latium vetus prevailed over the Etruscan. Moreover, this analysis suggests a relationship between the hierarchical dynamics of city-states organization (and its corresponding influence on infrastructural decision-making) and the structure of terrestrial routes networks.

TH1-34 Abstract 21
The Analysis of Changes in Post-Chalcolithic Settlement at Çatalhöyük
Author - MA Hondecci, Jędrzej, Adam Mickiewicz University, Kościan, Poland (Presenting author)
Keywords: Çatalhöyük, Hellenistic, settlement
Presentation Preference - Oral

Çatalhöyük is one of the most well-known archaeological sites. This fame is largely the result of Neolithic strata excavated there. However, this place was occupied in other periods as well. Evidence for this are registered both as on-site finds and, more importantly, remains of buildings from post-Chalcolithic periods. Because of its particular position, both at the regional scale of the Konya Plain and within Anatolia. Çatalhöyük played a specific role. Excavations at the site revealed strata and remains of settlement from Bronze Age, Phrygian, Hellenistic and Muslim Periods. Evidence for the first and the last periods were relatively scarce. However, finds and strata from the Phrygian and Hellenistic Periods indicate uninterrupted settlement from the 5th to 2nd century. Because of this, Çatalhöyük is a very good example of settlement characterized by diachronically visible social and economic complexity and cultural heterogeneity. The theme of my paper is to present the results of an analysis of late archaeological strata registered in the TP Area. Phases of settlement presented in the first part will become a base for further interpretations. From this,
it will be possible to show organizational variability of space, which will be a starting point for interpretations focused on changes in perception of this space. In the result in my paper, I will indicate the most important economic and social changes that took place in Çatalhöyük. That will be the answer not only for the question about the role of changes on site or in the region but also at the wider scale of Anatolia.

TH1-34 Abstract 22
Comparative Study of Settlement Systems in the Bronze Age and the Medieval Age

Author: Dr. Pusztaïné Fischl, Klára, University of Miskolc, Miskolc, Hungary (Presenting author) Co-author(s): Pusztaí, Tamás, Herman Ottó Museum, Miskolc, Hungary

Keywords: Bronze Age, Middle Age, comparative study, settlement structure and using of space

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 Borod Plain and the foothills of the Bükk mountains, will be included in this study, with particular focus given to the settlement patterns for the specific periods of the Bronze Age (between 2200 and 1600 BC) and the Middle Ages (14-15th centuries AD). We will explore the topography, settlement networks, space and land use, as well as house construction methods in a comparative regional and temporal framework. The economy of these two periods is based on agriculture and the exploitation of the immediate environment. The historical and cartographical sources, landmark inspections, and the well-known road-networks make possible to determine central sites contra villages in the 14-15th century AD in the micro-region. Based on the analysis of building methods, communal spaces, spatial organisation of the homes and the villages, and economic activities in these two periods, we propose a model that will determine critical factors about the Bronze Age settlement pattern (roads, central places, distribute places and activities between settlement).

TH1-34 Abstract 23
An exemplification of the socio-political make-up of the Late Bronze Age polities from Hungary

Author: Czukor, Péter, Móra Ferenc Mézeum, Szeged, Hungary (Presenting author)
Co-author(s): Pusztai, Tamás, Herman Ottó Museum, Miskolc, Hungary

Keywords: Bronze Age Hungary, Fortified settlement, Landscape, hierarchy

In the area of the Békés-Csangó loess table and the Banatins, 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 the research focusing on one of these fortifications, Makó–Rakocsévár and its hinterland. This small: 42 hectare large fortified site is investigated within the framework of a wider, microregional settlement study and will be interpreted in terms of the socio-political make-up of the Late Bronze Age polities.

TH1-34 Abstract 24
More than meets the eye: burial monuments and "landscapes of power" in late Iron Age Britain

Author: Minkevičius, Karolis, Vilnius University, Vilnius, Lithuania (Presenting author)

Keywords: GIS, Iron Age, Landscape Archaeology

In the area of the Békés-Csangó loess table and the Banatins, 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 the research focusing on one of these fortifications, Makó–Rakocsévár 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.

As human beings, the desire and necessity to “change” landscape has been with us from the beginning of our existence. From the basic acts such as hunting or setting a campfire, to a more complex ones like constructing a transcontinental canal, our actions have been constantly changing the landscapes we inhabit. In prehistoric Europe these changes usually were an unintentional by-product of other activities. However, it is becoming increasingly evident that this was not always the case. Landscapes play an active part in societies, rather than being a passive reflection of (some of) their actions. They influence and are influenced by social interaction and social structure. Throughout the history numerous societies have used this phenomenon to their advantage. Here it is being suggested that such landscape control strategies can also be observed in the later Iron Age in eastern Britain. During this period the re-emerging cremation burial monuments of social elites were used in the creation of “Landscapes of Power”. Some of them were used to visually dominate the social and political landscapes of the late Iron Age oppida. This hypothesis has been explored using GIS-based visibility analysis. By presenting case studies of Folly Lane, Lexden and Stanway 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

Saturday, 3 September 2016, 09:00-13:00
Faculty of History, Room 217

Author - Dr. Jaloit, Luc, University Paul Valéry Montpellier 3, Montpellier, France (Presenting author)
Co-author(s) - Molsot, Miquel, Universitat Autònoma de Barcelona, Barcelona, Spain
Co-author(s) - Peinetti, Alessandro, Università di Bologna, Bologna, Italy

Keywords: wet and dry earth, cob, mudbrick, plaster, technology, household, dwelling, Neolithic.

Presentation Preference - Oral 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 are used for multiple functions: as cob or mudbrick to realize upstanding load bearing masonry, as daub to cover wooden walls, as plaster for walls or constructed floors and 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 Neolithic/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.

TH1-35 Abstract 01

Some remarks about the role of environment and society in building technology

Author - Peinetti, Alessandro, UMR 5140, Paris, France (Presenting author)

Keywords: Building technology, Earthen construction, Ethnoarchaeology

Most often, the archaeologist underline the role played by environmental constraints in the elaboration of architectural models, in particular for the employed raw materials. This paper wants to explore the complex relationship between environment, cultural choices, building traditions, socio-economical context and technical constraints, presenting ethnoarchaeological and archaeological examples of earthen constructions in different European contexts. First of all, the observation of modern wattle and daub in northern France allows some remarks about the relation between employed raw materials and techniques. The results of the Neolithic wattle and daub analysis from different sites in Piemont (Northwest of Italy) stress the role played by tradition in building practices. Some case-studies from the Italian Bronze age, focused on earthen walls and floors building techniques, could be useful to understand some cultural choices, guided especially by socioeconomic needs. In prehistoric contexts, as in vernacular architecture, the employed building materials are often local and show a good adaptation to the ecological environment. That's a sort of common denominator, but the identification of raw materials is just a first analytical level for the archaeologist. We need to make an effort and explore in depth the relationship between raw materials, technical choices and social context. In fact, each peculiar technical solution is a solution among various other possibilities. The aim is to turn the archaeological reasoning and stress the technical variability in our approaches, to show the limits of the environment and society within the balance of the role played by cultural choices in the evolution of ancient communities.

TH1-35 Abstract 02

The Aftermath of Mud Houses: Degradation and archaeological site formation

Author - Dr. Friesen, David, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: archaeological site formation, ethnoarchaeology, mud structures degradation

Presentation Preference - Oral

A major interest in archaeological research of domestic sites 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 infill sediments, occupation deposits, thatched roofs and degraded mud brick material. The results of this study present 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.
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) - Cipol, Valentina, Dipartimento di Scienze dell’Antichità, Roma, Italy
Co-author(s) - Minori, Vittorio, Dipartimento di Scienze dell’Antichità, Roma, Italy
Co-author(s) - Dotti, Paolo, Dipartimento di Scienze dell’Antichità, Roma, Italy
Co-author(s) - Meledini, Laura, Dipartimento di Scienze della Terra, Roma, Italy

Keywords: Bronze Age, cooking platform, plaster
Presentation Preference - Oral

The Bronze Age site of Oratino – La Roca is located on a small terrace beside the southern slope of a rocky hill that dominates the eastern side of the high Biferno river valley, along an important route that penetrates the inland region of central-southern Italy from the Adriatic coast. The research conducted so far on the site allows us to recognize different moments of occupation mainly from 15th and 12th century B.C. During the final phase of occupation a series of six layers, characterized by the presence of hearths and cooking structures is attested. They can be related, mostly, to food preparation/treatment and consumption activities, repeated in a short lapse of time. Moreover, these activities were performed in an open area and are not linked to specific domestic structures, but probably in a collective sphere, by a restricted number of people.

Several plaster fragments, related both to the cooking platforms and with other accessory structures, were found in these layers of occupation.

A broad use of mud for coatings or covers of huts and an exploitation of raw materials macroscopically different for the manufacture of small structures, as cooking platforms, is observable from the macroscopic analysis of morphometrical and technological features of archaeological materials. The application of compositional analyses, as petrographic analyses on thin sections, 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-Hasa HD-6 (Oman)

Author - Dr. Azzar, Valentina, UMR 7041 ArScAn - Vepmo, Nanterre Cedex, France (Presenting author)
Keywords: Adobe composition, Grain size distribution, Work specialisation, Early Bronze Age, Oman
Presentation Preference - Oral

Earthen materials are introduced in Oman at the end of the 4th millennium BCE, when a series of technological evolutions mark the transition to the Early Bronze Age. The very beginning of such transformation, however, remains scarcely understood from the point of view of settlement life and activities, as the Halft period is mostly represented by thousands of graves, while very few settlements are known throughout the area. The site of HD-6 has been the object of a detailed large-scale excavation, showing both the emergence of solid architecture and a diachronic evolution in adobe building materials.

Aiming at a better understanding of such evolution, chemical-mineralogical and granulometric analyses of earthen building materials related to the different occupations of HD-6 have been performed on a series of samples. The results suggest that the differences in mud-brick fabrics were a result of mixing and tempering and are not indicative of different raw material sources. Together with the technical characteristics of building materials, such differences show the evolution of building techniques and methods of construction used on site, hinting at increasing specialisation of work and of the workforce.

TH1-35 Abstract 07

Clay, wood and stone - Neolithic architectures on the channel sea shore, at Lillmerer

Author - Laporte, Luc, CNRS, Rennes, France (Presenting author)
Co-author(s) - Bizen-Jaglin, Catherine, CnRaa, Sain-Malo, France

Keywords: Copper Age, Dwellings destroying or burning, Osmiums culture
Presentation Preference - Poster

For the most part the researchers the house is the main important social, ideological and economic entity of the society in Copper Age in S-E Europe. The materials used to built, the form, the inner space structuring, were seen like being represent
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 Gumeleța 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 Gumeleța culture in Vth mil. BC.

TH1-35 Abstract 10
The uses of architectural mud in karstic area at Neolithic: environments techniques and cultures
Author - PhD student Di Pascale, Ambre, University Paul Valéry - Montpellier III, Montpellier, France (Presenting author)
Presentation Preference - Poster

In the Languedoc region, we distinguish two main landscape settings: plain zones and karstic environments (called Garrigue). Plains are composed of lagoon areas, layers of gravel, alluvial aquifers. Karst wetlands presents typical cavital shapes, such as sinkholes or avens. The soil there is stony and composed of numerous limestone outcrops, while the sedimentation is low (Guthrie, 1975). Both plains and karst wetlands were inhabited territories even since the Neolithic era. However, the raw material resources that are directly available do modify the builders' choices and highly affect the housing types. In the garrigues areas, one can find a large number of houses that have walls made of dry stones. Conversely, on the coastal plain, unbaked clay architecture was proven on several sites, such as La Capoulière (Mauguio, Hérault) or Mitra (Garons, Gard). Though, this kind of geographical determinism ought to be further qualified: Indeed, cases were seen where environment constraints have certainly been overcome by technical and cultural traditions and had a direct impact on the builders' choices. In the Rhône plain, several dry stone houses were found. Yet these structures are established on soft substratum (Jallot, 2011). Likewise, in karst areas, the discoveries of the use of a combination of stone and mud are numerous. It is true that until recently, and particularly in karst environments, the excavation of settlements was essentially based on the recognition of remains from long-lasting materials – which often precluded mud remains. But new problematics are emerging thanks to the improvement and the adjustment of excavation methods specifically relevant for the study of mud construction materials. Bosseargues (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). Fortbousièse (Villeveyrac, 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 Vayrasère 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 (Fourlé, 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.
In order to protect the rural archaeological heritage in Germany various strategies have been developed since 2013. The paper presents best-practice models of managing monuments in intensively used agricultural landscapes. Especially the conversion of ploughed sites into grassland as well as the application of precision farming systems are different approaches to a better conservation of archaeological remains at risk.

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.

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 citadel of Acrocorinth. These include mixed nature and heritage zones including the (a) wetlands and ancient harbor facilities of Lechaion 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 Acrocorinth. 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 visible 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 (a) wetlands and ancient harbor facilities of Lechaion 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 Acrocorinth. 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 visible 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 (a) wetlands and ancient harbor facilities of Lechaion 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 Acrocorinth. 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 visible for visitors.

Archaeologists frequently accuse others (that is, non-professionals) of committing ‘heritage crimes’. But is it a ‘heritage crime’ if no law is broken? Is it not a ‘heritage crime’ if a heritage law is broken by professional archaeologists? And would it be a ‘heritage crime’ if, say, a heritage agency were to excessively apply a heritage legislation to prevent entirely legal activities, and thus unconventionally restrict fundamental civil liberties? This paper examines who actually commits ‘heritage crimes’ in Austria; and whether it is truly those who archaeologists normally suspect, or whether the worst serial offenders are to be found much closer to home.

Archaeologists frequently accuse others (that is, non-professionals) of committing ‘heritage crimes’. But is it a ‘heritage crime’ if no law is broken? Is it not a ‘heritage crime’ if a heritage law is broken by professional archaeologists? And would it be a ‘heritage crime’ if, say, a heritage agency were to excessively apply a heritage legislation to prevent entirely legal activities, and thus unconventionally restrict fundamental civil liberties? This paper examines who actually commits ‘heritage crimes’ in Austria; and whether it is truly those who archaeologists normally suspect, or whether the worst serial offenders are to be found much closer to home.
Museums are an integral part of the cultural life of societies. Many house archaeological material, functioning as repositories of protected artifacts implies that national archaeological heritage is endangered. According to data provided by State Inspection of Protected Cultural Heritage, the number of cases of looting and destruction of archaeological sites and artifacts has increased significantly in recent years. Although Latvian official criminal statistics does not contain data on illegal obtainment of archaeological artifacts, significant amount of illegal excavations (like Mafia and Camorra), in particular in Southern Italy regions, are located a large number of UNESCO’s world heritage sites. In Italy, the concept of ‘archaeo-mafia’ has been created in order to explain the connection between organized crime networks and looting of archaeological sites. The legislative instruments are still unsuitable because they are distant from the correct interpretation of the entire problem and so related with an anarchistic vision. Specifically, there isn’t in fact a specific type of offence about crimes against the cultural heritage, while at least 16 types of criminal enterprises are recognized in the Italian legislation. Finally, we discuss the problems arising from this lack in the law related with the difficulty of punishment the culprits.

**References:**

**TH2-02 Abstract 05**

The fight against archaeological looting in Spain. One research and development project

Author - Professor Yaques, Ana, Universidad Complutense de Madrid, Madrid, Spain (Presenting author)
Co-author(s) - Rodriguez Temiño, Ignacio, Conjunto Arqueológico de Carmona, Carmona, Spain
Keywords: Archaeological looting, Punitive power
Presentation Preference - Oral

In 2014, a group of archaeologists and lawyers began to work together in a research and development project, funded by the Spanish Ministry of Economy and Competitiveness. This research project was primarily aimed at improving the basis for an effective legal response against archaeological plundering. Archaeological looting represents a serious threat to the survival of fragile and vulnerable special heritage. This threat is deployed both in sites on land and underwater wrecks. In Western societies, this iniquitous property loss creates social alarm because of the common interest in this property. Therefore, public authorities are constitutionally obliged to prevent it, or at least, to try to do so. However, in Spain the response provided by the State and the Autonomous Communities in the fighting against archaeological looting seems to lack the sense of unity required. The inadequacy of many legal instruments, such as the Spanish Historical Heritage Act, other cultural legislation, and the Penal Code is very well known, as there are claims to reform this legislation.

In order to achieve this and to improve the State’s response to this issue, the analysis of new data on real archaeological looting is required. Archaeological looting, as with any other illegal activity, is difficult to quantify precisely. Therefore, in order to improve the State’s response to it, the Project that we presented seeks to collect, sort and analyze data that should be collected. This project is not: the filling of complaints about archaeological spoils. At present, in Spain there is a tragic ignorance about what happens to these complaints in each region, how many are concluded, how many are not, and what the causes of each complaint are. From the collection and analysis of this data, the Project proposes improvement measures. The project’s main objectives are:

A) To improve the response to archaeological looting, both on land and underwater, through the adoption of minimum standards by the agencies involved in the fighting against this widespread social problem, made as a result of the research project.

B) To make public, a structured body of data from different geographical areas referring to the handling of complaints about archaeological looting from what, for the moment, are only available in administrative, judicial, police files that are difficult to access.

C) To provide tools to facilitate the fight against underwater and land archaeological looting, such as training the staff involved (members of the Security Forces of the State, judges, officials, managers, etc.) and social awareness. Improving the public response to archaeological looting involves ensuring access to these goods for future generations.

In this communication the most important research results conducted in recent years will be presented.
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.
Local and Global Educational Enrichment from Corinth Excavations and museums. Corinth aims to communicate these interactions among peoples through time and share the legacy of Ancient Greek, Roman and Byzantine achievements of the Roman Empire, pottery designs and styles of the Byzantine Empire, the development of Christianity, Epidaurian healing inscriptions. Over the last 120 years, research at Corinth Excavations in Ancient Corinth, Greece, conducted by the American School of Classical Studies at Athens (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 Epidaurian healing inscriptions.

Corinth Excavations now has a dedicated staff member for educational outreach thanks to the generous support of the Steinmetz Family Foundation Fellowship; the museum Fellow is creating enriching lesson plans for Greek and American curricula. In this way, Corinth Excavations can reach learners locally and globally to tell stories about the past. The lesson plans are designed to fit American learning standards for the sixth grade, when students spend one year learning about the entire Eastern Hemisphere; however, suggestions for educators are provided in the lessons for adaptations for younger or older learners.

The lesson plans are based on objects from Corinth Excavations representing periods from antiquity to the present. Themes include water management, healing practices, mysterious rituals, analyzing evidence from the Classical period, cultural achievements of the Roman Empire, pottery designs and styles of the Byzantine Empire, the development of Christianity, interpreting Frankish skeletal material, and taking a digital field trip.

The purpose of the outreach effort is twofold: to create communication between archaeologists and historians who produce new and exciting results with the general public; and to inspire outside audiences to continue to learn about the legacy of Ancient Greece, Roman and Medieval culture. There have been successes and failures in the process of creating educational outreach as it is something new, innovative, and unparalleled for an excavation in Greece. But the successes have shown the power of objects; they tell stories, they inspire curiosity, and they extend learning beyond the classroom and into museum and archaeological site.

Corinth Excavations is offering educators something they literally cannot get anywhere else: access to hundreds of thousands of images, videos, notebooks, drawings, plans, maps, artifacts, publications — that tell the story of our collective past.

In order to highlight over a century of research, the uniting message of our educational enrichment efforts is that Corinth was and continues to be a crossroads of cultural, religious, and economic activities for thousands of years. Outreach in Ancient Corinth aims to communicate these interactions among peoples through time and share the legacy of Ancient Greek, Roman and Medieval culture with future generations. In the mean time, it is a project that is changing the role of archaeological excavations and museums.

Moesgaard Museum - considerations on an upcoming exhibition

Author - Dr. Linnea, Jette, Moesgaard Museum, Odder, Denmark (Presenting author) Keywords: Display, Exhibition, Medieval Presentation Preference - Oral

Moesgaard Museum is the among the largest and is certainly the newest archaeological and etnographical museum in Denmark. Our new exhibition hall, that opened in 2014, is the frame of permanent exhibitions of primarily Danish archaeology, while temporary special exhibitions highlights international research, lately in an exhibition featuring China’s first emperor Qin Shi Huang and his terracotta warriors as well as the Forbidden City. Designed by Henning Larsen Architects, the exhibitions hall has won several international rewards, lately the architizer A+ award AA.

Currently the permanent exhibitions centered on the Bronze Age, Iron Age and Viking Age is open, while the permanent exhibitions of the Stone Age and the Middle Age is under preparation. The aim of this paper is to present a curators view on how we plan our upcoming addition to the permanent exhibition, this time centered around the medieval period. The paper will focus on the interaction between hall and display, including reflections on scale and purpose, process and selection of topic and modes of display as a way of engaging both the community and our international visitors.

Object-based (Distance) Learning: Local and Global Educational Enrichment from Corinth Excavations

Author - Petrole, Katherine, American School of Classical Studies at Athens, Ancient Corinth, Greece (Presenting author) Keywords: community engagement, museum, outreach Presentation Preference - Oral

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 Epidaurian healing inscriptions.

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The Govan Stones: Urban Renewal and Early Medieval Sculpture

Author - Mag. art Paulsen, Charlotte Aabigdaard, Museum Skanderborg, Skanderborg, Denmark (Presenting author) Keywords: Community, Hands-on, Interaction Presentation Preference - Oral

How do you communicate the work of an underground Cold War Command Centre? During The Cold War Civil Defense Forces in Denmark had placed a number of Command Centre’s throughout the country to be prepared. The local community had monthly drills, training for the worst case scenario. Command Centre Skanderborg was placed in a bunker build by the German Luftwaffe during WW2 as part of their headquarters in Skanderborg. The bunker was rebuilt in 1963 and in function until 1993. The Cold War was a time of great fear throughout the world. For today’s young people, that can be a bit hard to imagine and understand.

In the process of deciding how to communicate the bunker and it’s function Museum Skanderborg teamed up with the local high school. Through discussion panels and an innovation project that involved a gamification scientist as well as the museum curators, the work with the students led to the development of an educational roleplay in the Command Centre together with professional roleplay instructors and teachers. The aim of the roleplay is to make the youngsters feel a bit of the panic for the Big Bomb. Several classes have already tested the game. This paper will put forward the concept as an inspiration for others and seek to evaluate on the weaknesses and strengths in the project so far.

“Know thyself!” or visitor experiences in open-air museums (case study of Belarus and Lithuania)

Author - Charapan, Nadzeya, Vilnius University, Vilnius, Lithuania (Presenting author) Keywords: communication, open-air museums, visitor experiences Presentation Preference - Oral

Archeological open-air museums generate participatory multi-dimensional environment, atmosphere of illusionary past and immersive folk culture. The special design and variety of interpretation methods enable visitors to dive in history and experience cultural diversity by means of tangible and intangible heritage, dialogue and celebration; to rediscover their national and cultural identity or, in other words, get to “know thyself”, as Skansen’s motto states. The paper will analyze the augmented space and dynamic communication of open-air museums as the complex environment for creating memorable and meaningful visitor experiences. The geographical scope of the research will include the open-air museums in Belarus and Lithuania.

The Govan Stones: Urban Renewal and Early Medieval Sculpture

Author - Prof. Driscoll, Stephen, University of Glasgow, Glasgow, United Kingdom (Presenting author) Keywords: Church, Community, Sculpture, Telling Stories Presentation Preference - Oral

On the south bank of the River Clyde stands the church of St Constantine, a place of worship for approximately 1500 years. It is the oldest church in Glasgow and one of the oldest in Scotland. In archaeological terms it is most remarkable for a large collection of sculpture, dating from the 10th and 11th centuries, when Govan was the seat of the kings of Strathclyde. Subsequently during the Industrial era, Govan became famous for ship building and at the end of the 19th century was the leading centre for marine engineering in the world. Although Govan has enjoyed two periods of greatess, for nearly a century it has experienced a protracted economic decline and accompanying social disintegration.

The oldest church in church attendance and associated social activities. Formerly the church provided a community focus that extended far beyond the Sunday service. As a consequence of this decline Govan Old Church is no longer the main parish church and has recently been taken over by a charitable trust. The main aim of the trust is to use the historical and archaeological assets of the church as a tool to promote urban regeneration. This paper will discuss the steps already taken to utilise Govan’s historical resources (http://www.thegovanstones.org.uk/) and the plans for building a cultural centre which will provide a new social hub for the community. Special emphasis will be placed on the constructive role of archaeology in stimulating community interests and responding to government agendas of sustainability and economic growth.
TH2-03 Abstract 07

Future Perspectives of Greek Archaeological Museums. The Archaeological Museum of Olympia

Author - PhD Vigli, Maria, Tel of Western Greece, Athens, Greece (Presenting author)
Co-author(s) - Koutras, Aiasias, Tel of Western Greece, Pyrgos, Greece
Keywords: Archaeological Museum of Olympia, Greece, future perspectives, museological practices
Presentation Preference - Oral

The Greek archaeological museums of the 19th century, as well as their European counterparts are related to the development of the national states, constituting one of the key institutions as places where the nation could "weave" its history and cultivate the archetypal body. In the 20th century, the archaeological museum in the last decades of the 19th and early 20th century becomes public, by giving the possibility of access to others than the managers and collectors. Thus, the current museum concept is defined as a creation of modernism as this was shaped during the Renaissance and survives until, approximately, the mid-20th century. On the other hand, along with trying to establish through collections and exhibitions an empirically documented truth, the museum seeks to elevate the past to an introduction of the present and the future. This intention is characterized by a holistic approach that will not examine the archaeological museum individually as a tool of the upper class, or an educational mechanism, a storage of precious artifacts, a space of national pride and individuality, a field of developing a specific professional and scientific activity, exhibiting technique or local developmental 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 universal 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.

TH2-03 Abstract 08

Open up again: a local museum by the lake and the strategies to connect it back to its community

Author - Dr. Catia, Elisa, Museo Civico Ercolano Romano di Trevignano Romano, Trevignano Romano, Italy (Presenting author)
Keywords: Community, Diversity, Local Museum
Presentation Preference - Oral

More than others, local museums are deeply connected both to their territories and their communities: their role in education and the high potential in reflecting and influencing cultural practices is a well known issue, offering guidelines for any strategy aiming at turning any museum into an example or a good practice. It has been recently said that Museums should be "involved not simply in presenting or preserving but opening up a space for dialogue – about art, about culture, about humanity" (T. Golden 2016). In other words, the challenge seems to be one related to the creation of a new asset, mainly balanced on the social and educational role of these institutions.

For those archaeological Italian museums traditionally created and intended as defences of their collections, the need of a Copernican revolution, the shift from a point of view mainly focused on the multiple ways of fruition, rather than those of mere protection, seems to be the only successful guideline today. If, on one hand, this seems to be the main issue of recent Cultural Heritage (at least, from an institutional level), on the other hand the pattern seems to be less consistent at a regional and local level, where different political, economic and cultural strategies create a multifaceted and changeable reality. Is it possible to turn this element of weakness into a strength, considering differences as the chance for plural narrations?

The management of the Ercolano and Roman Museum of Trevignano Romano, located by the touristic shore of the Bracciano lake, North of Rome, recently changed its strategic assets in the name of diversity and inclusion. That is challenge for a local museum that just a few years ago had been defined as a "silent" institution, not in contact with its people and its territory. It is possible to underline the evidence, turning it into one of the voices of its community, and at the same time into a bridge, the trigger for a wider inclusive and equal process to access the local archaeological heritage? Trevignano Romano has 10% of its population made of Eastern Europe citizens, and is the birthplace of the Abbott Tommaso Silvestri, the founder in the late 19th century of the first Italian school for the deaf: inclusion and accessibility seem to be the natural keywords of its mission. The paper aims at presenting and analysing the needs, the goals, the risks, the achievements and the failures of the renovation project of a local museum with the ambition of playing an active role at both social and identitarian level, intending the process of audience engagement not just as a mere economic tool.

TH2-03 Abstract 09

Curing the Vilnius Museum of Antiquities

Author - PhD student Pica, Valeria, University of Malta, Roma, Italy (Presenting author)
Keywords: Cultural Identity, Cultural Policy, Etruscan Pottery
Presentation Preference - Oral

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 krater 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 VI-IV BC the population was around 35,000 people. The city is pretty well known thanks to the number of Etruscan necropolises 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 necropolises and then quite easily sold on the international art market: what actually happened to the Euphronios krater, purchased by the Metropolitan Museum of Art for the substantial price of one million dollars in 1971 after adventurist 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 returned back to their original sites. Among them the Euphronios krater and another piece made 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 Euphronios 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 kylx and the krater in Cerveteri is the result of collaboration between the City of Cerveteri, the Southern Lazio and Etruscan Archaeology Superintendent and the Lazio Region. On the tenth anniversary of the UNESCO recognition of the Etruscan necropolises of Banditaccia (2010), 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 Superintendent accepted the request of the City of exposing the kylx 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.
Managing the archaeological heritage

In 2013 "Dagors 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 2070, Ljusnarsberg and Strömstad will be the first in line for the precipice, if the population continues to decline at the same rate as now." Imagine being a citizen in Kopparberg, the small town in the municipality of Ljusnarsberg, and waking up to that announcement! Well, you probably wasn’t surprised, but still. My municipality has a sentence, a death sentence and a given date when it’s all good by, time to pack the things and leave.

Several of the inhabitants in Kopparberg wasn’t asked at all when national media called out the message. And the inhabitants in the other small municipalities in the former so 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, amateur 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 ferryman 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.

Community archaeology as empowerment for a struggling society

Author - Grahn Danielson, Benjamin, Picaa kulturav, Fors, Sweden (Presenting author)
Keywords: Community archaeology, Empowerment, Heritage as heritage
Presentation Preference - Oral

Archaeological research most often includes the influx of experts into a new community where research is conducted, inevitably leading to new relations. In 2014 and 2015, a similar situation occurred in Croatian Baranja, where archaeologists worked on the future A5 motorway, discovering new and reviving old data on the region's cultural heritage.

The region under study has been under tremendous amounts of financial, political, and social stress, especially in the last 20-30 years due to its position next to two Croatian borders and its role in the Croatian War on Independence. Depopulation 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 ones who strive to produce it.

From an archaeological point of view, Baranja is an extremely rich and valuable region. However, as with all other aspects of society, certain well-known and systematically excavated sites always cast a shadow on the smaller ones which rarely get a chance to be properly excavated and/or presented to the public.

The aim of this contribution is to show how all of this can be changed by applying the 'where there's a will, there's a way' approach in a situation where the local community never saw culture as something important and potentially lucrative, but financially and socially.

TH2-03 Abstract 12
JASA – the road from ‘irrelevant luxury’ to ‘archaeological jewel’

Author - Balen, Jacqueline, Archaeological museum in Zagreb, Zagreb, Croatia (Presenting author)
Co-author(s) - Bonac, Josip, Archaeological museum in Zagreb, Croatia
Co-author(s) - Bukul, Ana, Zagreb, Croatia
Co-author(s) - Majerić, Marin, Zagreb, Croatia
Keywords: Depopulation and the Historic Environment
Presentation Preference - Oral

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The project "JASA" 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 their 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 stakeholders, 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.

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 county 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 quoted by academics 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 between partners 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 issues). This project 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
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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

Museum's permanent exhibition. Many of these finds have a significant scientific value and have after recovery been both studied

when a series of projects were launched in order to engage the public in learning more about cultural heritage. During 2012-2015

frustration on both sides.

responsibly. However, it's clear that the legislation is out of date. The law and regulations are also difficult to interpret, creating

they want to redeem the find to their collections or not.

or a Provincial Museum. The finder must also provide information regarding the location of the find. The NBA can then decide if

the Antiquities Act (1963). The Antiquities Act protects ancient monuments, including a protected area around monuments of 2

In Finland, the use of a metal detector is usually allowed without a separate permit, even though it is regulated by such laws as

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 reigning 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.

The presentation deals with metal detecting against the Finnish legal background, the questions of heritage management and

the impact of their communication within the profession as well as the wider public.

amount of research being undertaken by the voluntary sector, an assessment of its research potential and benefit for inclusion

into our research resources and a direction for promoting the active participation and involvement of community groups in the

development of professional research resources.

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

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.

At the Espoo City Museum the growing interest in archaeology and metal detecting was understood in the beginning of 2012

when a series of projects were launched in order to engage the public in learning more about cultural heritage. During 2012-2015

metal detectorists recovered a range of finds from the Iron Age and the medieval period and some of them are displayed in the

Museum’s permanent exhibition. Many of these finds have a significant scientific value and have after recovery been both studied

and published.

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 - Niikoski, Marianne, National Board of Antiquities, Helsinki, Finland (Presenting author)

Co-author(s) - Kultamaa, 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 - Linievich, Siarhei, Institute of history NAS Belarus, Minsk, Belarus, Republic of (Presenting author)

Keywords: archaeological collections, museum, stone shaft-hole axes

Presentation Preference - Oral

The role of non-professional involvement in the development of archeology and the importance of public participation in the

creation of the data base for archaeological researches will be considered by the example of such category of archaeological

finds as a stone shaft-hole axes. The study is based on the history of creation collections and researching of stone shaft-hole axes

at the territory of Belarus.

The first collections of the stone drilled artifacts in Belarus dates back to the middle of the 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 clan. The

main way of replenishment of these collections was redaction or confiscation.

Another relationships with stone shaft-hole axes formed in the rural environment. Peasants have seen their pragmatic and

magic sense in this category of artifacts. Since the XVIII-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.

After the WW2 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.
Managing the archaeological heritage

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 advent of this activity in South Lanarkshire. Hugh McFadzean (1919-2008) commenced fieldwalking in the Avondale District, which continued unabated until 1981. His work as an avocational archaeologist also involved fieldwalking forays in East Ayrshire, Isle of Bute, Fife, Stirlingshire and Wigtownshire. Hugh’s fieldwork in these other locations continued until the 1990s. As a case study, this paper will look at his motivations to undertake avocational archaeology in Avondale, and consider his contribution to the archaeological record. It will also critically reflect upon personal curation and his research into the lithic surface collections, and the contradiction to the legal position in Scotland under Treasure Trove and the concept of bona vacantia. Finally, drawing upon my own research the importance of the surface collections of lithic material to academic enquiry will be highlighted.

TH2-04 Abstract 08
Social Network vk.com and Archaeology: Sight from the East Europe

Author: Tiaach, Evgenia, 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 widely spread in Eastern Europe. There are a lot of communities and events, which present their information and materials in 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 non-professional language. These information could help to understand better archaeological work to the non-professionals and to involve more people in science. In my poster I want to present some examples of these communities.

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: Round table

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 therefore 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, focusing on one country, will stimulate discussion of how the Directive is being implemented across Europe, and of what improvements might be sought in the future.
TH2-06 Abstract 03
Environmental Impact Assessment and Heritage Impact Assessment: improving the relationship

Author - Dr. Young, Christopher, Christopher Young Heritage Consultancy, Bicester, United Kingdom (Presenting author)

Keywords: cooperation, Environmental Impact Assessment, Heritage Impact Assessment

Presentation Preference - Oral

In values-based approaches to heritage management, some form of assessment of significance of the heritage asset, and of the impact on that significance of any proposals for development or change is essential. If it is not understood why something is important, it is not possible to judge what will harm it or enhance it, and to take appropriate decisions to protect heritage or mitigate damage. Environmental Impact Assessment (EIA) is one methodology for doing this and one that is mandatory for some types of development within the EU. Its scope includes heritage alongside other environmental aspects and many other things. The extent to which this works for heritage in various parts of Europe is sometimes debated and there are concerns that inclusion of heritage within a wider assessment system does not do 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 now ask for assessments of impact on heritage for many cases which will never require EIA. They can recommend use of existing HIA guidelines or request simpler heritage statements.

The de facto existence of two parallel systems which can apply to the same site can be counterproductive to good decision-taking as well as wasteful of resources. There is currently considerable research interest in Europe on the use and effectiveness of HIA. One clear avenue for research is the interaction between HIA and EIA and at how lessons from HIA might improve the effectiveness of EIA in assessing and giving due weight to impacts on the heritage. Any proposal to improve treatment of archaeology in EIA needs also to look more widely at developing a more holistic approach to heritage as a whole. Working with existing initiatives on HIA could be a fruitful way to proceed.

TH2-06 Abstract 04
Assessing the Impact: Spatial Planning, Cultural Heritage and EIA in England

Author - Victoria, Donnelly, University of Oxford, Oxford, United Kingdom (Presenting author)

Keywords: EIA, Environmental Impact Directive, Spatial Planning

Presentation Preference - Oral

Our understanding of English cultural heritage is significantly influenced by the Environmental Impact Directive and EIA requirements; for example, the undertaking of archaeological fieldwork and the spatial distribution of the resultant archaeological record is strongly determined by projects which are subject to EIA. This can be illustrated through the comparative examination of data held within Historic England’s Excavation Index, the Archaeological Investigations Project dataset and the Grey Literature Library held by the Archaeology Data Service in York.

Interestingly, EIA regulations also frame archaeological investigative work that is not undertaken under the direct influence of the Environmental Impact Directive, such as cultural heritage investigation and archaeological fieldwork undertaken within the context of a DCO application or a Hybrid Bill. Although these types of planning applications and regulations fall outside of the Environmental Impact Directive, 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 DCO application or Hybrid Bill, this paper intends to explore the influence of EIA requirements on spatial planning and cultural heritage in England and how they shape our understanding of the English archaeological record.

TH2-06 Abstract 05
Preventive archaeological excavations & motorway construction projects in Romania

Author - PhD 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 & Culturalhistorie, 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 EAA 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.

TH2-06 Abstract 07

Co-author(s) - Dr. Hey, Gill, Oxford Archaeology, Oxford, United Kingdom (Presenting author)

Presentation Preference - Oral

Concluding remarks on the environmental impact assessment process of the Pan-European roads 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.

TH2-06 Abstract 08

Co-author(s) - Dr. Hey, Gill, Oxford Archaeology, Oxford, United Kingdom (Presenting author)

Presentation Preference - Oral

Concluding remarks on the environmental impact assessment process of the Pan-European roads 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.

TH2-06 Abstract 09

Co-author(s) - Dr. Hey, Gill, Oxford Archaeology, Oxford, United Kingdom (Presenting author)

Presentation Preference - Oral

Concluding remarks on the environmental impact assessment process of the Pan-European roads 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

TH2-07 Abstract 01
Introduction. From rescue to preventive archaeology: 25 years of difficult journeys

Author - Prof. Novaković, Predrag, University of Ljubljana, Faculty of Arts, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Horštej, Milan, VLA MAGNA Ltd., Vršk-ci, Slovakia

Presentation Preference – Oral

Until 1990s and the abolishment of socialist-communist regimes in ‘eastern’ European countries, archaeological service (institutions and practice) in protection of cultural heritage was fully in the hands of state bodies which had to plan funds in their state budgets – Oral

Due to the previously uncompetitive economies and outdated technological infrastructure, a great deal of former ‘eastern’ countries still remained largely underdeveloped. Compared to the average of the EU 15 in 1990 and 2014, only a few CE countries improved their GDPs from 40% to 60%, while others (Balkan countries, countries which stemmed from the former USSR) did not reduce the relative distance at all, their GDP on average remained less than 15%. This should not be ignored when reflecting on the preventive archaeology in the countries in question. Prior to 1990s all heritage services were the domain of public/state institutions and the overall disciplinary structure and practice was greatly dominated by the academic institutions with institutes at national academies at the top (the Soviet-based model). In most cases this structure has survived until the present day, and is still exercising influence (formal and informal) on preventive archaeology. One of the consequences is the view that preventive archaeology to a certain degree still needs to serve academic agendas (and institutes). On the other hand, in some countries, though they kept to the Soviet-based model of national institutes, preventive archaeology achieved a much greater level of autonomy, with its own priorities and new practices and forms of organization, and some countries made even more radical changes. While, in general, all former ‘eastern’ countries ratified the La Valetta convention, the status and practice of preventive archaeology varies so greatly that it can hardly be observed through a single theoretical framework. The session is aimed at exploring that reflecting the conceptual trajectories and practices developed in preventive archaeology the last 25 years. Papers presenting major changes in legislation, economic status of preventive archaeology, changes in its social role, labour markets, levels of technology and expertise, and about the profession of archaeology in general, are invited.

TH2-07 Abstract 02
Archaeo-heritage management in the heart of Europe. Legislation and institutional basis in Slovakia

Author - Dr. Michalík, Tomas, Cultural Heritage Consulting Ltd. / Slovak Association of Archaeologists, Trnecín, Slovakia (Presenting author)

Keywords: archaeological heritage, law, Slovakia

Presentation Preference - Oral

There is no doubt that Slovak republic belongs to examples of dynamic legal, economic and social changes since the Velvet Revolution in 1989, which were reflected also in the archaeology and archaeological heritage management. Formerly fully governed, managed and covered by the state, this field became much more heterogeneous during last decades. Although necessary changes were needed and therefore expected, their quickness caused a lot of important consequences. From the point of view of legislation, all important laws were adopted after 2000, although there were previous laws, of course. First of all, adopting of new Monuments and Historic Sites Act N: 49/2002 Coll. is definitely the most relevant change. Under this act, major responsibility for the archaeology was transferred from Archaeological Institute of Slovak Academy of Sciences (which is in fact scientific body, without decisive competences) to state administration. Monuments Board of the Slovak Republic was established, with its 6 regional branches, which are most relevant actors in the archaeological heritage management, due to their strong position and deep and detailed competences. Regional Monuments Boards are the first-contact institutions not only for field archaeologists, but also for landowners, developers or other persons conducting activities with a potential to influence archaeological heritage. They decide on necessity of conducting of research, its conditions and time frame as well as on offences or other illegal activities. Monitoring and supervision bodies. This hierarchy of state administration is covered by the central state body for cultural heritage – the Ministry of Culture of the Slovak Republic, which has 2 important advisory bodies: Archaeological Council (where all sectors from Slovak archaeology are represented) and Licence Commission (preparing opinia for the Ministry in the field of research licence

The Monuments and Historic Sites Act also deals with archaeological cultural monuments, protection of archaeological sites in spatial decision-making process, individual finds and other relevant archaeological issues. Legal regime of archaeological finds in museums is regulated in Museum Act N: 206/2009 Coll. Malta Convention was ratified by the president of the Slovak Republic in 2000 and published in Collection of Laws in 2001.

In order to fight against treasure hunters and their illegal activities, a lot of legislative work was done since 2011, when amendment of Penal Code with its strict ban of unauthorized use of metal detectors came into force. On the other hand, institutional support for this legislation is still not satisfactory as it’s built mainly on individuals. However, there is a number of persons who were solved by the police.

TH2-07 Abstract 03
25 years of Preventive archaeology in the Czech Republic

Author - Mgr. Kucharcík, Milan, Lábry o.p.s., Praha 9, Czech Republic (Presenting author)
Co-author(s) - Sinyk, Raděj, ZIP o.p.s., Praha, Czech Republic

Keywords: Czech Republic; Preventive archaeology, private sector

Presentation Preference - Oral

The situation in the Czech Republic is characterized by the beginning of the economic crisis in year 2008 boom in the number and financial volume of archaeological researches and the development of private companies in the archaeology. In the years 2008 – 2015 passes through the whole archaeology crisis, which is characterized by strengthening the presence of the central institutions, especially the Czech Academy of Sciences (CAS), based on Soviet-type research organizations. Development of the private sector in archaeology is limited by the knowledge and outdated legislative framework. The last law regulating the archaeology is from year 1987. This law has been amended several times. The law does not give sufficient legal framework for preventive archaeology and in practice frequently updated customary legal principles. It is too try to interpret the present framework as a system of dual authorization, which represents one step the Ministry of Culture and a kind of second stage authorization with the CAS. It is part of the CAS effort to actively exercise control of the territorial jurisdiction of archaeological organizations and their burden is disproportionate control ambitions. Yet completely lacking standardization of archaeological activity and standard of archaeological research.

Maltese convention is in the Czech Republic interpreted by the authorities as a binding international treaty and by archaeologists as support for strictly archaeological preservation. Typical is the small proportion of archaeologists on the
TH2-07 Abstract 04

Archaeological Heritage in Lithuania after 1990s: Defining, Protecting, Interpreting

Author: Dr. Poškūnienė, Justina, Vilnius University, Faculty of History, Vilnius, Lithuania (Presenting author)

Keywords: archaeological heritage, assessment, protection

Presentation Preference: Oral

Legislative decisions facilitated notable changes in the field of cultural and archaeological heritage protection in Lithuania after 1990s. National legislation was essentially modified twice: in 1995 and in 2005. Significant changes can be observed in the field of defining (accounting, assessment and listing), protecting (regulations on excavations' procedures or "protection through documentation", preservation of archaeological remains in situ), as well as interpreting (by state bodies and public) of the archaeological heritage.

There are approx. 3000 archaeological heritage objects listed in the state Register of Cultural Property. The procedure of listing has been changed several times after 1990s. Since 2005, a heritage object is listed in the state Register of Cultural Property after an assessment council decides that a property is in the need of legal protection. The significance, the valuable properties of objects or sites of cultural heritage are assessed, and the boundaries of territories are defined by the immovable cultural heritage assessment councils as well. The specialized assessment council for archaeological heritage was established in 2012. State administrative and technical resources were concentrated mainly on preparation of new documentation type for already listed heritage objects, and thus led to a certain stagnation of inventorying of new archaeological objects. Nevertheless, data exchange between the state Register of Cultural Property and the Real Estate Register should be mentioned as an important achievement in management of 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 needs to be developed.

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TH2-07 Abstract 05

Implementation of La Valette convention: the Croatian perspective

Author: - Petricevic, Milos, Center for Conservation and Archaeology of Montenegro, Kotor, Montenegro (Presenting author)

Keywords: Cultural Heritage Protection, Montenegro, Preventive Archaeology

Presentation Preference: Oral

European Convention on the Protection of the Archaeological Heritage, released by the Council of Europe in 1992, had a significant influence on the practice of development-led archaeology in Croatia. Ratification of the Convention in 2004 and its implementation in legislation brought drastic changes by which archaeology became a part of planning in the area 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 prerequisite for the preservation of cultural heritage, and, rather than through salvage archaeological excavations, acts through active participation in the early stages of planning procedures. This process requires a developed set of tools which enables informed decision-making on the treatment of archaeological remains. As a part of the same process, concept of care and protection of archaeological monuments is being replaced with an approach directed towards the management of 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 archaeological 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, and also the ones which are currently preventing Croatian archaeology in changing attitude towards sustainable heritage management.
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 ‘nationalized’ organization. Unfortunately, this had a rather negative impact on the development of archaeology, especially its service in the field of preventive strategies, which were never properly reflected and attempted in archaeological circles since they were established ‘from above’. It is still common practice, that most of the largest projects in spatial development (e.g. highway constructions) almost completely evade 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:** Hadžihasanović, Jesenko, Faculty of Philosophy of University of Sarajevo, Sarajevo, Bosnia-Herzegovina (Presenting author)

**Co-authors:** 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 (1998) 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 BiH district. Entity of Federation of BH is further divided in 10 cantons, of which 5 have cantonal institutions responsible for protection of heritage, while the other 5 have these responsibilities entrusted to the cantonal ministries. Because of disharmonized laws on state, entity and cantonal levels, there are possibilities for overlap of jurisdictions during protection of certain monuments, and potential for mismanagement. Entity of Republika Srpska is divided on municipalities, and has a centralized institution responsible for heritage protection.

- General economic situation (BiH is among the lowest ranked countries in Europe regarding the GDP) preventing any substantial investment, employment in services in public sector (heritage services included). Most of museum institutions on local level have barely sufficient funding for basic operation.

- Inadequate (outdated) infrastructure: lack of trained people, equipment, unfinished institutional development.

- Political situation: Because of the political deadlock over financing of 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 funds necessary to function properly.

**TH2-07 Abstract 10**

**Practice of Archaeological Heritage Management in the Motorway Constructing Programme in Poland**

**Author:** Prof. Dr hab. Rospeci, 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 in 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 realisation 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, in which science was, as a matter of fact, the only criterion of evaluation. The mentioned change admirably 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 11**

**Motorways and archaeology. What does it means to be a contractual archaeologist in Romania?**

**Author:** Dr. Simion, Mihaela, Romanian National History Museum, Bucharest, Romania (Presenting author)

**Co-authors:** Văsilescu, Floriela, Vanderlley Arheo, Hunedoara, Romania

**Keywords:** Heritage Legislation, Preventive Archaeology, Romania Motorways

**Presentation Preference:** Oral

This paper aims to provide an overview of the current situation in Romania regarding infrastructure projects in front of constraints and obligations relating to heritage protection. In this moment, archaeological permits are also a source of frequent complaint among contractors in the road sector. The ‘in-principle agreement’ granted by the Ministry of Culture consists of a simple statement that the issuer is not opposing the project, subject to all relevant archaeological research procedures being undertaken as per the legal provisions in force.

The challenges with preventive archaeological projects stem from these sources: lack of clarity in the legislation itself; capacity constraints among project promoters; and institutional incentives related to the financing of such work.

These premises and a number of other factors, have made that, in the last years, in Romania, Preventive Archaeological Research to be seen as an obstacle to the implementation of infrastructure projects and not as an extraordinary opportunity to research and capitalization of the heritage, as it would have been normal.

At the same time, these premises generated a series possible abuses or unprofessional approach from all the actors involved, with important consequences on the perception of the concept of archaeological heritage, some examples being the object of the present paper.

**TH2-07 Abstract 12**

**Towards a new Horizon: development-led large scale excavation policy in Hungary post 1990’s**

**Author:** Czifra, Szabolcs, Hungarian National Museum, Budapest, Hungary (Presenting author)

**Co-authors:** Nagy, Ignác, Sztáhly, Hungarian National Museum, Budapest, Hungary

**Keywords:** large-scale excavations, management, methodology

**Presentation Preference:** Oral

In our presentation we will give a brief review of the changing national concept of large-scale excavations in Hungary during the last 25 years. Heritage services in Hungary have traditionally organized on a partly decentralized structure, in which the 19 county museums and the Budapest Museum acted independently within their territories. Other institutes, e.g., Hungarian National Museum, universities with archaeological department and the Archaeological Institute of the Hungarian Academy of Sciences, carried out centrally funded research projects excavations.

The upswing of motorway construction and private industrial developers challenged this system and forced Hungarian archaeology to apply new approaches, develop or adopt new methodologies and management for preventive excavations.

Although a uniform protocol for archaeological process was crystallized by the mid 2000s, the other relevant elements of largescale excavations’ management are still widely debated. We would like to concentrate on developments of the last half decade, during which period radical changes in legislation, in financial and in the institutional background have been taken by the Hungarian government.

We attempt to summarize the experience of the consequences of these turbulent central acts and outline the present status and practices of preventive archaeology in Hungary.
activity. It is therefore necessary to prepare the archaeological community for the transformation of its activity towards targeted scientific and research activities.

Our paper will show how the Slovak professional community responded to this status.

TH2-07 Abstract 14
The settlement of Krahıe:
From a chance find to an archaeological protected site
Author: MA Poč, Enina, Archaeological Service Agency, Tirana, Albania
Co-author(s): - Kleplej, Zguro, Archaeological Service Agency, Tirana, Albania, (Presenting author)
Co-author(s): - Mesini, Mariglen, Archaeological Service Agency, Tirana, Albania
Co-author(s): - Porja, Arjol, Archaeological Service Agency, Tirana, Albania
Co-author(s): - Zoto, Rudina, Archaeological Service Agency, Tirana, Albania
Co-author(s): - Gala Ilira, Archaeological Service Agency, Tirana, Albania
Keywords: Preventive archaeology
Presentation Preference - Poster

The archaeological Service Agency is the first and only public institution in Albania charged to exercises authority over the rescue and preventive archaeology. Its activity is supported and coordinated by the Albanian Legislation, with the law “On Cultural Heritage” (2003).

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 de facto archaeological site that requires protection as the prerequisites of the law article 17. 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 Krahıe is situated in the district of Tepelenë (Albania). Two graves were discovered occasionally during agricultural works by a farmer who informed the local authorities (Regional Division of National Culture, Gjirokastra).

The archaeological excavation results. The preliminary study of the archaeological material and method of construction, dates both graves around cent. 3 – 2 B.C. During the excavation process the team (ASA and RDNK Gjirokastr) 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 NCA 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 7 hectares divided in 12 tracks. Within it, 6 hectares yielded high intensity of data and was given the status of the protected zone.

The archaeological material found during the survey consists of fragments of tiles, pithoi, transportcontainers, utensils and pottery coated with bitumen. The relative chronology based on the above material indicates three periods of occupation for Krahıe: Hellenistic, Roman and Late Antiquity.

TH2-07 Abstract 15
CONPRA (Contributing 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.l., Vrutky, Slovakia
Co-author(s): - Tasić, Nenad, University of Belgrade, Belgrade, Serbia
Co-author(s): - Galu, Lukáš, 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 technologies 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.

TH2-07 Abstract 16
From 3D models to 2D documentation:
Implementation of 3D models in archaeological documentation
Author: Joncic, Nenad, Faculty of Philosophy – University of Belgrade, Belgrade, Serbia (Presenting author)
Keywords: 3D scanner, Archaeological documentation, Preventive archaeology
Presentation Preference - Poster

Despite the fact that the law has not been changed for years, the workload in preventive archaeology is constantly growing. More investment leads to a growing number of excavations, and consequently to the growing number of small finds to be documented. Motivated by the needs for fast and accurate documentation, we developed a new system for documenting finds from preventive archaeology excavations.

In comparison to the traditional way of documenting archaeological artifacts which is represented by technical drawing and photographing that require a certain skill and are time-consuming to a certain degree, we are using a new approach. We decided to use a 3D scanner, with system based on digital cameras and structured light. From the completed 3D models, we provided horizontal cross-sections (profile-lines) for documentation, as it would be done by manual drawing. The advantages of working with 3D models are high accuracy and speed, as for a 2D model and cross section. This process also provides photos of the artifacts.

Advantages of this way of documenting will be presented, as well as wide use of its results. Not only that the technical documentation from excavation can benefit, but also the presentation of artifacts.
MANAGEMENT OF ARCHAEOLOGICAL SITES IN TURKEY: PROSPECTS AND FUTURE

Friday, 2 September 2016, 14:00-16:00
Faculty of History, Room 217

Author - Boussaque-Khan, Didier, METU/Odtu Yerlesim Arkeolojisi Anabilim Dalı, University College London, London, London, Unfod Kingdom (Presenting author)
Co-author(s) - Prof. Erçiyaset, Deniz Burcu, METU/Odtu Yerlesim Arkeolojisi Anabilim Dalı, Ankara, Turkey

Presentation Preference - Regular session

Which sites to manage and why managing them? • How to manage an archaeological site and what to manage? • Community involvement and public archaeology in Turkey • Participatory management • Impact assessment of archaeological projects • Rural development • Local/regional development.

In this session it is proposed to ask participants to consider the shortcomings in the management of archaeological sites by archaeologists involved in Turkish archaeology: we hope to argue for a greater need for structured organisation and involvement in the management process. The session envisage to place a special focus on archaeologists and 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, Aspendos, Nemrut Dağı 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

Archeology for Management: New Cycle of Archaeological Research at Ani

Author - Asst. Prof. Dr. Aktüre, Zeynep, Izmir Institute of Technology, Izmir, Turkey (Presenting author)
Co-author(s) - Bayram, Fahriye, Pamukkale University, Denizli, Turkey

Keywords: Ani, archaeological research, site management

Presentation Preference - Oral

Among numerous archaeological research projects in Anatolia since the nineteenth century by foreign institutions, the one at Ani is exceptional in having started under the auspices of the Russian Imperial Academy of Sciences when northeast Anatolia was under control of the Russian Empire in 1878-1918. Excavations by an international team resulted in careful documentation of numerous well-preserved churches that provide unparalleled evidence of an “Arni 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 period of the site 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 lakes. Devast 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 organisations that provided expert and funding support. Urgent 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 acquire during their professional education and career, involving active collaboration with international bodies such as the Armenian institutions in Yerevan, international NGOs and researchers who have contributed in the on-going urgency interventions, local and central administrations as well as local communities.

The proposed paper aims to offer a working ground to exchange of experience on these and complementary topics around the case of Ani.

TH2-09 Abstract 02

Elaiussa Sebaste: safeguarding & valorization of a south-eastern Anatolia archaeological site

Author - Prof. Equini, Eugenia, Sapienza Università di Roma, Rome, Italy (Presenting author)

Keywords: Elaiussa Sebaste, safeguarding, valorization

Presentation Preference - Oral

During the archaeological research that has been carried on a sustained basis since 1996 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 a 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 waste 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 Koryokes (modern Kızılağaç) was started during the 2015 campaign with bush clearing and careful cleaning carried out by the Mersin and Erdemli Belediyeler. The results that have been obtained so far are very promising for the pursuing of the program to extend the visitor’s itineraries and valorization.

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 overlooking 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

Author - Dr. Balosio Restelli, Francesco, Sapienza University of Rome, Rome, Italy (Presenting author)
Co-author(s) - Frangiappe, Marcella, Sapienza University of Rome, Rome, Italy

Keywords: conservation, site management, Turkey

Presentation Preference - Oral

The archaeological mound of Arslantepe, in the outskirts of the city of Malatya, has been included in the UNESCO tentative list of world heritage sites in April 2014. The site is under regular archaeological excavation since 1961 and has yielded unprecedented cultural heritage and economic growth.

The latest campaign of the 2015 has included two main goals: the first one is to work intensively towards the conservation, the monumentality and the richness of the funerary buildings.

The second one was the realization of a new visitor’s centre, to be realized in collaboration with the Local and Regional Administrations and located on a hill overlooking 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 04

Managing the archaeological heritage
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 driving forces behind these initiatives? Is it the interests of a specific director or a team member? Or is it triggered by the local authority or a funding body? Or perhaps a new national discourse? The Ministry of Culture and Tourism’s recent requirements that all archaeological excavations increase their conservation measures, and that their quest to have more sites inscribed to the World Heritage List, have certainly had influence. Another issue is the significant differences in the way conservation is viewed and practiced in sites across Turkey. While some concentrate on building conservation and site presentation, others may go beyond and look for ways to engage local communities in conservation processes. This paper will discuss the changing approaches and practices in the conservation and management of archaeological sites in Turkey by focusing on inter-disciplinarity, collaboration and participation in archaeological conservation through past and current foreign-run projects at several sites across the country including Apollodrasis, Çatalhöyük, 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)

Co-author(s) - Kerouanton, Isabelle, INRAP, Poitiers, France

Co-author(s) - Prilaux, Gilles, INRAP, Amiens, France

Co-author(s) - Talon, Marc, INRAP, Amiens, France

Keywords: Major Development Projects, Preventive Archaeology, Public/Commercial Archaeology

Presentation Preference - Oral

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 specificities 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.
Who pays? The developer or the owner?
A fundamental and unforeseen change in Malta archaeology

Author - Varnoerkerke, Jan, Ministry of culture, Chalons-en-Champagne, France (Presenting author)
Keywords: developer, financing, owner
Presentation Preference - Oral

Since 1990, most European countries have introduced the so-called ‘polluter pays’ principle in preventive archaeology. According to the Valetta (Malta) convention, the financing of the archaeology should be integrated in the (big) public and private works and in practice, developers are funding all, or most, of the archaeology.

However, recent evolutions are completely undermining one of the basic principles of the Valetta convention. As big public and private works are getting rare in North-Western Europe, preventive archaeology is more and more about small and medium projects. Developers, and their banks which are providing money for the projects, negotiate contracts with the owners, stipulating that the presence of archaeological sites modifies these contracts. In France, these types of contracts are now very common. They indicate that the costs of excavation should be deducted from the cost of the plot of land.

In this way, the polluter pays principle is in fact replaced by the so-called ‘owner pays’ principle. This is not just a theoretical change but has important consequences. One of these concerns urban areas where excavations are getting rarer as the cost of land is less than the price of excavations. More generally, excavations tend to concentrate where the land cost is the highest.

Excavating England: Development and developments in archaeological fieldwork since 1990

Author - Victoria Donnelly, University of Oxford, Oxford, United Kingdom (Presenting author)
Keywords: big data, development-led archaeology, modern fieldwork practice
Presentation Preference - Oral

Excavating England: Development and developments in archaeological fieldwork since 1990 Archaeological fieldwork in England has changed significantly since the introduction of Planning Policy Guidance (PPG) 16: Archaeology and Planning which introduced the principles of the Valetta Convention into the English planning system. There has been an explosion of data, much of it produced as part of development-led archaeology which initially overwhelmed the traditional systems of analyzing 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 Domesday Survey. The project dataset 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 constructed ‘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.
This paper assesses current issues related to the implementation of large-scale archaeological excavations, emphasizing in particular the importance of research non-rescue excavations in progressing archaeological research. In the European archaeological perspective, these issues are complex and the problem will therefore be discussed within the context of the Czech archaeological discourse concerning the earlier prehistory. Two types of large-scale excavations will be compared: 1. Non-rescue excavation of the Neolithic site at Bylny, which started in the late 1950s and lasted nearly fifty years; 2. Rescue excavations of the Košín city road bypass which was carried out in 2008. Results of both types of excavations will be presented exemplifying changes in archaeological research management.

**TH2-10 Abstract 07**

**Modern technologies in Polish Archaeology – A Case Study of Central Masovia 2009 – 2014**

**Author** - MA Wińiewski, Mariusz, Wojewódzki Urząd Ochrony Zabytków w Warszawie, Warszawa, Poland

**Co-author(s)** - Olech-Stig, Agnieszka, Institute of Archaeology, University of Warsaw, Warsaw, Poland (Presenting author)

**Keywords:** LiDAR, Photogrammetry, technology

**Presentation Preference** - Oral

The aim of this paper is to enrich academic discussion about broadly understood "modern" or "new" technologies in Archaeology by assigning actual facts and statistical information to various claims and propositions circulating in Academia. Further, to inform exactly how many research of what kind took place in the 2009-2014 period and in each year of this period, which method is most popular, and if there are any general tendencies to be noticed in usage of particular methods. Authors use as a base for this case study a certain area of nine counties in central Masovia region (Poland), which is moderately enriched by objects of archaeological importance, yet where a consistently high number of private and public institutions 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 Warszawa, and are carried out both by local archaeological teams and units from other parts of the country. A common factor is almost exclusively commercial character of work, also an important background is created by the EU funds inspired boom in infrastructural investments, that will most likely be the largest event of such scale for many years to come. Data presented here is collected from all field reports and documentation collected on a basis of art. 31.3 of Polish Monument Care and Protection Act by Masovian Voivodship Heritage Officer Office for the period of 6 years (2009 - 2014). Article does not aim to discuss quality of such work or validity of chosen methods for the projects they have been used in – this is a matter for another study. Neither is it the authors aim to qualify, which method is more suitable for future use in the field archaeology in this region. This report should be treated as factual base for future discussion and an attempt to present the condition of Polish Archaeology in its certain aspect.

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**TH2-10 Abstract 08**

**Rescue Archaeology in Romania. Past and perspectives**

**Author** - Magureanu, Andrei Mircea, Institute of Archaeology Vasile Parvan, Bucharest, Romania (Presenting author)

**Co-author(s)** - Dr. Magureanu, Despina, Institute of Archaeology Vasile Parvan, Bucharest, Romania

**Keywords:** academic research, cultural management, rescue archaeology

**Presentation Preference** - Oral

1989 represented a turning point for Romania not only from political point of view, but from cultural management also. Romania, willing to be integrated into the European structures, adopted a brand new strategy regarding historical patrimony in concordance with European legislation and not only. From this point of view this was a dramatic change, suggesting that all is going into one divided fast. But one is theory and other is practice. Did the practice evolve into the same direction and with the same speed?

Preventive archaeology or rescue archaeology was part of architectural practice before 1989, also. Today, both represent a more and more important way to produce historical knowledge. So, there are differences? Which those differences are? Importance into cultural strategy of government? Technology applied in the field? Interpreting the data? It is the reflection of the legislation or just try to be just a pale reflection of it? Can this way of research be done in order to provide information for an academic archaeology?

To this kind of questions and to many others we intend to respond and to presents the state of link between the preventive/ rescue archaeology and the academic scientific research.

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**TH2-10 Abstract 09**

**Rescue Archaeology in Russia: the radical shift of the 1990s, and its consequences**

**Author** - Dr. Engovatova, Aya, Institute of Archaeology of Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)

**Keywords:** change in legislation, rescue archaeology, Russia

**Presentation Preference** - Oral

In Russia, the beginning of the 1990s was a turning point in the history of the nation. Immense changes took place in the political, social and legal spheres over an area which made up one-fifth of the world’s landmass, with a population of over 170 million people (including the USSR, Bulgaria, Hungary, Poland, Czechoslovakia and other nations). The resulting shift to a marketbased approach in the cultural sphere (including archaeology) was both significant and controversial. During the period of the economic and political crisis in the early and mid-1990s, the amount of archaeological research being conducted fell overall, including rescue archaeology – primarily due to the situation which had grips the entire country. In the Federal Law 73-FZ came into force: “Concerning sites of cultural heritage (historical and cultural monuments) of the peoples of the Russian Federation” In 2011 Russia adopted the European Convention on the Preservation of Archaeological Heritage. In the 2000s, the system changed rapidly, due to the fast pace of economic growth. These changes were clearly demonstrated by the pace of issue of permits for carrying out archaeological works. This inevitably raised questions about revising the methodology with which such rescue archaeology was conducted, and ways of optimising it. A system of regulation had evolved over many years, in which scientific regulation underpinned the methods employed when researching archaeological sites – identification on-site, and a method for presenting the scientific documentation which applied across the entire country. These norms apply to rescue archaeology too. There are no ‘short cuts’ available in these methods. Attempts to bring in systems of ‘observation’ as a subset of ‘rescue’ archaeology methods can be considered successful only in the case of research into later, mixed-up deposits. Alongside this, the system by which the state funds scientific research has also changed. The proportion of rescue archaeology work conducted in the 2000s rose to above 80%, whereas it had only accounted for 20% in the 1990s.The development of private, including small business accounted for a considerable rise in the proportion of research being conducted by non-state firms involved in research from 1% in the early 1990s, to 40% in 2012. This pace of change is intrinsically connected with the way in which the tax system operates in Russia. For state organisations (departments of the Russian Academy of Sciences, museums, universities) the system of taxation remains in place, in which there are no tax-breaks. However, in 2004 the Russian Federation brought in a tender scheme for a wide range of different services – including archaeological services. The primary consideration under which such tenders were won or lost, was the price quoted for their compilation. Non-state organisations were placed at a significant financial disadvantage under these arrangements. During the period of the Russian economic crisis of the 1990s (and especially arising from ‘black holes’ in legislation) a significant Black Market developed for archaeological artifacts. In 2013 a new Federal Law came into force, No 245 “Concerning amendments to Particular Legislative Measures of the Russian Federation which prevent illegal activity in the field of archaeology”.

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**TH2-10 Abstract 10**

**A protection system of archeological heritage in the Tver Region in Russian Federation**

**Author** - Khokhlov, Alexander, IA RAS, Tver, Russian Federation (Presenting author)

**Keywords:** A protection system of archeological heritage, Tver Region in Russian Federation

**Presentation Preference** - Oral

The Tver Region is situated on the Upper Volga between Moscow and St.Petersburg. Three big rivers start on the territory of the region – the Volga, the Western Divna, and the Msta; the Dnieper has its source nearby. The region turned into a historical crossroad, where the waterways to the Baltic, the Baltic, and the Caspian Seas started. This region was popular among different population groups from the Paleolite until to the Modern times. More than 7000 archeological monuments were discovered in the Tver Region. The objects of the archeological heritage are protected by law; as archeological monuments are considered to be state property. The Law states that financing the preventive (rescue, protective) archeological excavations is the obligation of the construction project investor. The protection system of the objects of the cultural heritage in the Tver Region appeared in 1990s. A small branch of the Cultural department of the Regional Government represented the state interests in those years. Five or six archaeologists worked at the State Museum and the University. Small excavations and searching for the new archeological monuments were carried out. The events in the beginning of the 1990s in Russia led to the rise of economic activity, especially in construction. The new laws, which allowed commercial firms to conduct archeological works on equal basis with state organizations, were adopted. The first private archeological company Tver Research and Restoration Archeological Center – was established in 1990. After the year 2000 a new Department on State Protection of the Cultural Heritage in the Tver Region was founded with the aim to control the processes of archeological monuments protection (archeologists, historians, architects, lawyers, and managers work in the department). The State Department controls the execution of the federal law, which states
that the preventive archeological excavations are obligatory on the sites where construction works are planned. The investors are ready to fund archeological works. But how does the Law operate? It obviously operates through an archeologist. A rapid development of the construction business led to a great amount of preventive excavations. Tver State University solved a problem of the necessity of young archeologists training. About 10 state and commercial organizations dealing with the preservation of the archeological heritage work in the Tver Region nowadays. To summarise, there are two components of the archeological heritage protection system in Tver Region. Department on State Protection of the Cultural Heritage and archeological organizations. This system is effective. In the territory of the historical centre of Tver there were rescue excavations carried out on the territory of more than 400000 m². Archeological works were also carried out during the construction of the new roads, oil and gas pipelines. However, at the moment 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 archeological heritage as well as the importance of improving the scientific relevance of the preventive archeological works.

TH2-10 Abstract 11

"Amateur" archaeology, legal or not?
The experience of a legislative practice in Russia

Author - Sarypynkina, Irina, Institute of archeology RAS, Moscow, Russian Federation
Co-author(s) - Zelenkova, Olga, Institute of archeology RAS, Moscow, Russian Federation (Presenting author)

Presentation Preference - Oral

Hoard hunting has been actively developed since 1990s in Russia and all over the world. It is connected with dramatic changes in social and economic life of the country and availability of metal goods. It took 20 years of a purposeful activity of the specialists in archeological heritage conservation for a society to realize the value of the losses of the pilferage of archeological sites. In 2014 in Russia the federal act №315 was adopted, directed to the heritage rescue and consisted of the assets on criminal liability of “grave robbers” (up to 6 years). Apart from the asset of the encouragement of the persons doing the illegal excavations on the territory of archeological sites, this law contains norms and regulations new to the Russian legislative practice: about the territory of an object of an archeological heritage, about the state historical and cultural expert evaluation, about the mainstremificaiton of the objects of an archeological heritage, about the state national objects’ register and the encourage of the liability of archeologists. The report is about the analysis of the practice in the application of the federal act 315 for the last two years from the moment of its adoption.

TH2-10 Abstract 12

Moscow Monasteries: new stage of the archeological investigations (2003–2015)

Author - Beliaev, Leonid, Institute of Archaeology of RAS, Moscow, Russian Federation (Presenting author)
Co-author(s) - Grigorian, Svetlana B., Institute of Archaeology of RAS, Moscow, Russian Federation

Keywords: heritage, law, Russia

Presentation Preference - Oral

Archaeological investigations of the Zachateyevsky Alekseyevsky monastery (Datschenka) that were started in 2003 laid the foundation of the new stage in the monasteries investigations which at the present time is recognized as one of the most important stages in the archeology 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 archeological methods, the understanding of its structural peculiarities as archeological objects hasn’t been developed. Monasteries were regarded as too “late” objects.

In the late 1970s, the architects-restorers have teamed up with movement for the monuments protection. The first large excavations in the monasteries were held in 1980s. For two decades (mid 1970s – mid 1990s) three key monumets of Moscow monastic archaeology – the Bogoyavlensky, Danilov and Petropavlovsky monasteries have been investigated and become standard objects. The monasteries of the Moscow Russia were understood as a new type of monumets.

In the beginning of the XXI century the situation has changed cardinally. 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 Zachateyevsky Alekseyevsky, Sretensky, Novospassky, Novodevichy and Donskoy monasteries in Moscow and in the Troitse-Sergyeva Lavra and New Jerusalem monasteries (near Moscow).

The report present the main results that have been achieved for the last 12 years works, in comparison with the investigations of the 1980s and 1990s.
in Oviedo. We could imagine herds of cattle grazing in the green landscape which is commonly associated with Asturias, but, nevertheless, there is no people in the image. Accordingly, most of the campaigns made since then by the regional institutions and tourism agencies have firmly stablished a primarily focused message on the natural component of the Asturian landscape. Thus, bears are the main characters in advertising and TV spots, while local peasants or the long cultural biography of landscapes are kept silent. Only few outstanding monuments, such as 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 has determined the anthropogenic construction of the landscapes. In addition, the last debates in Social Sciences point out that society, political systems, individual and collective identities mediate all together in the cultural construction and the perception of the environment. Thus, it might be associated with the energy invested by the local communities in working the land, 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 reified, while the experience and efforts made by local communities are muted. This way, peasant families become subaltern 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 deconstruct the official speeches made by public institutions on the management and promotion of tourism and the Asturian cultural heritage. In fact, we could disseminate alternative narratives which may reinforce the local peasant positions as stakeholders for the future of rural landscapes.

Landscape Archaeology can provide more comprehensive narratives about cultural landscapes which would strengthen the role of Archaeology as a valuable Social Science for rethinking the future of rural Europe.

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. This last experience deals with the historical characterization of a local landscape, comparing material features with a perceptive reading linked with the establishment of a titular park in Western Liguria.

All of these researches are a direct response to the question of ‘applied history’: the results of this work have been applied in environmental planning and in the historic characterization of the rural landscapes. agro-silvo-pastoral landscapes and local products.

TH2-11 Abstract 04

Engaging stakeholders, shaping practice: Strategies for sustainable cultural landscape management

Author - Dr. Tully, Gemma, Durham University, Durham, United Kingdom (Presenting author)

Co-author(s) - Dr. Moore, Tom, Durham University, Durham, United Kingdom

TH2-11 Abstract 05

Living Archaeological Sites in Modern World: Discussions on Ancient Rural Heritage in Turkey

Author - Assist. Prof. Naci, Nida, Mersin University, Mersin, Turkey (Presenting author)

Keywords: archaeology, 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. 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 has determined the anthropogenic construction of the landscapes. In addition, the last debates in Social Sciences point out that society, political systems, individual and collective identities mediate all together in the cultural construction and the perception of the environment. Thus, it might be associated with the energy invested by the local communities in working the land, 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 reified, while the experience and efforts made by local communities are muted. This way, peasant families become subaltern 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 deconstruct the official speeches made by public institutions on the management and promotion of tourism and the Asturian cultural heritage. In fact, we could disseminate alternative narratives which may reinforce the local peasant positions as stakeholders for the future of rural landscapes.

Landscape Archaeology can provide more comprehensive narratives about cultural landscapes which would strengthen the role of Archaeology as a valuable Social Science for rethinking the future of rural Europe.

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)

Co-author(s) - Paratea, Alessandro, University of Genoa, Genoa, Italy

Co-author(s) - Paratea, Claudia, University of Genoa, Genoa, Italy

Co-author(s) - Rendu, Christine, University of Toulouse Jean Jaures, Toulouse, France

Co-author(s) - Tejeiro Garcia, Carlos, University of the Basque Country, Vitoria Gasteiz, Spain

Keywords: Cultural Heritage, Local Practices, Rural Archaeology & Historical Ecology

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 groups) understand, experience and shape cultural landscapes. The work will focus on the cultural landscapes of Cinque Terre in the Italian Riviera and Salmonsbury in the UK, which represent 2 of the 4 case studies involved in the ‘Revisiting Europe’s first towns’ (REFIT) project funded by the Joint Heritage European Programme’s (JHEP), Joint Heritage Initiative (JHI). The project represents co-operation between Durham University (UK), Biblioteca EPCC (France) and Universidad Complutense de Madrid (Spain), alongside associate partners from outside archaeology (including wildlife management, farming, national parks and local government) from the three partner countries.

This project recognises that archaeological heritage is 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.

TH2-11 Abstract 02

Managing the archaeological heritage, Toulouse, France

TH2-11 Abstract 01

Discussions on Ancient Rural Heritage in Turkey

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 groups) understand, experience and shape cultural landscapes. The work will focus on the cultural landscapes of Cinque Terre in the Italian Riviera and Salmonsbury in the UK, which represent 2 of the 4 case studies involved in the ‘Revisiting Europe’s first towns’ (REFIT) project funded by the Joint Heritage European Programme’s (JHEP), Joint Heritage Initiative (JHI). The project represents co-operation between Durham University (UK), Biblioteca EPCC (France) and Universidad Complutense de Madrid (Spain), alongside associate partners from outside archaeology (including wildlife management, farming, national parks and local government) from the three partner countries.

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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 dynamicity 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 historico-architectural and present management of landscapes. This link could offer new approaches to better define landscape management policies, based on local actors and local management of environmental resources, in the framework of actions for the conservation of rural areas as a part of European Cultural Heritage.

TH2-11 Abstract 07
Cultural landscapes and territorial management: the case study of Madrid
Author - Dr. Ruiz Del Arbol Moro, Maria, Institute of History, CSIC, Madrid, Spain
Co-author(s) - Bastein Prats, Ines, Institute of History, CSIC, Madrid, Spain (Presenting author)
Co-author(s) - Garcia Hernandez, Maria, Universidad Complutense, Madrid, Spain
Co-author(s) - De La Calle Vaquero, Manuel, Universidad Complutense, Madrid, Spain
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 a great diversity of cultural landscapes and historical heritage. Madrid, 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 presents a way of working within the cultural heritage to improve the relationship between cultural heritage and tourism.

The key aspects of Madrid's landscapes are the history of the relation with nature, the influence of the ruling classes and the interaction with the environment. This study is conducted from a diachronic approach, under several aspects, for identifying some ethnoarchaeological paths for an archaeological interpretation.

TH2-11 Abstract 08
Through Rural Living Landscapes to Ethnoarchaeological Reflections of Salt in Eastern Romania
Author - PhD Student Adolescent, Mihaela, "Alexandru Ioan Cuza"
University of Lasi, Lasi, 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, in a landscape and cultural study. This heritage is both of a rural and urban character, and 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 presents a way of working within the cultural heritage to improve the relationship between cultural heritage and tourism.

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Managing the archaeological heritage

In the 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 Hemy of 1619 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 1619 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 started to be able to exchange the historical knowledge of the moment. The location of the lines was known from early modern maps and modern map based on studies of historic maps. The seven excavations, varying between 200 and 20,000 square meters, gave new insight in the size, position and character of the lines. The archaeological results were integrated in the structural concept for the new landscape and the new archaeological characterization maps of the town were created, mapping newly discovered archaeological lines and fortifications.

The EAA-lecture will present the work of the foundation ‘De Groene Vesting’ as well as the results of the archaeological research of the lines of Siege of 1619. Example are given how archaeological and historic research can contribute to the development of the landscape around the town, how a foundation of volunteers from the local community can start and support local environmental concepts and how these plans are accepted by the municipalities, local community and several entrepreneurs. And also how commitment for many years results in great plans and ideas for the future.

Archaeology and Landscape Partnerships

The buried city of Viroconium at Wroxeter, in the English Midlands, is a challenging site to interpret and present to the public. Its principal focus is the remains of the town baths, but this is just one visible building within an urban site covering 78ha. The remainder of the site has been down to uniform pasture since 1975 when it was purchased by the State to prevent further damage from ploughing. While the existence of the pasture has not prevented significant research - the major geophysical campaign of the Wroxeter Hinterland Project of the mid 1990s has resulted in the publication of the first full plan of the town, and a new interpretation of its chronological development - the monument is visually uninspiring to the general public. This is reflected in the visitor figures for the site, run by English Heritage Trust, which are only in the tens of thousands. Yet immediately adjacent to the site is the National Trust property of Attingham Park (400,000 visitors per annum) while only 8 miles away is the World Heritage Site at Ironbridge (750,000 visitors per annum).

The purpose of this paper is to suggest a radical new approach to presenting the wider area of the town, around the baths at its centre, that will make the extent of the town visible in the landscape. It is suggested this can be achieved through a varied planting scheme that will not damage the underlying archaeology, creating at the same time a network of pathways that will encourage visits from the neighbouring Attingham Park. There would be three-fold benefits from the scheme. It would facilitate access and understanding it would provide a biodiverse landscape among the general monoculture of the surrounding modern agricultural landscape and, lastly, would encourage a greater diversity of wildlife on the site. Such a planting scheme would not hamper any future archaeological work on the site, but would make the site more attractive to the general public along permissive paths that did not interfere with the possible use of the site by wildlife.

Presentation Preference - Oral

Archaeology and Landscape Partnerships

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Such an approach reflects the increasing desire to see archaeology as part of the wider historic environment, and reflects something of the reality of a site that was a Roman city for 500 years, but has been farm land for millennia, before and after the Romans.

TH2-11 Abstract 15
Transformation and management of Historical Agrosystems in the Iberian Landscapes (THALES)

Author - Dr. Sarabia, Julia, University of Alicante, Alicante, Spain (Presenting author)
Presentation Preference - Poster

The interest in the study of cultural landscapes has grown considerably in recent years. Several strategies have been developed in this field in Europe, marking it as a priority area of interest in Community policies as landscapes combine elements that 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 focuses on the analysis of various types of cultural landscapes of the Iberian Peninsula, especially selected by the morphology of their agrarian systems: one of the most homogeneous expressions of the interaction between man and territory: 1) mountain landscapes of Sierra del Segura (Albacete) and Sierra de Alcaraz (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 Huelva (Albacete), the Valle del Vinalopó (Alacante) and Vega Baja del Segura (Alicante), characterized by exploited agricultural environments without interruption from antiquity to the present day, but with different strategies (Roman villas, early medieval rural villages and farmhouses, medieval fiefdoms, contemporary agrarian colonies). Our study focuses on understanding how historical societies have occupied and administered this space, characterized by a shortage of water resources.

TH2-11 Abstract 16
Landmarks and landscape in the South Eastern Sicily

Author - Dr. La Terra, Lia, Novara, Italy (Presenting author)
Presentation Preference - Poster

South Eastern Sicily provides a privileged view for the analysis of the impact on the culture of “Sikels”, thanks to its huge variety of indigenous settlements dated to the Iron Age and concentrated around the Ionian coasts, which were early visited and occupied by Greek colonies. Nonetheless, the archaeological debates and researches have been mainly 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 melting point 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 is 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, Thapsos, Monte Finocchito) are set on beautiful and breathable sceneries 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 archeological sites are linked together in unified managing plan for preservation and tourism.

It is still possible to say that the complete harmonisation of archeological 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 respect of the land that the rural civilisation of the area has been promoting since its origins.
GIVING NEW MEANING TO CULTURAL HERITAGE:
THE OLD AND THE YOUNG IN PAST SOCIETIES

Saturday, 3 September 2016, 09:00-13:00
Faculty of Philosophy, Room 107
Author - Lillehammer, Grete, University of Stavanger, Museum of Archaeology, Stavanger, Norway (Presenting author)
Co-author(s) - Murphy, Eileen, School of Geography. Archaeology and Palaeoecology, Queen's University, Belfast, United Kingdom
Keywords: Children, Elders, Society
Presentation Preference - Regular session

In archaeological studies of the past the humans were often viewed as being adults in the prime of life and inappropriately male. Females were introduced into archaeological discourses with the growth of gender archaeology during the 1980s and an explosion of research has been undertaken on the archaeology of children in the past decade. With some notable exceptions, however, the elderly are still largely invisible in archaeological narratives - even though ethnographic analogy demonstrates that 'elders' were often viewed with particular respect due to the perceived wisdom associated with their longevity. The inclusion of a wider spectrum of humanity within modern archaeological discourses has also resulted in an increase in studies of the human life course. Such studies stress the necessity of interconnecting the different stages of the life cycle to enable us to gain a better understanding of the life experiences of individuals at different times for the duration of their lives. In this session we wish to focus on adult and child relationships and, in particular, evidence for the interaction of the young with the old. In the modern world grandparents are often key figures in their grandchildren's lives, but was this also the case in the past when people generally died at a much younger age than today? Is it possible to find evidence of such interactions in the funerary record, in the chariot osteopatre with associated forms of material culture, in spatial analyses or in any other aspect of archaeological research? How is the evidence approached, integrated and presented in the professions of cultural heritage management? By focusing on these relationships we hope to bring the elderly out from the shadows while also remembering that children in the past would have interacted with adults beyond their parents - just as they do in the present.

TH2-13 Abstract 01
Protect or perish: On the outlook for the young and the old in a museum's collections

Author - Head of dep. Hoegestoel, Mari, University of Stavanger, Stavanger, Norway (Presenting author)
Co-author(s) - Denham, Sean Dexter, University of Stavanger, Stavanger, Norway
Co-author(s) - Lillehammer, Grete, University of Stavanger, Stavanger, Norway
Keywords: bio-archaeology, child/adult relations, ex-situ preservation
Presentation Preference - Oral

High infant/childhood mortality was a fact of life in the past. More children were born than would ever reach adulthood and old age, putting a limit on the potential for interaction between the young and the old. Modern society has seen a change in this. Improvements in health, labour and welfare conditions have increased life spans and altered somewhat how we use our time. This population wave of older adults has spurred the growth of a new stage in the human life cycle on a global scale, one in which older individuals have time and resources not previously available to them. This has changed the dynamic of the present, and increased the potential for interaction between the young and the old. It is possible to see such life-stage interconnections in something as simple as grandparents and grandchildren visiting museums together. None the less, museum outreach programs, activities and research communications rarely highlight this aspect of child-adult relationships in the archaeological narrative about the past. The research program BEVARIS (Biological Environmental and Archaeological Interdisciplinary Research on life course, materials and materiality in human deposits), at the Museum of Archaeology, University of Stavanger, Norway, seeks to address issues surrounding the recovery and curation of organic materials from archaeological contexts, particularly those involving the preservation of human biological remains. Our project within the program focusses on previously excavated material in the museum’s collections which has either not been analysed at all, or not been analysed using up-to-date techniques standards. The paper presents our attempt to establish an overview of the ex-situ skeletal remains (burnt and un-burnt bones) of children versus elders and the contextual evidence of archaeological grave, settlement and loose finds. Not surprisingly, the results indicate that burial rituals together with the frequency of highly acidic soils in the region, are an impediment to the bio-archaeological analyses of the human body and its treatment before and after death. As these conditions strongly influence the preservation of human bone, in particular the remains of inhumations, the possibility of gaining an understanding, both biological and social, of the interconnections of different stages in the human life cycle of the past are challenging.

TH2-13 Abstract 02
Mother-child relations in Early Bronze Age Lower Austria

Author - Mag. Dr. Rebay-Salisbury, Katharina, Austrian Academy of Sciences, Vienna, Austria (Presenting author)
Co-author(s) - Appleby, Jo, University of Leicester, Leicester, United Kingdom
Keywords: Austria, Early bronze age, motherhood
Presentation Preference - Oral

The Early Bronze Age inhumation cemeteries of Lower Austria belong to three cultural groups (Inglist, Unterwölbung and Wieselburg) with distinct burial practices. They differ in particular in terms of how bodies were placed and buried in relation to each other. In this contribution we scrutinise the archaeological record for evidence of mother-child relations. We will begin by presenting graves of pregnant women and graves of women and children buried together, in order to understand how such individuals were treated by their societies in death. We investigate the most likely ages for life-transitions such as first motherhood and menopause, as well as explore material markers of such transitions. Social responses to pregnancy, birth and early child rearing, as well as the link between women's reproductive status and social status in Bronze Age central Europe, give insights into the conceptualisation of motherhood in the Early Bronze Age in general, but also into the variability within three closely connected, yet different groups.

TH2-13 Abstract 03
Grandparents in the Bronze Age?

Author - Dr. Appleby, Jo, University of Leicester, Leicester, United Kingdom (Presenting author)
Co-author(s) - Appleby, Jo, University of Leicester, Leicester, United Kingdom
Keywords: Austria, Early Bronze Age, Grandparents
Presentation Preference - Oral

Grandparenting has been critical to the development of human life history. It has even been suggested that the role of grandparents in childcare is the reason for the extended lifespan seen in modern humans. However, the roles and functions of grandparents have not previously been investigated in later prehistoric contexts. Ethnographic studies show that grandparents take on an extremely wide range of roles worldwide, whether this is teaching knowledge and skills, providing childcare, or even taking on parental roles and titles. In many cases, grandparents play a critical role in the support and socialization of children. Understanding the role of grandparents thus has the potential to transform our understanding of prehistoric household and family structures. In this paper, we examine the potential impact of grandparents in prehistory. We will use demographic data to explore how ‘common’ grandparents might have been, whilst bringing in a variety of ethnographic examples to identify potential activities and relationships of grandparents and grandchildren. We will then use a case study from the Early Bronze Age Traisental in Austria to show how prehistoric mortuary data might inform us about grandparenting in the Early Bronze Age. The existence of a series of large, well excavated cemeteries from this area makes it possible to investigate how the idea of the ‘grandparent’ might have been constituted both in life and death. In addition, we will investigate the extent to which grandchildren may have had a reciprocal role in caring for grandparents who became incapable either physically or mentally through diseases of old age.

TH2-13 Abstract 04
The white-haired and the feeding bottle: 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 Greece has taken an adultsentric approach (with focus placed mostly on young to middle-age group and women). As a result, two 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 the potential for interaction between the young and the old in the archaeological narrative about the past are challenging, rather than giving up the human biological material, the situation requires a broader dialog about the application of analytical and interpretative models and/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.

TH2-13 Abstract 05
Parental care and the grave goods in Early Bronze Age Traisental region

Author - Dr. Appleby, Jo, University of Leicester, Leicester, United Kingdom (Presenting author)
Keywords: Austria, Early Bronze Age, Motherhood
Presentation Preference - Oral

The Early Bronze Age inhumation cemeteries of Lower Austria belong to three cultural groups (Inglist, Unterwölbung and Wieselburg) with distinct burial practices. They differ in particular in terms of how bodies were placed and buried in relation to each other. In this contribution we scrutinise the archaeological record for evidence of mother-child relations. We will begin by presenting graves of pregnant women and graves of women and children buried together, in order to understand how such individuals were treated by their societies in death. We investigate the most likely ages for life-transitions such as first motherhood and menopause, as well as explore material markers of such transitions. Social responses to pregnancy, birth and early child rearing, as well as the link between women's reproductive status and social status in Bronze Age central Europe, give insights into the conceptualisation of motherhood in the Early Bronze Age in general, but also into the variability within three closely connected, yet different groups.

TH2-13 Abstract 06
Focusing on the role of the children in the Early Bronze Age Traisental region

Author - Dr. Gallou, Chrysanthi, The University of Nottingham, Nottingham, United Kingdom (Presenting author)
Keywords: childhood, elderly, aging, Prehistoric, Aegean
Presentation Preference - Oral

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their social roles, agency and interactions, and integrating them into a holistic analysis of the prehistoric world is vital for a better understanding of the workings of these early Aegaean cultures. Integrating ethnographic data with a systematic study of material culture while differing from the study of burials (including simultaneous adult-child ones) to iconographic sources and textual references, the aim of this paper is two-fold: a) to provide a comprehensive account of the diverse attitudes towards childhood and the elderly in the region during the Late Bronze Age; and, b) to shed light on the interactions between children and the elderly both at the household level and in the cemetery during this period.

TH2-13 Abstract 05
Family constructions and adult-child relationships in the Ancient Greek Oikos
Author - Sommer, Maria, Skanderborg, Denmark (Presenting author)
Keywords: Adult-Child relationships, Ancient Greece, Childhood Archaeology
Presentation Preference - Oral

The presentation will focus on family constructions in the ancient Athenian oikos with special attention to children age 0-7 years. Research points to the fact that children in the ancient Greek household - the oikos - grew up in an extended family with multiple relationships with parents, grandparents, siblings, friends, slaves and caregivers. The theories of interparenting and multiple caregiving are introduced to give insight to the complex world of children and their peers in the ancient Greek oikos.

This research has been published in: Sommer, M. & Sommer, D. (2019). Care, Play and Socialization in Ancient Africa – A Developmental Childhood Archaeological Approach (DK: Aarhus University Press).

TH2-13 Abstract 06
Circle of Life? Aspects on youth and old age in Viking Age and Medieval Scandinavia
Author - PhD Mejsholm, Lotta, Uppsala, Sweden (Presenting author)
Keywords: Age construction, Burials, Viking Age
Presentation Preference - Oral

In Viking Scandinavian society, people were to a high extent defined and commemorated by their deeds. The productive, freeborn, preferably male, adult formed a societal norm, to which children, slaves, outcasts, unproductive elders and “others” were contrasted. Consequently, and as a result of contemporary academic paradigm, children, and elderly has often been tagged as “invisible” in the records available. Nothing could be more wrong.

In this paper, the sphere of children and elderly in Viking Age and Medieval Scandinavia is explored, as a specifically culturally and socially defined construction, contrasted to the normative adulthood, as displayed in textual and archival records. In medieval provincial law codes, a clear distinction between man slaughter (killing an equal, a free adult man) and killing children or elderly people, unable to defend themselves, is made. In case of the latter, the killer was charged with a significantly more severe penalty. The defenclessness of these household depends is expressed in terms of limited capabilities, which, is argued, is a relevant definition also in academic discussion.

In the burials from Late Viking Age and Early Middle Age, graves of elderly, impaired, sick people and children in many cases differ from those of the productive adults. One specific phenomenon is approached in this paper, namely the use of amber amulets. Amber has been used as protective agent in Viking Age, i.e, as amulets attached to swords. A similar understanding of the protective, medicinal, protective agent is still widespread in many parts of the world. This research has been published in: Sommer, M. & Sommer, D. (2019). Care, Play and Socialization in Ancient Africa – A Developmental Childhood Archaeological Approach (DK: Aarhus University Press).

TH2-13 Abstract 07
The old and the young in the Icelandic early Christian household cemetery
Author - Zoega, Gudni, Skagafjordur Heritage Museum, Saudarkrokur, Iceland (Presenting author)
Keywords: Bioarchaeology, Household, Medieval
Presentation Preference - Oral

In recent years a number of early Christian cemeteries have been excavated in the region of Skagafjörður, North Iceland. These cemeteries belonged to, and were managed by, occupants of individual farms and were in use from around AD1000-AD1100. The cemeteries belonging to farms differ from the sparse burials in cemeteries at Farming communities in that they are all inclusive, i.e. include bodies of both sexes and all ages, essentially representing all the inhabitants of a household. An interesting feature of these cemeteries is the large number of infants and relatively large number of “older” individuals. The Icelandic sagas rarely mention children, and the old hand not to be in viewed in a favourable light. By looking at the osteological data in conjunction with spatial cemetery analysis a more detailed picture emerges providing information on the possibility of three generational families and the role and perception of the young and the aged within the medieval household. This paper discusses how this unique material can add to the predominantly philological and historical discussion on the nature, makeup and social interactions of the medieval Icelandic household. It also touches on how the data may be used to create a fruitful discourse on how the “traditional” Icelandic household is presented and disseminated at a rural heritage museum. By comparing and contrasting the medieval bioarchaeological material and the historical/archaeological research pertaining to the museum’s collections and exhibitions, a new light may be thrown on historically “inconspicuous” social groups such as the aged and the young, irrespective of time periods.

TH2-13 Abstract 08
Interpreting Multiple Interments in Irish Medieval Burial Grounds
Author - Dr. Murphy, Ellen, 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, an adult female was buried with an infant or a multiple burial derived from medieval burial grounds in Ireland. Drawing upon information gleaned from oral history and contemporary historical sources attempts will be made to proffer possible scenarios to account for such burial configurations and to explore the nature of the potential relationships apparent within these various interments.

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, University of 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 contexts 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 Téllez (Také), Romania. The majority of these individuals are dated 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 Reformations.
The search for the elderly: using osteological data to divide and join age identity

Author: Peachick, Sabine, Bradford, United Kingdom (Presenting author)
Co-author(s): Maaranen, Nina, University of Bradford, Bradford, United Kingdom
Keywords: age identity, elderly, old age
Presentation Preference - Poster

Inquiries into age identity have only recently received attention, despite the recognition of gender identity in archaeology. Particularly elderly individuals are often ignored or treated with the assumption of a universal experience of old age. Traditional age estimation methods have failed to provide more accurate estimates to aid in the identification of aged skeletons. Individuals of 45+ years are often lumped together, ignoring any potential social differentiations in the later stages of the life course. In this study, the Transition Analysis has been utilized on the Iron Age cemetery collection of Wetwang Slack, East Yorkshire, UK, using the method’s statistical approach to provide more accurate age estimates for older individuals. Additionally, data on sex and age- progressive conditions including osteoarthritis, general spinal degeneration and dental health has been collected to investigate the social identity of elderly adults in comparison to younger adults. Using a sample of 150 individuals, the Transition Analysis provided a more dynamic age profile which shows that age differences are found across gender lines and in terms of disease likelihood. Elderly females have especially stood out since they showed a substantial increase in spinal degeneration of the vertebral bodies, caries and tooth loss as compared to elderly males who show a significant decrease or stagnation in these conditions. Older females however have in common with younger adult females the severity of spinal osteoarthritisis in the facet joints in comparison to the young male - elderly male grouping which is less affected. Females generally appear to be more affected by disease, yet elderly females of this population are particularly haunted by ill health which ultimately may have made their deaths and presence in this cemetery more likely. Death also is an important aspect of these women’s identity. Other forms of identity are highly important in gauging age differences and relationships between young and old. Age only becomes visible through the growing, gendered, or diseased body as a medium in the social experience of age. The archaeological interpretation of osteological data shows that Wetwang Slack age groups have various relationships to one another depending on sex, health or even affected body location. This trait of age identity, sex affiliation and disease identity has proven useful in separating the elderly social identity from that of young adults in a way which provided especially elderly Wetwang Slack females with a kind of personality without ignoring their relationships to other age/sex groupings. In life as in death, elderly women stood out physically from the younger individuals of their community, while their relationship to younger females may indicate greater success in surviving the adversities associated with the female experience at Wetwang Slack.

Detecting the elderly - Exploring age using Transition Analysis

Author: Maaranen, Nina, Helsinki, Finland (Presenting author)
Co-author(s): Buckberry, Jo, University of Bradford, Bradford, United Kingdom
Keywords: Adult age-at-death estimation, Life history, Transition Analysis
Presentation Preference - Poster

The absence of elderly in research is not simply a question of attitudes but of methodological limitations. Intrinsinc and extrinsic factors govern the skeletal changes in relation to one another, their importance fluctuating during the life course of the individual. The young are much more dependent on the intrinsic (i.e. genetic) factors however with age the extrinsic factors (such as habitual and environmental) gain influence, spreading the skeletal morphological features to a wider age range. Due to the lack of a perfect age indicator methods used to estimate age-at-death, we must accommodate for the variation using age ranges which often present the final interval as open-ended and beginning even as early as 45 years of age. The practice has the impact of obscuring the presence of older individuals from archaeological material, distorting our views of agency in past societies. This poster seeks to explore how we could expand this approach in the future.

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, Edinburgh, United Kingdom
Keywords: Adopt-a-Monument, Diverse audiences, Social impact
Presentation Preference - Oral

Archaeology Scotland’s Adopt-a-Monument scheme (2011 – 2017) supports community heritage groups to take a lead role in recording, conserving and promoting their local heritage. This curwen phase had 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.

Ireland: developing partnerships

Author: Doyle, Ian, The Heritage Council of Ireland, Kilkenny, Ireland (Presenting author)
Keywords: community, Ireland, monument
Presentation Preference - Oral

Almost every townland and parish in Ireland contains a monument, be it a prehistoric burial or a ruined medieval parish church with a functioning cemetery, a medieval castle or a monument from the more recent past such as a lime kiln or old forge. The wider Irish landscape contains 120,000 known archaeological monuments which are protected by law. As a means to encourage...
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 pilot will be shared at the round table. At the time of writing this scheme, learning from work in Scotland, has progressed from an open public call for entries to selecting monuments and communities. Further details will be available in September.

TH2-14 Abstract 03
Community Outreach and Engagement through Archaeology Fairs
Author - Dr. Thomas, Ben, Archaeological Institute of America, Boston, United States of America (Presenting author)
Co-author(s) - Langlitz, Meredith, Architectural Institute of America, Boston, United States of America
Keywords: Community Engagement, Heritage Education, Partnerships
Presentation Preference - Oral

Since its founding in 1879, the Archaeological Institute of America (AIA) has worked to create an informed public interest in the cultures and civilizations of the past through its many outreach programs. The Institute educates people of all ages about the significance of archaeological discovery and encourages community-based outreach. In 2001, the AIA hosted its first archaeological fair. The fair brought together independent archaeological organizations representing a rich array of archaeological subfields to present their programs and resources to a local community in an interactive and engaging manner. Through the fair, the partnering organizations presented activities that combined the excitement of discovery with sound archaeological thinking; emphasized the idea that archaeological discoveries are resources that help us better understand how people lived in the past and how human societies and communities functioned, developed, and grew; and informed attendees about archaeology and cultural heritage by having them participate in hands-on activities, by observing demonstrations of ancient technologies, and by talking to the experts presenting these various programs. Since 2001, the AIA has organized 23 more archaeological fairs and informed thousands of people through this popular outreach activity. The overall goals of the archaeological fairs are to promote a greater public understanding of archaeology, raise awareness of local archaeological resources, and bring together proximate archaeological groups with a shared outreach goal. In this presentation, the authors will discuss how the AIA fair model was developed through feedback cycles that include evaluation, data analysis, reflection, and trial and error, how it evolved, and how it is spreading to other groups around the world. To date, 28 AIA local societies have hosted fairs and the popularity of this program as an outreach event is increasing among other archaeological groups across the USA as well as in Belize, Canada, Colombia, the Czech Republic, Iran, and Myanmar. This growth in popularity and implementation presents us with unique opportunities to collect and reflect upon data essential to conducting archaeological outreach around the globe.

TH2-14 Abstract 04
The “archaeological path” in the interdisciplinary research in Polish Jurassic Highland
Author - Ma Majorek, Magdalena, Nicolaus Copernicus University Torun Poland, Torun, Poland (Presenting author)
Co-author(s) - PhD Lazeniewicz, Olga, University of Lodz, Lodz, Poland
Keywords: archaeological XIX-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 impetus to multifaceted cognition the history, cultural reality, social climate, local and family memory, the heritage of generations, and contemporary identity the inhabitants of the northern part of the Polish Jurassic Highland, ie. in the area of five communes: Janów, Leśle, Miłów, Ol fancy, Przyrów. The project adopts an interdisciplinary perspective on the development of modern cultural anthropology, and refers to the new trend in archaeology focusing on the study of modern times (XIX-XX centuries). Reflection these two disciplines is supplemented and verified through the knowledge of local history and the history of art.

The project distinguished three complementary research path: anthropological, archaeological, historical/archival and a common path. Cultural anthropologists use the photographs, written materials, archives, documents and available publications. For them, the source of knowledge about the past and the present is orally primary history, heard stories from encountered people. Within the queries historical researchers collect general information about the regional history, as well as about specific places and objects, often not adequately developed in the academic literature. In the discussed archaeological path aim is to attempt to answer the following question: whether in a particular place are material elements of culture capable to confirm, deny or modify the knowledge of the past emanating from collected stories. Archaeological diagnosis was divided into two stages: reconnaissance and non-invasive research (including aerial survey). 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 eolafacts and their inventories, provides a database for a detailed analysis of the results of archaeological research at the level of a single place (object), as well as the analysis of a set of places in the municipality.

The project is implemented under the National Programme for the Development of Humanities funded by the Ministry of Science and Higher Education in Poland.

TH2-14 Abstract 05
Role of archaeology in rise and fall of local tourist industry. A warning example from Finland
Author - Lautias, Vesa, The National Board of Antiquities, Helsinki, Finland (Presenting author)
Keywords: Local involvement, Media, Tourism
Presentation Preference - Oral

In June 1996 pallolithic 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 unresolved.

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 oversensitive start can lead to very disappointing end for all parties involved.

TH2-14 Abstract 06
My Home Ground - past and present
Author - Hjel Madsen, Lene, Museum skanderborg, Skanderborg, Denmark (Presenting author)
Co-author(s) - Dissing, Nina Bangtbo, Municipality of Skanderborg, Skanderborg, 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 of 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.

TH2-14 Abstract 07
Giving is having! Everybody is winning!
Author - Archeologist Lesel, Krietta, Pirkanmaa Provincial museum, Tampere, Finland (Presenting author)
Co-author(s) - Moinianen, Ulla, Pirkanmaa Provincial museum, Tampere, Finland
Co-author(s) - Adel, Valtin, Pirkanmaa Provincial museum, Tampere, Finland
Keywords: cooperation, local people, openness
Presentation Preference - Oral

This paper presents an example of co-operation between museum and local community in the course of development of a new round table scheme in Pirkanmaa region. The 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.
Pirkanmaa Municipal Museum has conducted excavations on a very unique Late Iron Age / Early Medieval dwelling place during the past years. The first discoveries were made by the local people, who have been familiar with the place for decades. The site has attracted an extraordinary amount of interest from various operators: a large museum centre and a small local museum seeking to enhance its activities; a university and independent researchers with personal interest in the site and its material; local authorities wishing to develop tourism. Pirkanmaa Municipal Museum has made research material and information freely available to all, and established contacts with many different operators and experts. With a little effort from everybody, the enthusiasm is clearly spreading. But how well do the different players cooperate? Will the outcome be a large-scale exhibition, a new tourist attraction, and a new multidisciplinary research project, as planned? The paper deals with archaeological excavation project as a societal concept, which creates working interfaces between different operators and sectors of society. The current and potential role of the museum as an enabler of new kinds of activities and projects will be discussed. It is noted that transparency, publicity, contacts, and efficiency are the most important basis for cooperation, and required in managing a research project with lower level of resources than normally.

But this is only a cosmetic touch up. Highlighting finds obtained in this way in permanent exhibitions and publications, just like they highlight well-intentioned donors.

The reaction of archaeologists has been to largely ignore this market. But the volume of finds entering the market reached already the point where we must begin to address the lack of knowledge, and to what degree our legitimate archaeological finds corpus is any longer truly representative, and whether it alone remains valid for future research.

Today, the internet offers an easy and growing platform for rapid exchange of archaeological artefacts, the sheer volume of sales making it hard to keep track of newly advertised finds and sales. Thousands of archaeological artefacts are daily presented through mediums such as ‘treasure hunter’ internet platforms, advertised and sold online through outlets and sold through licensed auction houses.

The legislation of the Republic of Croatia allows for the sale of individual archaeological finds or entire collections to museums, if the seller can prove the origin of the cultural good in the sense of family legacy or heritage. In practice, the easily obtainable confirmation of a notary on the origin of the good is the only thing required to prove the legality of such possession and to enable such sales.

During the last EAA-meeting in Glasgow, the idea rose to re-create an EAA commission on illicit trafficking of archaeological heritage. Our round table is organised by the Working group of this commission.

Antiquities as the ‘hottest invest’ (TIME-Magazine, 12/2007) are one of the biggest problems of archaeology. Finds deriving from unauthorised excavations, metal detecting, robberies of museums/public collections, appear on the market with faked provenience, and are legally sold. The majority of illegal/illicit finds that enter the market, seemingly entirely legally, go unacknowledged by archaeologists. Only rarely do such finds later surface and only few, like the spectacular find of the Bronze Age Nebra-disk, are acknowledged by the wide public. In the case of more mundane finds this rarely ever occurs.

ILICIT TRAFFICKING OF CULTURAL HERITAGE: DIFFERENT STRATEGIES TO FIGHT IT

Saturday, 3 September 2016, 11:30-13:00
Faculty of History, Room 329

Acquisition policy- first line of defense

The legislation of the Republic of Croatia allows for the sale of individual archaeological finds or entire collections to museums, if the seller can prove the origin of the cultural good in the sense of family legacy or heritage. In practice, the easily obtainable confirmation of a notary on the origin of the good is the only thing required to prove the legality of such possession and to enable such sales.

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.
Managing the archaeological heritage

Illicit trafficking of archaeological heritage

Illicit trafficking of archaeological heritage
unknown to archaeological experts. In addition to cases of illegal metal detecting along the Croatian coastal area, there is a coordination between local museums and these “enthusiasts”, but it seems that such relationships are still not clearly defined. Protected within local communities because of their contribution to the defense of the country. There are some attempts at more recent problem is the phenomenon of illegal metal detecting. In some cases it is conducted by war veterans who are for a framework for a new social elite to emerge, and their social status is often confirmed with high-end art collections that sometimes the illegal market.

A policy on collecting written through a consensus in the archaeological profession could deter all potential malicious collectors, not leaving room for them to manipulate ‘family heritage’ and, on the other hand, should not discourage well-intended donors and legal possessors to give their finds over to museums. A high-quality and publicly available collection policy of archaeological museums, made in cooperation with legal experts, is a key step in preventing illicit behavior regarding archaeological heritage, and is a strong appeal to state legislature to redefine the legal framework for such activities. I hope to share my experience and specific proposals for how to win this fight by participating at this round table.

TH2-16 Abstract 02
Illicit trafficking of archaeological heritage in Croatian post-war and transitional context

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 runs of the Roman provincial center Siscia and has provided seemingly inexhaustible archaeological material for all sorts of dealers and smugglers since the second half of the 19th century. The attitude of professional institutions, primarily museums, towards these activities varied between the 19th and 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 rest probably ended up on the illegal market. A more recent problem is the phenomenon of illegal metal detecting. In some cases it is conducted by war veterans who are protected within local communities because of their contribution to the defense of the country. There are some attempts at coordination between local museums and these “enthusiasts”, but it seems that such relationships are still not clearly defined. Although a number of objects end up in museums, most of these “donors” have rich private collections partially or completely unknown to archaeological experts. In addition to cases of illegal metal detecting along the Croatian coastal area, there is a large problem with the looting of ancient shipwrecks in which a large number of artifacts, mainly amphorae, are placed on the illegal market.

Similarly to most post-communist societies in Central and Eastern Europe, the transitional period in Croatia has also created a framework for a new social elite to emerge, and their social status is often confirmed with high-end art collections that sometimes include archaeological objects. There have been cases of high-ranking civil servants in whose possession illegally acquired artifacts have been found. In the last few years, some progress has been made in the legal sanctioning of individual dealers, with several confiscated collections and filed criminal charges.

TH2-16 Abstract 03
Can local people preserve cultural heritage?

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

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 validated 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 conflict-related 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.

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 to be asked is this: are metal detectorists potentially an ally or an enemy of conflict archaeologists? 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 its Impact on Cultural Heritage

Managing coastal heritage as climates change

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, Skjerkva 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 Skjerkva watercourse in the South of Norway is subject to all of this, and we foresee many challenges for the preservation of the cultural heritage in the area.

TH2-17 Abstract 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 2012-2017 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’s Scottish Climate Change Adaptation Programme, which takes it with 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 research will also inform the development of a methodology for the broader historic environment.

TH2-17 Abstract 05
Managing the archaeological heritage

Managing coastal heritage as climates change

Future climate change is expected to raise sea levels, increase temperatures and change the overall precipitation patterns, with a potentially great negative effect on preservation conditions. How should cultural heritage management respond to these threats? In order to prepare adequate mitigation schemes, it is necessary first to know exactly what state it is in, and what the conditions for in situ preservation are. Degradation of archaeological remains depends on environmental conditions. Which measures may be taken to mitigate the predicted climate changes and ensure continued in situ preservation of heritage sites? Should they be covered, or can changes in soil chemistry be stopped? Studies in sites in Northern Norway are used to demonstrate impacts and possiblemitigating actions.

TH2-17 Abstract 01
Threats to Heritage and the Distributed Observing Network of the Past: A Northern View
Author: Prof. McGovern, Thomas, Hunter College CUNY, New York, United States of America (Presenting author)
Keywords: Climate Change and Heritage: Impact and Strategies, Climate Impact, Heritage Loss, Northern
Presentation Preference - Oral

Climate change is impacting archaeological sites all over the world, as rising sea levels, increasing storminess, wind erosion, and a range of extreme weather events damage sites and monuments. These processes are ongoing, and in northern and alpine regions the threat of rising soiltemperatures and “melting middens” broadens the threat to take in sites far inland. In SW Greenland, recent survey data indicates only a handful of sites retain once excellent conditions of organic preservation (three of nearly a hundred studied). In the Bering Sea and N Alaska sites spanning thousands of years are going into the sea across broad coastlines. This loss impacts both cultural heritage and the scientific value of “a distributed observing network of the past” of great value to modern resource managers, climate modelers, and planners for a sustainable future. A host of new techniques including aDNA, stable isotopes, and trace element analyses are now broadening our understanding of past food webs and biogeography - just as some of our most valuable archives are being destroyed forever. However, multiple agencies and communities are coming together to address these threats, combining disciplinary science and humanities with full engagement of local communities. This paper presents some of the strategies for collaboration being developed in cooperation with the Society for American Archaeology’s Climate Change Strategies and Archaeological Resources committee and the IHOPE Threats to Heritage and the Distributed Observing Networks of the Past program.

TH2-17 Abstract 02
Mitigating Climate Change Effects on Heritage Sites?
Author: Dr Maritens, Vibeke Vandrup, NRK - Norwegian Institute for Cultural Heritage Research, Oslo, Norway (Presenting author)
Keywords: in situ preservation, mitigation, Northern Norway
Presentation Preference - Oral

In order to prepare adequate mitigation schemes, it is necessary first to know exactly what state it is in, and what the conditions for in situ preservation are. Degradation of archaeological remains depends on environmental conditions. Which measures may be taken to mitigate the predicted climate changes and ensure continued in situ preservation of heritage sites? Should they be covered, or can changes in soil chemistry be stopped? Studies in sites in Northern Norway are used to demonstrate impacts and possible mitigating actions.
Scotland’s vast coastline contains a wealth of archaeological sites, many buried under shifting sand dunes which has led to remarkable levels of preservation. Coastal erosion, accelerated by climate change, is impacting on thousands of these invaluable heritage assets. In recognition of the severity of the threat, the SCAPE Trust was established with a remit to research, conserve and promote the archaeology of Scotland’s coast.

Since the mid-1990s, Historic Scotland (now Historic Environment Scotland), has sponsored a series of Coastal Zone Assessment Surveys (CZAS) of the coastline in order to quantify the condition and threats to Scotland’s coastal archaeological resource. These surveys have targeted vulnerable areas and covered over 40% of the entire coastline. As well as assessing the geology, geomorphology and erosion risk of coastal cells, more than 11,500 heritage sites have been recorded. A prioritisation process taking account of a site’s value, vulnerability and condition has classified nearly 1,000 sites as requiring attention.

Following prioritisation, SCAPE initiated the Scotland’s Coastal Heritage at Risk Project (SCHARP), which worked with members of the local community to update and enhance this data, focusing on high-priority sites. The citizen science approach created a network of volunteers to monitor vulnerable sites in the dynamic coastal zone. As monitoring alone does not save threatened sites, SCAPE has also worked with community groups to undertake action at locally- valued sites. As preservation in situ is impractical or impossible in many coastal locations, the main aim is to rescue as much information as possible from these sites. A variety of strategies, from innovative digital recording and excavation to relocating and reconstructing sites have been deployed. The next project aim is to reference the updated data generated by SCHARP against the set of national research questions presented in the Scottish Archaeological Research Framework. This will ensure that research is undertaken at sites that will otherwise be destroyed, creating a ‘research / rescue’ framework. The potential of these vulnerable sites to answer research objectives will be shared with the international archaeological community.

A second aim is to map the updated data against the National Coastal Change Assessment. This project has plotted past change to the coastline and maps future susceptibility to erosion, and the result of the mapping exercise will inform future management of the coastal archaeological resource and highlight national and local priorities for further work.

This paper will present the impact of coastal processes on Scotland’s archaeological heritage, examine see methodologies employed to mitigate the threats sites face, consider the application of citizen science to the problem of coastal erosion and give case studies of some of the differing strategies used to preserve vulnerable coast sites by record.

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**TH2-17 Abstract 07**

**Submerging Heritage: Forecasting Climate Change Impacts to Set Preservation and Research Priorities**

**Author** - Dr. Heilen, Michael, Statistical Research, Inc., Haymarket, United States (Presenting author)

**Co-author(s)** - Altschul, Jeffrey, Statistical Research, Inc., Tucson, United States of America

**Keywords** - archaeological modeling, climate change, heritage management

**Presentation Preference** - Oral

**Abstract**

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: inventory, 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 prioritize 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.

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**TH2-17 Abstract 08**

**Sun, wind and rain: renewable and non-renewable resources in Wales**

**Author** - Belford, Paul, Clysau-Powy Archaeological Trust, Welshpool, United Kingdom (Presenting author)

**Keywords** - heritage management, renewable resources, Wales

**Presentation Preference** - Oral

This paper will look at two aspects of the effect of climate change on archaeology and cultural heritage in Wales. Firstly there is the need to reduce carbon emissions by increasing the use of renewable energy. However onshore wind and solar electricity generation has polarised public opinion, with many seeing them as a blight on the landscape. Although such installations may have an impact on archaeological and cultural heritage sites, the principal concern – both for heritage professionals and the public – is their impact on the wider landscape and the setting of heritage assets. In many ways the windfarm debate in twenty-first century Wales echoes nineteenth- and twentieth-century contestation over the loss of landscapes when reservoirs were created to supply water to English cities. Secondly, very significant damage to archaeological sites has taken place around the Welsh coastline in recent winters. Erosion has sometimes destroyed the historic environment, but it has also enabled new discoveries. The problem has been in providing resources to ensure that the archaeology is recorded or preserved – and one very successful response has been the ‘Arfordir’ scheme run by the Welsh Archaeological Trusts training large numbers of volunteers to identify and record coastal heritage sites, and the changes that are happening to them. Discussion will focus on the role of archaeological curators, commercial contractors and public bodies in managing these cultural heritage challenges. What impact is climate change having on the cultural heritage, and how effective is the system in Wales at mitigating those impacts?

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**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

**Co-author(s)** - 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.
TH2-17 Abstract 10

Sustainable energy versus sustainable heritage
in The Netherlands

Author - Kars, Eva, EARTH Integrated Archaeology B.V., Arnhem, the Netherlands (Presenting author)
Co-author(s) - Van Rooijen, Cees, Cultural Heritage Agency of the Netherlands, Arnhem, the Netherlands

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. 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.

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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 - cultural heritage, environment, sustainability. Public participation and sunset and climate change, especially in the last decades, have been a challenge for the culture heritage sector. Now, the Renewable Energy Directive puts new pressures on the peripheral regions, in particular on the archaeological heritage. The consequences of the implementation of the Renewable Energy Directive give an even larger pressure and challenge for the cultural heritage sector. Now, the Renewable Energy Directive puts new pressures on the peripheral regions, in particular on the archaeological heritage. The consequences of the implementation of the Renewable Energy Directive give an even larger pressure and challenge for the cultural heritage sector.

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PREVENTIVE ARCHAEOLOGY, SCIENTIFIC RESEARCH AND ECONOMIC DEVELOPMENT

Saturday, 3 September 2016, 09:00-18:30
Faculty of Philosophy, Room 214p
Authors: Demoule, 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

Is it possible to reconcile three seemingly contradictory requirements that are 1) infrastructure works and their economic implications, 2) preventive archaeology as set out in national legislations following the Malta convention, and 3) structured and genuinely scientific archaeological research? While legal systems have been put in place in different countries after the signature of the 1992 Malta convention, numerous problems of implementation and reconfiguration still remain, often exacerbated by the 2008 economic crisis. In fact, legal positions have actually been eroded in some countries, and additional constraints such as shortened delays and narrower margins have been imposed on archaeological organisations and operations. Moreover, in countries where archaeology is predominantly conceived as a commercial activity, the crisis has thrown numerous organisations into a cost-cutting spiral, with as a side effect, in many cases, the reduction of standards both in terms of employment conditions and of scientific production.

The current session, building on related sessions and round tables regularly promoted by the "Committee on Archaeological Organisation and Legislation" at previous EAA meetings, seeks thus to present the current state of affairs with regards to preventive archaeology, legislation and scientific research in various countries. Our intention is not only to critically appraise a range of case studies, but also to provide some more general arguments and tools for thought to those seeking to promote, towards the third decade of the 21st century, this challenging reconciliation of scientific, patrimonial and socio-economic aims.

TH2-19 Abstract 01
Rescue and Preventive Archaeology in Europe: Public Service or Commercial Activity?

Author: Prof. Demoule, Jean-Paul, Université de Paris I, Paris, France (Presenting author)
Keywords: commercial competition, Preventive archaeology, scientific research
Presentation Preference - Oral

While the term heritage normally refers to the transmission of property within a family, the term Cultural or Archaeological heritage refers to a national or ethnic community. Although national identities in the modern sense of the term only appeared in the early 19th century, there have 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 little cause for celebration, it did in fact mark a new era in the archaeology of the UK and far beyond. Beforehand “rescue archaeology” was funded by the UK’s central government; thereafter it became the responsibility of developers. It is estimated that, in the intervening period, some 75,000 archaeological investigations have been supported by this system, recording many thousands of archaeological sites that would otherwise have been destroyed by development, without record.

The quarter-century anniversary of this change provides an opportune moment to reflect on the changes that have been wrought in the intervening period. In terms of resources directed to the study of archaeology, the revolution in understanding that has generated and the growth in professionalism in our discipline, the change in policy has been a major success. But it has also created challenges.

This paper will review the achievements of the last 25 years and the balance of benefit and problem that now faces the archaeological profession in England.

TH2-19 Abstract 03
Identifying research aims at the earliest stage of large development plans, first thoughts matter!

Author: Allen, Tim, Historic England, Northampton, United Kingdom (Presenting author)
Keywords: early assessment, major development, research priorities
Presentation Preference - Oral

‘Development led’ (preventive) archaeology is still regularly contrasted to ‘research archaeology’. In the UK the former is done largely by commercial organisations (contractors), the latter mainly by universities and community groups with public or charitable funds. This use of language belies a considerable shift in intent over recent years, from both archaeological curators and contractors, and considerable crossover with many contractors undertaking both commercial and not for profit projects.

The development of national and regional research assessments, agenda and strategies (e.g. in England ‘Regional Research Frameworks’) has sought to ground archaeological practice in an explicitly aims and objectives based approach. For archaeological assessment and mitigation to produce meaningful results it must work iteratively, we need therefore to formulate initial questions from first sight of a project. Archaeological curators are mostly public employees working for local and national governments, agencies and institutions; they have limited time and relationship capital to spend. To influence outcomes, key research questions must be identified early in process (especially concerning absence of knowledge). If an archaeological impact, in particular a setting impact, is to be mitigated or eliminated (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 archive? We know what we should do but require an understanding of practice and an articulation of the narrative in which our jobs are situated. Without being able to tell to ourselves the story of our role in the archaeological research process we can neither defend our position nor critically assess our success.

Where across complex landscapes with patchy existing information should archaeologists deploy their time and other people’s money and attention? This paper discusses the application of professional judgement and expertise to the identification of key research issues both within and outwith areas of proposed development, at the earliest stages of professional engagement. It draws upon case studies from the English East Midlands (UK). This initial view of a project should not pre-speak an 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 of our past and in allowing the design process to minimise harm. Archaeological assessment and mitigation requires a research based approach from day one, for better or worse we never have as little information or as much potential influence as we do at that first point.

TH2-19 Abstract 04
Trends in Scandinavian cultural heritage management in the 2010s

Author: Professor Hakon, Glørstad, University of Oslo, Oslo, Norway (Presenting author)
Keywords: development-led archaeology, Heritage management, Scandinavian models
Presentation Preference - Oral
Since the 1990s the Scandinavian countries have in various ways tried to adjust cultural heritage management and development-led archaeology according to the national political thinking on the one hand and Pan-European legislation on the other. Sweden is probably the most radical in Scandinavia where the most radical, modernistic reforms have been implemented. The success of these reforms has however been questioned. Still, far-reaching changes are nevertheless pronounced. Local, Scandinavian solutions are challenged by organizational models from the larger European countries and by EU legislation. This paper addresses some of these trends and tries to analyse the role of archaeology as a scientific discipline. Theoretical trends undermining the importance of humans may enhance or describe the power of EU directives as an inevitable destiny of Scandinavian archaeology. This thus makes the fact that archaeological engagement with politics on a national level is of major importance for the future of European Archaeology.

TH2-19 Abstract 05
Development in preventive archaeology in Slovenia: a view from the field
Author - MA Novšak, Matjaž, Arhej d.o.o., Ljubljana, Slovenia (Presenting author)
Keywords: preventive, Slovenia
Presentation Preference - Oral
Slovenia has rather long tradition of archaeological heritage protection, dating from the early 1850s when the Imperial/Royal Central Commission for the Research and Protection of Artistic and Historic Monuments was established in Vienna (at that time Slovenia provinces belonged to the Austrian Empire). Since then, Slovenia has passed through great political changes to become independent country in 1991 with the end of former Yugoslavia. More than 150 years of legislation in heritage protection is an important factor also when considering the development of preventive archaeology today. General institutional framework and doctrine of protection was for decades tied to the Austrian tradition (even after 1918), and Slovenia kept probably the best organized and efficient heritage service in former Yugoslavia with well developed regional network of heritage protection institutes. Legal transformation of old “yugoslav” system started early in the 1990s, but it was not these changes which are directly associated with the introduction of preventive (rather than rescue) archaeology. In fact, it was great pressure posed by national program of motorways construction in the early 1990s, which considerably challenged the existing (traditional) system of protection, and required answers in terms of preventive strategies. It is in this context in which also the Malta Convention became ratified and principle polluter – payer implemented. Here, it is possible to see two major and parallel trends in changing the system of protection: a) positioning archaeology (and its preventive role) in obligatory procedures in spatial planning and b) emergence of private market of archaeological services. For the period 1994-2008 one could speak of a hybrid system of organization of archaeological preventive works with public (regional) heritage institutes officially directing large scale excavations and surveys (on motorway sites mostly), but hiring private SME for the actual job in the field. Existing public institutions simply could not meet the requirements for fast and efficient archaeological preventive research. In 2008, situation changed again, when new Cultural Heritage Act (which introduced the term preventive research) limited the issuers of protection conditions and recommendations (i.e. heritage institutes) to monitoring of archaeological field research. The actual research was undertaken by SMEs or by public instructions which have a right to compete in the market (e.g. museums, academic institutions).

There is also another important issue associated with this act. Prior to 2008, it was the heritage institutes which negotiated the extent and also finances of the research, and have legal powers to force the developers to accept certain measures), while, afterwards, there were possible direct negotiations between developers and preventive researcher. Such liberalization of negotiations had in many cases negative consequences, especially in the context of recent economic crisis, which in Slovenia affected the most the investments in spatial development and construction, and consequently, also all ‘players’ in preventive archaeology.

TH2-19 Abstract 06
In search of a common space: (sharing) the spatial data of preventive archaeology
Author - Nurra, Federico, Sassari, Italy (Presenting author)
Co-authors: Monreu, Anne, INRAP, Paris, France
Keywords: GIS, Preventive archaeology, Webmapping
Presentation Preference - Oral
According to the Article 7 of the “European Convention on the Protection of the Archaeological Heritage”, the parties have to - make or bring up to date surveys, inventories and maps of archaeological sites- and -to take all practical measures to ensure the drafting, following archaeological operations, of a publishable scientific summary record before the necessary comprehensive publication of specialised studies-. Furthermore, the Article 8 of the same “Convention” commits the parties -to facilitate the national and international exchange of elements of the archaeological heritage for professional scientific purposes- and -to promote the pooling of information on archaeological research and excavations in progress-. 25 years after the “Malta Convention”, we need to come back to this text and make a debris of the current situation: is the Article 7 just applied? If it is the case, how do the operators of preventive archaeology do in Europe? The issue underlay is that of the harmonization and the sharing of archaeological data. In that perspective, thinking the harmonization of the spatial data appears to be one of the answers: Archaeology is, above all, a spatial science and it seems thinkable to find a general agreement on the way of representing the spatial data. The issue of production, harmonization and management of archaeological data has become by now central, in relation to the huge diffusion of GIS and Web Mapping. Basing on this premise and on two practical experiences developed in very different contexts, this paper aims to give a contribution toward the definition of a minimal spatial and archaeological value, useful to the production of archaeological cartography on a European scale.

TH2-19 Abstract 07
Preventive archaeology in current Slovakia
Author: Dr. Michalík, Tomas, Cultural Heritage Consulting Ltd., Slovak Association of Archaeologists, Trnín, Slovakia (Presenting author)
Keywords: archaeological heritage, preventive archaeology, Slovakia
Presentation Preference - Oral
Cultural heritage and its protection is regulated in the number of laws in Slovakia. Basic mentions in the Constitution refer to individual laws, regulating cultural monuments, historic sites, archaeological heritage, museums, galleries, libraries, archives, 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 Ministry of Culture of the Slovak Republic and its 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 licensed organizations in Slovakia; the licence is granted by the Ministry of Culture of the Slovak Republic, taking into consideration opinion of Licence Commission, its advisory body. Currently (February 2016) there are 38 licensed organizations, representing museums, private companies (14), universities (4), civil association (1), town organization (1) and state (2, but important actors – Archaeological Institute of Slovak Academy of Sciences and Monuments Board of the Slovak Republic) in Slovakia. Although museums is the most numerous group, they focus especially on local, less difficult projects. Majority of excavations is conducted by the private sector, what is interesting fact as the first licence for private company was granted only in 2007. Independently on the quantity or quality of archaeological finds, they must be stored in the museum after the finish of the research and 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...
management initiatives. Such deleterious effects can also affect countries which are less affected by the economic crisis. Thus we have to develop strategies to maintain or preserve preventive archaeology whilst its establishment has not been considered as accomplished. At the same time, through the crisis of preventive archaeology, new debates appear about the relation between science and heritage.

Finally, we can ask these questions: What do we really have to maintain? What exactly should we accomplish?

This presentation proposes an analysis of the historic development of preventive archaeology in Switzerland since the end of the 1950s. The particularity of preventive archaeology in Switzerland is its early development under the impetus of a long-term motorway construction programme that has been in progress for 60 years. Another particular characteristic of preventive archaeology in Switzerland is its framework of the Swiss political system which is a Federal State with significant autonomy within the 26 cantons and half-cantons which make up the country. Thus Switzerland can be considered as a “tiny European Union” in the centre of Europe, making it an interesting case for comparative study.

Through this historic analysis we will see that preventive archaeology is the result of a continuous and irregular evolution of different practices and numerous processes. They come from different origins: methodology, science, technique, administration, politics and economics. Consequently, the practice of preventive archaeology has been planned through different organizational and political entities responsible for its implementation. Therefore, preventive archaeology is an amalgamation of many different principles that were required to be established. On the contrary, preventive archaeology consists of several paradigmatic principles related to heritage protection. Moreover, these principles can be applied very differently from one political state to another.

In conclusion, if we accept that the current state of preventive archaeology is not an end in itself that need to be protected, but that it constitutes a paradigm of research concerned with the preservation of cultural heritage, we should then recognise that the manner in which preventive archaeology is organised can be regularly re-negotiated within civil society so that it is adapted to the evolution of the research context and, last but not least, to our scientific ambitions.

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TH2-19 Abstract 09

The Archaeologies of different times and contexts, as seen from the east part of Western Europe

Author - Dr. Staubli, Harald, Heritage Office Saxony, Germany, Dresden, Germany (Presenting author)

Keywords: archaeology, Europe, comparative archaeology, heritage law, preventive archaeology

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 accompanied 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 archaeological 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 convolting work, but it also coincides with the socio-political and economic changes in East Europe, which surely helped the signatories 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 aspects and problems of development-led large scale archaeological projects will be presented thus from the point of view of Saxony, a former part of East-Germany.

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TH2-19 Abstract 10

Enabling Archaeological Research within a Heritage Management Context: A View from the United States

Author - Dr. Helen, Michael, Statistical Research, Inc., Haymarket, United States of America (Presenting author)

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 heritage resources that may be affected by an undertaking involving the federal government. Section 106 of the Act further requires federal agencies to identify and manage heritage resources within their jurisdictions. A large and robust heritage resource management industry has developed in the United States around these requirements. The thousands of active permits and annual permits as a result of activities under the Act have resulted in tremendous stores 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 of starting with research to conducting research within two different regions of the United States -- coastal southern California and the desert Panagoula 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.
Today, the challenge is to implement the model more (there are some examples in Spain, but very few), and to improve it to include other kinds of measures such as mediation techniques in front of social conflicts with interventions or adequate interpretation systems for this type of archaeological heritage that usually is more difficult to spread than other archaeological...

TH2-19 Abstract 13

Preventive archaeology from 2010 onwards in Hungary — legal background and the reality

Author - Bózóki-Ernyey, Katalin, Government Office of Budapest Capital, Budapest, Hungary (Presenting author)
Co-author(s) - Völkl, Katalin, Gyula Forster National Heritage and Asset Management Centre, Budapest, Hungary
Keywords: development-led excavations, legal system, reforms
Presentation Preference - Oral

Hungary has signed the Malta Convention among the first countries (1992), built the Convention’s main principles already into the first cultural heritage law (1997. CXL) 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 characterized by a radical re/disorganisation of heritage administration under the aegis of the overall government-reform, the shutdown of the INRAP-like field service (established in 2007). The recent changes (including the accreditation of excavation institutions and firms) foster the building up a free-market like system in case of development-led large scale excavations: legal “reforms” were introduced in favour of better predictable excavations and investments and for the “benefit” of the citizen. We try to confront theory and practice to outline the problems that should be resolved.

TH2-19 Abstract 14

French preventive archaeology in a European context

Author - Salas Rossenbach, Kai, French national institute for preventive archaeological research, Paris, France (Presenting author)
Co-author(s) - Pion, Patrick, French national institute for preventive archaeological research, Paris, France
Keywords: development-led, European, preventive
Presentation Preference - Oral

Since 2001 French state decided to create a national institute to lead preventive archaeology. With more than ten years of exercise, through crisis and political changes, the Institute evolved and learned from these changes. Looking across Europe, French model still looks singular both from is accomplishments and failures. This presentation, comparing European situations with the French one, consists of a critical analysis of the French example. From this base, it proposes some common lines to be discussed at a European level. Each of these lines seem to take us to a central starting point question: why is preventive archaeology done in our countries and how can we collectively answer this question?

TH2-19 Abstract 15

Is Preventive Archaeology viable in time of crisis?

The Greek experience

Author - Kotsakis, Konstantinos, Aristotle University Thessaloniki, Thessaloniki, Greece (Presenting author)
Presentation Preference - Oral

The paper presents the state of preventive archaeology in Greece within the context of the most serious economic and social crisis since the end of the Civil War in 1949. Archaeology in Greece is traditionally and legally closely involved in the State apparatus, a reality which is enhanced by the corporatism of the state archaeologists. However, the urgency of the economic crisis hitting Greece hard since 2009, and the recently added huge refugee crisis is putting a dangerous strain on archaeology. Is state archaeology going to survive the crisis?

TH2-19 Abstract 16

Is preventive archaeology compatible with scientific research?

Author - Dr. Depaepe, Pascal, Inrap, Amiens, France (Presenting author)
Keywords: Economic Crisis, Preventive archaeology, Scientific Research
Presentation Preference - Oral

Preventive archaeology is now, in Europe, certainly the main source of archaeological data, about 90% in some countries, and each European country has a more or less strong legislation about archaeology and cultural heritage. A common point of these laws is the possibility of a commercial archaeology beside an academic one. Therefore many private companies have emerged especially since 2000. But preventive archaeology has been strongly affected by the global economic crisis since 2008. In this paper I will examine if preventive archaeology is efficient in a scientific point of view, not only in a cultural heritage point of view, in western Europe and especially in France.

TH2-19 Abstract 17

Birth and infant death of preventive archaeology in Italy

Author - Dr. Guermandi, Maria Pia, Istituto Beni Culturali, Bologna, 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 2016 – 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 for orienting the evolution of future processes in a direction favourable (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 dig it collect what is there as finds, wash the finds and have experts look at them and give dates and functions for the various layers and a real interpretation can be applied satisfactory to all.

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 rigorous 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 methodology can not only establish where and what archaeology is on the site with minimal intervention, but in combination with geophysical analysis can establish the best and most cost effective way to investigate and evaluate it. This is not to say the numerous 30m or 50m x 2 m trenches across a site on a consultant whim doesn't work but I will argue that a targeted environmental and scientific preliminary investigation will lead to a more cost effective and beneficial method of examining our historic environment to the benefit of all.

TH2-19 Abstract 19
Preventive archaeology in Austria

Author - Mag. Dr. Krenn, Martin, Bundesdenkmalkamt, Krems, Austria
Co-author(s) - Dr. Stegberger, Eva, Bundesdenkmalkamt, Krems, Austria (Presenting author)
Presentation Preference - Oral

The present article deals with the structural changes that have taken place within Austria's archaeological heritage management in the last few years. Issues such as the current state of human resources and general tasks of the Federal Monuments Office's Archaeological Department are covered. Special emphasis is placed on the rise of commercial archaeology as well as on the "Guidelines for Archaeological Measures" introduced in 2010.

The presented data clearly show that the restructuring of archaeological heritage management in Austria since 2010 has shown positive effects. The concentration on core competences, the abandonment of direct excavation activity and the assignment of archaeological personnel to each of the respective state departments has intensified the level of regional supervision and has lead to a considerable increase in archaeological measures taking place. Furthermore, the quality of excavation documentation and their data integrity has improved through the introduction of the "Guidelines for Archaeological Measures".

TH2-20 Abstract 01
Destination management of heritage sites and towns in Croatia

Author - MA Mihelicić, Sanjin, Archaeological Museum in Zagreb, Zagreb, Croatia (Presenting author)
Co-author(s) - Komló, Darko, Archaeological Museum of Istria, Pula, Croatia
Keywords: Archaeological tourism, Destination management, heritage sites
Presentation Preference - Oral

The paper focuses on the present state regarding integrated destination management of heritage sites and towns in Croatia, reviewing a number of recent attempts at broad-scale participative approach integrating needs, wishes and particularities of different stakeholders. In certain cases, the general collaborative framework introduced by a few key stakeholders in the circle including archaeologists, conservators, tourism specialists, local administrative units, civic sector and local community proved an excellent guiding light toward a common goal of integrated management aimed at sustainable development of archaeological sites as dynamic factors in the tourism business at local, regional and national levels. In certain other cases, in which these different voices were not fully heeded and particular interests took precedence, archaeological tourism as a practice often left much to be desired. The authors, directors of two major Croatian archaeological museums (in Zagreb and Pula respectively) draw on their experience in the project management of heritage attractions, with a view to contributing to the discussion towards creating European guidelines for archaeological tourism, as proposed by the session organizers.

TH2-20 Abstract 02
Bridging the gap: archaeology in tourism

Author - Zupanek, Bernarda, Museum and Galleries of Ljubljana, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Bregar, Tamara, Museum and Galleries of Ljubljana, Ljubljana, Slovenia
Keywords: archaeological heritage management, archaeological park management, archaeology, tourism
Presentation Preference - Oral

Archaeological Park Emona (Ljubljana, Slovenia) exhibits remains and presentations of a Roman Colonia Iulia Emona. The park consists of several locations in the center of modern Ljubljana, the Slovenian capital.

The park developed gradually from 1930-ties on. As a product of specific context, tied to the idea of Antiquity and its heritage as civilizing and inherently understandable, and to Roman archaeology as elite oriented, it was less interesting for the general public, and gradually became obsolete and unknown even to the inhabitants of Ljubljana.

During the project of renovation and revitalisation of the Archaeological park Emona in 2011-2012, carried out by the Museum and Galleries of Ljubljana, several key changes and improvements have been made. The primary goal of the project was to include...
the heritage of Emna into the life of modern Libyans, 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 Libyana, and designed a tour 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 Emna and similar enterprises in the future.

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**TH2-20 Abstract 03**

Looking for archaeology in an official tourism sustainable method.

**Examples from two Spanish villages**

**Author:** Castro, Alicia, Complutense University of Madrid, Madrid, Spain (Presenting author)

**Co-author(s):** Domínguez Marta, Complutense University of Madrid, Madrid, Spain

**Keywords:** cultural heritage, sustainable tourism, ETIS, university-enterprise collaborations

**Presentation Preference - Oral**

One of the most important topics to analyze the relationship between Archaeology and tourism is the study of its role under the parameters of touristic agents. In this context, our research team has had the opportunity to collaborate with an enterprise in an experimental project to the Spanish Ministry of Industry. The methodology is based on other European systems, especially The European tourism indicator system for sustainable destinations (ETIS), which is being experimentally tested in several towns along all Europe.

This project tries to validate the utility of an official method to analyze sustainable tourism in towns. The work is coordinated by enterprise in urban regeneration and participatory processes who has tested this methodology in two villages with a rich cultural heritage: Cazorla (Andalusia) and Sigüenza (Castilla La Mancha).

As part of a strategy of collaboration between the University Madrid and an enterprise to introduce innovation and research, we have proposed and introduced some novelties to the official methodology. Specifically, we are trying to improve the role of cultural heritage to measure sustainability of these two touristic destinations. Unfortunately, in both the European and Spanish methodology archaeology or archaeological sites are highly overlooked. In contrast to this situation, the Spanish cases of study here considered as other European destinations attract large numbers of tourists due to their past, tangible and intangible Heritage. The conclusion reveals a negative consideration for archaeological values; however, from a proactive point of view, we have started to work with this methodology and to introduce new parameters that we hope will be considered in future implementations of this methodology. At the same time, this is an opportunity to show a touristic tool in experimental use in many European countries and the attempts to adapt it to archaeological sites or archaeological management in a project where tourism is an objective.

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**TH2-20 Abstract 04**

Crossing borders along the Dutch Limes - How the famous Roman barges of Zwammerdam support people with multiple disabilities

**Author:** Hazenberg, Tom, Hazenberg Archæology, the Netherlands (Presenting author)

**Keywords:** Limes, visitor center, unique collaboration, Tourism

**Presentation Preference - Oral**

The Roman frontier fort of Zwammerdam is one of the sites along the Lower German limes, along the river Rhine in the west of the Netherlands. Beside the military fort six Roman shipwrecks are discovered. The ships represent the typical character of the Lower German limes as a river frontier, built in wetland, serving as a main transport route connecting the Germanic and Gallic hinterland with the North Sea basin. For this reason the ships play a principal role in the tourist-oriented development of the Lower German limes connected to the UNESCO nomination programme.

The ships were found on the estate Hooge Burch, now owned by Ipse de Bruggen, an institute for people with multiple disabilities. 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.

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**TH2-20 Abstract 05**

From the ground up: Experiencing Romania through excavations at Halmyris in the Danube Delta

**Author:** Hanacarm, Emily, Durham University, Durham, United Kingdom (Presenting author)

**Keywords:** Authenticity, Heritage, Volunteer

**Presentation Preference - Oral**

The concept of archaeological tourism, or tourism based on the experiencing of an ‘authentic’ past through the viewing of archaeological sites (Timothy and Boyd 2006), is a distinctly Western phenomenon derived from nationalist capitalism which encourages heritage consumption (Rowan and Baram, 2004). There are obvious challenges in the display of heritage specifically for monetary profit, a practice which often silences alternatives 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.


Museums in Central Asia: The Role of Cultural Institutions

Tajikistan, Turkmenistan and Uzbekistan. For each country two museums were chosen for the analysis. The criteria of the choice for potential tourists in order to attract them. The issue of competitiveness of the museums on the digital level and the issue of archaeological museums in the countries of Central Asia are able to adopt effective strategies to facilitate access to information countries of Central Asia are competitive in promoting their national heritage. It aims to verify, to what degree historical and 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 literature on the tourism industry is that information is the lifeblood of tourism. It has been clearly demonstrated in numerous

The countries of Central Asia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, or Uzbekistan have great tourist potential both

Keywords:

- Oral

Archaeological Sites of Europe through the Web

Co-author(s) - 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, Maia, Complutense University of Madrid, Madrid, Spain

Keywords: Perception and Interpretation, Tourism, World Heritage Site

Presentation Preference - Poster

Within the context of collaboration of the cultural heritage management research group of the Complutense University of Madrid and according to the interest awoken by the Archaeology and Tourism Working Party, we present this poster with the intention of making a first approach of how the touristic agencies operating on the Web treat the archaeological visit. Following the UNESCO criteria regarding the world’s regional division and the reasons for declaration, we selected the settlements recognized for their archaeological dimensions as World Heritage Sites in the European context and which are accessible to visit. Through a series of charts and quantitative analysis we are going to present which ones are the main references for the touristic industry when encouraging the visit and how much of that quantity is similar to the discourse transmitted by those who work in the research of these archaeological sites. The poster aims to show the differences or the confluences between the scientific discourses and those generated by the tourism sector so that proposals of improvement can be made for the social transfer of archaeology through these means and at the same time, improve the touristic experience related to the appreciation of the research efforts behind these places and that justify their conservation and opening to the public.

Keywords:

- Museums?

Wikimedia Commons

- Author: - Leonor, Perez Ruiz, University of Valladolid, Valladolid, Spain (Presenting author)

- Dr. Pawleta, Michał, Adam Mickiewicz University, Poznań, Poland (Presenting author)

- Co-author(s) - Soto de Prado Otano, Catalina, Complutense University of Madrid, Madrid, Spain

- Co-author(s) - Ruiz del Arbol Moro, Maria, CSIC, Madrid, Spain

- Co-author(s) - Borregoquet Bético, Cristina, University of Burgos, Burgos, Spain

Keywords: Cultural Landscape, Historical routes, Language learning

Presentation Preference - Oral

The aim of the paper is to present our investigation of the potential role of a historical route as a language learning and culture acquisition tool. The Route of the Blown Bridges refers to Wellington’s retreat in 1812 from Burgos to Portugal after the month 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 Cantion, Pauera, Dero and Torres rivers were blown. Through “the worst scrape I 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.

The analysis of the museography and other landmarks of the route will demonstrate how fascinating the itinerary is as a means to relive the historic epic of the Napoleonic Europe both for the foreign contemporary traveler, often learned and with great interest in historical events, and also for the general public, willing to know more about this period of our history, the popular festivals, the historical recreations, etc.

As part of an ongoing project devoted to the planning, design and digitalization of materials called Tournée the Battlegrounds! The Peninsular War in Castilla León, our didactical proposal covers language use, cultural knowledge and intercultural competence, while contributing to the valorization and manament of our region cultural landscapes.

The Route of the Blown Bridges

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TH2-20 Abstract 09

One’s destination is never a place, but a new way of seeing things: Touring a Heritage trail

Author: - Borregoquet Bético, Cristina, University of Burgos, Burgos, Spain

Co-author(s) - Ruiz del Arbol Moro, Maria, CSIC, Madrid, Spain

Keywords: Cultural Landscape, Historical routes, Language learning

Presentation Preference - Oral

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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- Linea, 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, presentational 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 St. Troja hill fort, the Museum succeeded in its intention to raise awareness of the local population and the governing bodies about the rich natural and cultural heritage of the area, and to actively include the community into the forming of its presentation through education activities. In the long run, the Museum wishes to include all potential stakeholders – cultural and natural heritage-related institutions (Paklenica Nature Park, Velebit Nature Park, Archaeological museum in Zadar), as equal partners, in order to act in synergy to enrich the existing tourist offer of the Starigrad Municipality, to achieve their own Missions, and, through a contemporary and innovative approach, to enable for the creation of a kind of museum in the open which would, inside its invisible walls, inseparably connect and communicate the rich natural and cultural heritage of the entire Starigrad area in an interesting and inspiring way.

The Museum, as the initiator of the idea of this sort of research-presentation multidisciplinary symbiosis, would use its research work not only as a key step in the collecting and interpretation of scientifically-based data, but also as an exceptional presentational potential, enabling all interested persons to see the site, witness archaeological excavations via the best interactive presentation method – personal experience.

Even when local community and stakeholders are not aware or, for any reason, able to communicate their needs, the Museum constantly strives to offer a broad frame of possibilities, ideas and cooperation models in which such needs of local community and local stakeholders are detected, recognized and outspoken and, after all, always treated with special attention 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.
For most archaeologists, archaeological heritage management concerns major construction works, such as motor- and railways, airports, etc. This idea, implicitly present in the Valletta 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 two 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 theoretical to the technical and administrative level. In the long term, its public impact and sustainability are however much better.

TH2-21 Abstract 03
An Archaeology of Stains. Sustainability and Responsibility in Facing Painful Heritage

Author - Zalewska, 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 archeology’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 tainting (1) impact of archeology 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 (vice, gory etc.) events. In general, the first category can be seen as recognised and widely described historically, while the second is still shrouded in uncertainties and misconceptions. It also induces growing public interest and can be described metaphorically as the ‘stains’. Their ability to reflectively and responsibly with the material dimensions of ‘stains’ as with the worth 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 archological inquiry from Poland. To exemplify some of the nuanced arguments, the outcomes of the ongoing project titled “Archaeological revival of memory of the Great War. Material remains of the life and death in trenches of the Eastern Front and the condition of the ever changing battlecamps in the region of the Rawka and Bzura rivers” will be presented. This transdisciplinary project deals with the unique assemblages simultaneously neglected and marked by wars/sensitive.

Additionally, in relations to the current calls in the human sciences for a “return to things”, “evidential turn”, “forensic turn”, seen equally important as the still growing public needs for ‘a visible, visitable, tangible, touchable past’. I will elaborate the reasons for which the Gadamerian question on the ways in which knowledge and its effects are affiliate remains central. I will also discuss why material remains, especially those excluded and those difficult to be grasped in words, situate archeology in position of the discipline necessary or/ and handy for the heritage from or acquaintance with the enduring ‘stains’.

Keywords:
- Garc

TH2-21 Abstract 04
Contemporary archeology - a response to the crisis and social approach towards heritage

Author - PhD Kajda, Kornelia, Uniwersytet im. Adama Mickiewicza w Poznaniu, Poznań, Poland (Presenting author)

Keywords: contemporary archeology, heritage, social expectations

Presentation Preference - Oral

Are we all archaeologists now? – the question asked by C. Holtorf (2015) in Journal of Contemporary Archeology clearly describes the expandability and transformation of what archeology is thought to be today. It is no longer just a discipline which deals with the past or the distant past and its material remains, nor is it a field of knowledge which is interested only in the ancient or prehistoric societies. Researchers became more aware that archeology to be sustainable must respond to the problems and needs of the contemporary world and that it cannot be a closed academic discipline understood only by them. Therefore, noticing that the strict binary oppositions of nature and culture, heritage and rubbish, preservation and ruination as well as past and present are questioned nowadays, archeologists must have adapted their research questions to the changing world. Thus some of them turned to the field which strongly refers to the living communities, their memories, experiences and needs, and which relates to the problems of the contemporary world (e.g. migrations, ecology, war, industrialisation) – the so-called ‘contemporary archeology’.

In my presentation I would like to present contemporary archeology as a field which, in Poland, aroused from the societal expectations and is a way of responding to them. I also would like to describe strategies of experiencing the past and heritage that are undertaken in the contemporary societies which strictly relate to contemporary archeology and research questions which this field ask (here the Polish perspective will be especially stressed). Therefore, topics of the meaning and value of heritage in the contemporary world, as well as, social needs towards our discipline within the context of contemporary archeology will be raised here.

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) - Garca Rodriguez, Sonia, University of Basque Country, Vitoria-Gasteiz, Spain

Keywords: Community Archaeology, Spanish Archaeology, Sustainable Archaeology

Presentation Preference - Oral

Spanish Commercial Archaeology lived its golden age between 1990 and 2007. This activity was closely linked with the current model of economic development in Spain, based on speculation and enormous, both private and public constructive activity. The strongest sector for the Evaluation and Control of archaeological impact served to absorb the skilled labor force formed by the new generations of archaeologists from the universities.

The economic crisis of 2008 had dire consequences for the Spanish Archaeology. The State paralyzed research, universities were left without resources, scientists emigrated abroad and the archaeological market virtually disappeared by paralyzing the construction boom. Although this fact has hurt the archaeological profession, in these seven years have also emerged process served as an opportunity for Sustainable Archaeology. Thus, the economic crisis led to a political crisis that has led to social movement 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 Galicia, something that the 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 internationalizes 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).

Keywords:
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)

Abstract - One of the most troubling suburbs is considered one of the most troublesome within the city of Gothenburg. It is dominated by different groups of inhabitants in the area and to make archeology a part of the local society for a sustainable future.

The past in the future: archaeology, heritage and sustainable development in Laconia, Greece

Author - Prof. Voutsaki, Sofia, University of Groningen, Groningen, Netherlands (Presenting author)

Abstract - One of the most troubling suburbs is considered one of the most troublesome within the city of Gothenburg. It is dominated by different groups of inhabitants in the area and to make archeology a part of the local society for a sustainable future.

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 they are crucial to the formation of local perceptions of archaeology and archaeologists.

2. A discussion of the major problems faced by the local communities, the economic causes of exclusion and underdevelopment as well as the further deterioration during the current financial and political crisis.

3. The formulation of a vision for sustainable growth and for alternative forms of tourism (e.g. agrotourism, ecotourism, cultural tourism, etc.), and the need for the creation of collaborative structures which can unleash local creative potential and act as a platform for the exchange of ideas.

4. The discussion of shifting attitudes to the past both in relation to hegemonic discourse as shaped by classical scholarship, national education and national identity, 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.

Keywords: archaeology, heritage, sustainable development, theory

Presentation Preference - Oral

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)

Abstract - 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. There are also a high number of youngsters from this area that have joined ISIS. There is therefore a great need of supportive and positive actions and perspectives considering sustainability in this area.

According to the Swedish Heritage Conservation Act, heritage belongs to everyone, and protecting and preserving the historic environment is a responsibility shared by every member of society. But, the question is if anyone living in the area of Bergsjön today is aware of this and if the pile of stones matter to anyone living close to the remains. An experiment in this context and an interaction project will take place during spring 2016 involving the children in the area, the house company and others. An aim of the project is to make a place for storytelling and pedagogical activities for the schools and the inhabitants in the area and to make archeology a part of the local society for a sustainable future.

Keywords: heritage, interpretation, public archaeology, migration, sustainability

Presentation Preference - Oral

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)

Abstract - Frequently, heritage management professionals are not all too familiar with topics that are not directly related to their own domains. The binary separation of ‘natural’ and ‘cultural’ landscape results problematic in national and international legal and administrative frameworks involving planning and development. The improvement of knowledge for landscape management and protection of archaeological and natural heritage is a necessity. In this context, the Archaeological & Natural Heritage project (ANHer) focuses on increasing knowledge and skills for professionals working in the archaeological and natural heritage sectors in Europe. The project aims to fill a gap that is not covered by traditional forms of training. Within the project, six European partners develop a variety of integrated educational e-learning materials designed to treat important facets of both sectors. The project contributes to the development of improved methods and content of higher education and vocational training in the field of heritage. The digital method ensures that the ongoing changes that concern the protection and management of archaeological and natural heritage are connected with education that is useful and up-to-date. The online modules address the rapidly changing modes of protection and management for the archaeological and natural heritage sectors, as well as the significance of integrated heritage in spatial planning and regional development policies. This includes the role of built heritage in urban planning and local and regional heritage policies in Europe.

The basic principle is that through a better understanding of the importance of archaeological and natural heritage, for a variety of different environments, sustainable landscape management can be realised. This project aims to provide an organisational structure for continuous training and a technical infrastructure for blended learning that will benefit the various labour markets.

Keywords: heritage, culture, education, training, natural heritage

Presentation Preference - Oral

TH2-21 Abstract 10
Linking efforts towards a new vision: new learning methods in Heritage

Author - Dr. Cubas, Miriam, University of York, York, United Kingdom (Presenting author)

Co-authors - Ezzed, Mike, Sociedad de Ciencias Arqueológicas, Donostia-San Sebastian, Spain

Keywords: Archaeology, heritage, vocational and educational training, Natural heritage

Presentation Preference - Poster

Abstract - 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 method of education and training of the integrated archaeological and natural heritage (ANHer) funded by the European Commission (Erasmus + 2014-1-PL-KA202-003585) aims to improve skills relating to this wide vision of heritage for practitioners working in both the archaeological and natural heritage sectors. This objective means that the project aims to fill a gap not covered by traditional training systems.

In this project, a range of innovative didactic materials which bring together an integrated vision of heritage. The binary separation of “natural” and “cultural” landscape results problematic in 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 work. All newly produced didactic materials will be stored in an online Content Repository. Flexible content authored supported by the web-based Content Repository software enables the storage and processing of distance learning content in a SCORM standard, to facilitate its further expansion and enrichment.

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 within the terms of the design of new training contents and methods. The didactic materials cover the most appealing issues of an integrated approach to conservation and management of archaeological and natural heritage and it impact upon planning policies and development. The e-learning modules will aim to improve the competence of professionals employed in both heritage sectors and in local administrations, who may not have been previously trained in the area that they have to make important decisions about.
Practical skills training in European Archaeology - Options for the Future?

Author: Prof. Dr. Lodewijckx, Marc, Leuven University, Leuven, Belgium (Presenting author)

Keywords: field school, practical skills, training

Presentation Preference: Oral

The various universities in Belgium (Flanders, Wallonia and the Brussels Capital Region) have their origins in different systems and traditions: Catholic, state, or other. In the last few decades, the traditional association of archaeology with history and art history has been gradually eroded, and more attention is now being paid to specific archaeological methodology, practical knowledge and fieldwork. All universities with an education leading to the degree of bachelor or master in Archaeology now organize specific practical skills training as a part of the formal educational program. The extend and quality of these activities largely depend on the capacities and commitment of the staff members and on the adequate financial and logistic assets available. Due to many restrictions and different circumstances practical skills education still varies largely from one university to another.

As a result of the continuing financial cutbacks in education and in scientific research, universities often have insufficient resources to organize these activities in a sustainable way. Partnerships with archaeological companies have become a necessity to offer sufficient opportunities for students to learn a numerous technical, practical and administrative skills they need to operate in a highly professional environment. If this is the case, the university staff often has too little control over the quality of the work of both the student and the local supervisor. The good news is that the student can often choose a specific traineeship from a wide range of opportunities, both domestically and abroad. That way, on the long run, the student is much better integrated in the professional world and already able to establish a network for his later employment.

Presentation Preference: Oral
TH3-02

FROM THE COLOSSEUM TO PALMYRA. APPROPRIATION AND OWNERSHIP OF ARCHAEOLOGICAL HERITAGE IN A GLOBAL WORLD

Saturday, 3 September 2016, 09:00-13:00
Faculty of Philosophy, Room 209

Author - Gori, Maia, University of Heidelberg, Heidelberg, Germany (Presenting author)
Co-author(s) - Raevel Lam, Martina, University of Amsterdam, Amsterdam, Netherlands
Co-author(s) - Celli, Elisa, Museo Civico Etrusco Romano di Trevignano Romano, Trevignano Romano (Roma), Italy
Co-author(s) - Piruticci, Alessandro, University of Rome La Sapienza, Rome, Italy
Co-author(s) - Peco, Paolo, University of Southampton, Southampton, United Kingdom

Keywords: appropriation, conflict, identity

Presentation Preference - Regular session

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 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. 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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 statistical analysis of the perception of the public through a survey led on site will be presented. In conclusion, considerations about the role archaeologists may and should play in these various regards will be drawn, under the peculiar perspective of the authors who experience archaeology both in an academic and scientific way, and working as official tourist guides of Rome.

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TH3-02 Abstract 05

Interpretative appropriation as religious utopia: Illyrian mythology after communism

Author: Bekteshi, Arba, University of Tirana, Faculty of History and Philology, Tirana, Albania (Presenting author)
Keywords: Myrian 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 independence. “A [religious] identity that has to do with the personal; that which is interior or immanent; that which is one’s experienced relationship with the sacred; and that wisdom or knowledge which derives from such experiences (Heelas, 2001).” In this paper I maintain that Albanian analysts are fashioning a post-communist academic discourse in favor of the construction of a unique vernacular 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 discursive platform on vernacular traditions are paradoxical due to the fact that they make the case for a new utopia, similar to the Albanian experience of what Schumpeter asserted to be a Marxist religion. The latter made reference to the everyday life, while constructing evidence for historical pasts that recalled its ideology and values (Qendro, 2014). Moreover, a focus on the vernacular is purported as inclusive of Albanian “metaphysical believers (Heelas, 2011)” into global postmodern discourses on faith, while it provides a rationale for dissociative “apotolic respiritualization (Haynes, 2011).”

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TH3-02 Abstract 06

Alatri in the Sky with Diamonds

Author: Pittucci, 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 polycirion walls have been correctly dated to the Republican Era, deconstructing thus the idea of their belonging to the Archaic period or even earlier. Alatri, a well-known archeological site close to Rome, is a paradigmatic example of new scientific methods proving wrong old chronologies and theories. The polygonal walls of the city and its acropolis, indeed, date to the 3rd century BC proving wrong the traditional Archaic or even Etruscan chronology. This new chronological and cultural framework for the old city sparked a passionate debate among local historians, who believe that the construction of the Alatri complex pre-dates the Roman arrival in the region. Local archaeology amateurs, thus, opposed new dates and interpretations by having recourse to different theories, mostly 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 parenthood of the walls to ancient Middle East civilizations, like the Hittites, authoritative and mysterious enough to replace the hated Roman invaders and enough far away not to be perceived as invaders themselves. This paper will focus on Alatri and will address cultural, social, and psychological aspects connected to the denial of the Roman paternity of Alatri monuments. Why the inhabitants of a city of Latium Velius need to seek different and older origins for their city from the ones provided by official archeology? We will also try to explain why – in addition to communicate the scientific results to the society at large – it is important for mainstream archaeology to engage with non-professionals amateurs even if the debate occurs in the archaeofantasy arena.
OPEN ACCESS AND OPEN DATA IN ARCHAEOLOGY: FOLLOWING THE ARIADNE THREAD

TH3-03

Thursday, 1 September 2016, 09:00-12:00
Faculty of History, Room 218
Austen, James, Holy, Archaeology Data Service, York, United Kingdom
Co-author(s): Richards, Julian, University of York, York, United Kingdom (Presenting author)
Co-author(s): Stegemund, Frank, Universität Düsseldorf, Düsseldorf, Germany
Co-author(s): Geier, Guntram, Salzburg Research, Salzburg, Austria
Keywords: Open Access, Open Data, Publication
Presentation Preference: Regular session

Will the availability of open data change the nature of archaeological research and publication? Will it also impact the ways in which archaeologists engage with wider communities? The European Science Foundation and other leading European research-funders have declared their support for the “Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities”, a far-reaching restructuring of scientific publishing in favour of open access that will take place before the end of the current decade. In parallel, the infrastructure necessary for open data is being created and the political pressure to use it will increase. Many areas of the humanities in Europe, including archaeology, are finding it a difficult step to take. At present, the majority of highly renowned journals continue to be published in the traditional way, and research data are still generally unpublished. At the same time, the early adopters of open access and open data are still battling with the problems of how to implement it in practice. The EC Infrastructures funded ARIADNE project is working to bring together archaeological research data from across Europe, for use and re-use in new research. There are challenges, such as raising awareness about the available data, integrating datasets produced by very different projects and methodologies and various technologies. There are GIS, databases, 3D data, scientific datasets and more, all produced in a variety of languages, and all requiring differing approaches. This session is sponsored by the ARIADNE project, follows on from this, and will provide further updates and overviews relating to open access and open data.

TH3-03 Abstract 01
Requirements for open sharing of archaeological research data

Author: Dr. Geier, 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 pushing forward the open data agenda. This 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, Gabrielle, University of Pisa, Viareggio, Italy (Presenting author)
Co-author(s): Anichini, Francesca, University of Pisa, Viareggio, Italy
Keywords: open access, open data, Reputation
Presentation Preference: Oral

Archaeologists recognise the potential impact that the sharing and reuse 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 assumption that data need to be treated as a relevant part of the archaeological heritage and not just as a supporting tool (i.e., not only data paper) should be connected to primary data. These biannual volumes called MAPPA Data Book are conceived as a series of archaeological monographs designed with a dual level of publication: a paper, in which the archaeologists can analyse the data recorded, and the data set published as open data in the MOD (MAPPA Open Data), the open data repository of Italian archaeology. The volumes are published as open access and in a print on demand mode.

As for fostering network-based interaction, we are going to launch a communication campaign aimed to promote the use of academic social network, such as academia.edu and researchgate.net, for embedding the links to the data sets archived in our repository. In this way, on the one hand the archaeologists that share their data can take advantage of the academic social network realised by these platforms and of the metrics that reflect the impact of a contribution, on the other hand the repository can focus on data publication and long term preservation.

Thus archaeological data sharing becomes an open way for researchers to collaborate and thereby meet the needs of an increasingly complex research landscape, and the reputation effect becomes a way to foster data re-use.

TH3-03 Abstract 03
Antiquarians in the 21st Century: Opening up our data

Author: O’Riordan, Emma Jane, Society of Antiquaries of Scotland, Edinburgh, United Kingdom
Co-author(s): O’Riordan, Emma Jane, Society of Antiquaries of Scotland, Edinburgh, United Kingdom (Presenting author)
Keywords: open access, publishing, research
Presentation Preference: Oral

The Society of Antiquaries of Scotland has been an active publisher of Scotland’s history and archaeology since 1792; the Proceedings of the Society of Antiquaries of Scotland (PSAS), has been the primary journal dealing with Scotland’s past in its British and European context since 1851. Publication in PSAS has often been seen by many archaeologists as the ‘end’ of the research cycle: excavation is followed by publication, and the process is complete. However, there is increasing awareness that the final report alone does not tell the whole story, and many readers would also like to examine raw data. In 2001, the Society created a new, fully peer reviewed, freely available online journal, Scottish Archaeological Internet Reports (SAIR), so was an early adopter of Open Access in an archaeological context. SAIR was intended to provide a new, lower-cost publication outlet for detailed archaeological reports; over the last fifteen years it has evolved to include the publication of many different types of projects – including large-scale surveys, gazetteers and conference proceedings – which would not be possible or desirable to publish in print for various reasons.

The Society also runs the Scottish Archaeological Research Framework (ScARF). Launched in 2012, this collaborative project brought together experts from a range of disciplines to compile a peer-reviewed summary of our archaeological knowledge up to that point and agree where future research should be directed. The entirety of Scottish archaeology was split into nine panel reports, all of which are available for free download from the project website or can be viewed on the wiki-style website itself. As such, it is the first of its kind in archaeology. The Society is contemplating how best to take PSAS, SAIR and ScARF forward in an Open Access world. Our audiences are increasing, both in number and in variety. There have been over 400,000 downloads from Society’s publication 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 SAIR, for example - but a cultural one. Many archaeologists are cautious about openly sharing raw data and we must consider how best to reconcile the needs of authors and remaining true to our own aims of truly open knowledge.

TH3-03 Abstract 04
Publication Preference

Author: Dr. Gattiglia, Gabrielle, University of Pisa, Viareggio, Italy (Presenting author)
Co-author(s): Anichini, Francesca, University of Pisa, Viareggio, Italy
Keywords: open access, open data, Reputation
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.

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Presentation Preference: Oral
Digitizing Early Farming Cultures: integrating resources from Neolithic Greece and Anatolia

Author - Dr. Aaspick, Edeltraud, ÖAW, Vienna, Austria (Presenting author)
Co-author(s) - Nasr, Arja, ÖAW, Vienna, Austria
Co-author(s) - Stuchel, Sera, ÖAW, Vienna, Austria
Keywords: Neolithic sites and finds, open data
Presentation Preference - Oral

The aims of the project ‘Digitizing Early Farming Cultures’ are to create standardized and integrated research data of Neolithic and Chalcolithic sites and finds of Greece and Anatolia (c. 7000–3000 BC according to Greek terminology), two neighboring and archaeologically closely related regions usually studied in isolation of each other. The data will be made available online ensuring compliance to standards in data production for data sharing (metadata and mapping) and interoperability with related initiatives.

The resources that form the basis for the new 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, terminologies and chronologies have been used. In the project we use various methods to integrate the data: creation of a new site database, mappings to CIDOC CRM and digitizing of finds (3D pottery models) and attribution with relevant metadata.

We will present the results of the project so far and our aims until the end of the project. We will also talk about the working process and our experiences as archaeologists in a project where we present an interface between archaeologists specialized on the subject area of Neolithic archaeology and technicians.
data aggregation infrastructure include: ingestion, normalization, transformation and validation processes that mainly focus on the homogenization and cleaning of heterogeneous data. A portal is usually employed to present this information to the end user and is met with limited success due to the vast information contained. In order to increase the quality of services that are provided to end users, the European funded project Ariadne (http://www.ariadne-infrastructure.eu/) aims at integrating this data by modelling the underlying domain and providing the technical framework for automatic integration of heterogeneous resources.

The heart of the infrastructure lies in the underlying domain model: Ariadne Catalog Data Model (ACDM), a DCAT derived model which models a large number of entities such as Agents, Language resources, datasets, reports, services, databases, etc. With the help of a of micro-service oriented architecture and a set of powerful enrichment micro-services all aggregated data are transformed into XML and RDF, annotated over subject, space and time with the help of AAT, Geonames and Perio.do thesaurus (thus establishing a common reference) and interlinked with other based on their structural or logical relationships. The data integration services can mine for links among resources, link them together and against language resources. Resources such as vocabularies. Complex records can be split into their individual components, represented, enriched and stored separately while maintaining their identity using semantic linking. Each integrated resource is assigned a URI and published to:

a) Virtuoso RDF Store in RDF which provides a SPARQL interface
b) to Elastic Search in JSON which provides a powerful indexing mechanism that can help present and associate resources accurately in real-time.

This approach can provide developers and creative industries with the means to create innovative applications and mine information form the RDF store.

End users ranging from simple visitors to domain researchers can access this data through the infrastructure’s portal which is capable of hiding the complexity of this plethora of data, filter the results using a plethora of filters and present connected resources in a way that can help guide the user instead of confusing him/her.

The technical infrastructure has been developed using various programming languages such as Java, PHP, Javascript. It is distributed spanning multiple virtual machines and brings together different established technologies and components. Both the technical infrastructure and the portal will be presented and demonstrated.

TH3-03 Abstract 09
Linked Open Data Approaches within the ARIADNE Project
Author - Dr. Wright, Holly, University of York, York, United Kingdom (Presenting author)
Keywords: ARIADNE, Linked Data, Open Data
Presentation Preference - Oral

ARIADNE is a four-year EU FP7 Infrastructures funded project, made up of 24 partners across 16 European countries, which hold archaeological data in at least 13 languages. These are the accumulated outcome of the research of individuals, teams and institutions, but form a vast and fragmented corpus, and their potential has been constrained by difficult access and non-homogenous perspectives. ARIADNE aims to bring together and integrate existing archaeological research data infrastructures, so researchers can use these distributed datasets in combination, and in new ways. This paper will give an overview of the progress of the ARIADNE project, focussing on efforts to create a shared infrastructure into which metadata is gathered, and a portal to allow cross-search of this metadata. To this end mapping work has been carried out to facilitate searching across space, time and subjects, using Linked Open Data (LOD). This work represents LOD best practice by incorporating existing international initiatives such as the Getty Art & Architecture Thesaurus, and contributing to emerging best practices initiatives like PerioDo. As ARIADNE is in its final year, conclusions can begin to be drawn on the challenges faced along the way, and possible directions for the future.

TH3-03 Abstract 10
ArchaeologistsEngage. Thinking Big - We Can Change Archaeology
Author - Tibbetts, Belinda, Exeter, United Kingdom (Presenting author)
Co-author(s) - Schenck, Tine, ArchaeologistsEngage, Oslo, Norway
Co-author(s) - Wapnott, Emily, Southwest Archaeology Ltd, South Molton, United Kingdom
Keywords: Engagement, Public, Social
Presentation Preference - Poster

ArchaeologistsEngage encourages engagement between archaeologists and the public. We offer a platform for public engagement and dialogue through social media and a range of events. In January we launched Challenge 2016, an exciting call to archaeologists to undertake one new form of public engagement to improve the direct dissemination of our research to members of the public.
TH3-04 Abstract 02
Islamic archaeology: theoretical and methodological issues
Author: Asst. prof. Tavernari, Cinzia, Abdullah Gul University, Kayseri, Turkey (Presenting author)
Keywords: Islamic archaeology, theory, methods
Presentation Preference: Oral
This contribution wishes to present an appraisal of the discipline of Islamic archaeology and to analyse and discuss its development and the current trends in the discipline. The origins of Islamic archaeology span a little more than a century and its strong initial relationship with the history of art and monumental architecture 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 overdue 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 also 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 (Iswat, 1999) and since that moment publications taking a stake of the discipline and its theoretical frameworks have grown (see for example Walmsey, 2004 and 2013; Milwright, 2010; Tonghini 2014).

TH3-04 Abstract 03
Ottoman Mediterranean and its archaeology between two worlds
Author: Dr. Dikiyaya, Fahri, TED University, Amkara, 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 synthesis 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 some problematic and debatable validity in the current modern and nationalist archaeologies.

TH3-04 Abstract 04
Beyond mundane: reconciling Islamic, Byzantine & Medieval Lives through Lefebvrian Spaces at Darband
Author: Dr. Shingiray, Irina, University of Oxford, Oxford, United Kingdom (Presenting author)
Keywords: Byzantine and Islamic archaeologies, Medieval Europe, Theoretical Framework
Presentation Preference: Oral
This paper seeks to contribute to the debates regarding chronological and spatial incongruities which exist between the realms of the Islamic, Byzantine, and Medieval archaeologies, and will propose a theoretical framework which helps to reconcile and integrate those fields through archaeological common ground. The basis for this archaeological model is the site of Darband in the Eastern Caucasus – the fortress that marked the frontier between the world of the Christian culture of the Late Antiquity/ Byzantine Empire, the Islamic Caliphate, and Medieval North represented by the indigenous people of the Caucasus and the Slopea Nomads. Besides being a fortress and the wall built to separate the above-mentioned worlds for defense purposes, this site is laden with deep religious meaning and it lives on as a sacred place where people gather and display their imperial and local identities, inscribe their religious testimonies, and perform rituals and commemorative actions executed in direct and encoded forms. All these cultural activities leave archaeological traces. In order to contextualize this common ground and meeting place, I propose to look at this site through Lefebvrian Spaces, namely at the multiple spaces of representation exist at the times of Darband: “The Production of Space” by Henry Lefebvre (1991) outlines three main categories of space: perceived (physical) space, conceived (mythical, conceptualized, 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.

TH3-04 Abstract 05
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 topography 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 06
Early Middle Ages as social conflict: local communities in post-Roman Iberia and the Mediterranean
Author: Doctor Tejerizo, Carlos, Gipypac, Vitoria-Gasteiez, 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, has introduced new important and interesting debates, but also recovered others, even though the discipline, in general terms, is still dominated by a kind of naïve empiricism which pays little attention to the social and political implications of this archaeological data. However, as philosophers like Slavoj Zizek 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 politics in Western Europe. One of the consequences of this is the blurring of Early Middle Ages as a period of high social conflict among different social strata, beyond ethnic parameters. In this paper, we will try, in the first place, to make a deconstruction of some current discussions over Early Middle Ages and, in the second place, to make a social and anthropological interpretation of Early Middle Ages in terms of social conflict and of economic and symbolic adaptation of local communities, overall peasant societies, to the failure of a Roman project of World-Empire. For that purpose, some concepts from Marxist and Critical Historical Arcaheology (in the line of M. Leone or R. Mcguire, for example) and economic and historical interpretation of the period. The renewal of identity and ethnic interpretations, almost lost after World War II, has introduced new important and interesting debates, but also recovered others, even though the discipline, in general terms, is still dominated by a kind of naïve empiricism which pays little attention to the social and political implications of this archaeological data. However, as philosophers like Slavoj Zizek 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 politics in Western Europe. One of the consequences of this is the blurring of Early Middle Ages as a period of high social conflict among different social strata, beyond ethnic parameters. In this paper, we will try, in the first place, to make a deconstruction of some current discussions over Early Middle Ages and, in the second place, to make a social and anthropological interpretation of Early Middle Ages in terms of social conflict and of economic and symbolic adaptation of local communities, overall peasant societies, to the failure of a Roman project of World-Empire. For that purpose, some concepts from Marxist and Critical Historical Arcaheology (in the line of M. Leone or R. Mcguire, for example) will be used to interpret some key elements of post-imperial archaeological, 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 extrapolarize conclusions and ideas for other cases studies.

TH3-04 Abstract 07
Beyond hierarchy: Common property rights & migration as a factor in rapid change in material culture
Author: Professor Oosthuizen, Suan, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: common property rights, governance, migration
Presentation Preference: Oral
Sudden and almost complete changes in material cultural are, in archaeological contexts, frequently ascribed to migration. An invariable aspect is the almost complete replacement of Romano-British artifacts by those from north-west Europe in many parts of England in the first few decades of the early fifth century AD.

The paper begins by offering a brief critique of current models for explaining such rapid change in which migration is given a leading role: military cohesion among migrant groups; their apparent resistance to assimilation; replacement of existing leaders by high status immigrants; and ethno genesis, 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, 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.
Where is the Feminism in Archaeology?

Author: Prof. Robb, John, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: evolution, gender, politics

Presentation Preference: Oral

This paper pursues the paradoxes which result from the collision of three facts: (a) Archaeological and historical accounts of the past are often taken as foundational narratives and laden with political meaning; following on from this, archaeologists have a responsibility to make sure that our work is used in productive rather than destructive political ways. (b) We also have a responsibility to say true things about the past. (c) People in the past were often deeply “political incorrect”, with attitudes and practices different from today’s and sometimes no doubt entirely appallly by modern standards. The pre-historic gender relations are an important example. Archaeologists have responded to this paradox in varying ways, none satisfactory. One is by not engaging with the question of whether the past acts as a political mirror for the present. A second is by adopting a “see no evil” approach where we contemplate only positive aspects of the past. A third is to fit the past within the three traditional narratives (historical lack of change means natural inevitability, progress towards utopia, and progress towards dystopia). All of these rely upon an underlying, often unspoken rigid and distorting historical binary distinction between “us” and “them”, the modern and the pre-modern. As a counter-example, I explore a revisionist history of gender in which not only the “content” of gender but its existence and definitional form is seen to evolve continuously throughout human history. A feminist approach in this case is not about championing the interests of one sector, but about exploring the possibility for difference of all kinds, including historical. The result is a narrative which both accepts the past on its own terms and which we learn what history really implies about our present and our future.

Women and archaeology in Portugal during the 60ies of the 20th century: ‘exceptio firmat regulam’?

Author: Dr. Vogel, Helga, Free University Berlin, Berlin, Germany (Presenting author)

Keywords: Ancient Near Eastern Studies, Archaeology of the gap, Function of theory

Presentation Preference: Oral

One of my favourite thinking-things are the findings unearthed by Leonard and Kathleen Woolley and their workmen in the Royal Cemetery at Ur in what is today South Iraq. The archaeological record of the cemetery (around 2500 BC) is well known beyond the narrow limits of ancient Near Eastern studies partly because of the exceptional grave goods, which still provide one important fundament of our knowledge of ‘Sumerian culture’, partly because of the mass burials the excavators came across in some special graves. To my knowledge there is probably no theoretical approach, popular in archaeology the last 20 years or so, that was not used to ‘explain’ these mass burials, often hardly noticing the actual archaeological record. Now, my 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 460 graves). The result is this: scarcely anything fits together and everything seems contradictory. The situation may be summed up in one statement (actually a Detroit based music collective’s motto): UR, 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.

Bones, Stones, and Names - determining and naming prehistoric men and women

Author: Dr. Vogel, Helga, Free University Berlin, Berlin, Germany (Presenting author)

Keywords: Ancient Near Eastern Studies, Archaeology of the gap, Function of theory

Presentation Preference: Oral

The paper discusses by which methods and means a certain sex is attributed to the bodies of prehistoric individuals or depictions and the effects of an (early) ascription. Bog bodies, skeletal remains and cremated bones have been determined as physically male or female by physicians, archaeologists and physical anthropologists. Statuettes have been named “Venus” (often) or “Adonis” (rarely) by archaeologists and historians and even rather abstract depictions of prehistoric humans have been interpreted as biological men and women. Those attributions have an immediate effect on the further description and interpretation of the archaeological record.

I will discuss how and why archaeologists (among others) tend to see a (biological) man or a woman in every representation of a human being and even in their physical remains. Besides that the paper examines the long history of naming prehistoric individuals or depictions after antique goddesses or heroes. It deals with the physical and psychological characteristics that are attributed by this naming and the resulting effects on our image of prehistoric humans.

Women and archaeology in Portugal during the 60ies of the 20th century: ‘exceptio firmat regulam’?

Author: Dr. Fries, Jana Esther, Lower Saxony State Service for Cultural Heritage, Oldenburg, Germany (Presenting author)

Keywords: Bones, Stones, and Names, Determining and naming prehistoric men and women

Presentation Preference: Oral

In 1958, Lisbon hosted the first National Archaeological Congress. Being itself a novelty in the Portuguese architectural panorama, this Congress has integrated other innovations, likewise a growing number of women in archaeology. The result is a narrative which both accepts the past on its own terms and which we learn what history really implies about our present and our future.
TH3-05 Abstract 08
Contributions of social anthropology to the knowledge of the status of the sexual orientation in archaeology

Author: Dr. Belaard, Chiitoi, University of Southampton, La Roche sur Yon, France (Presenting author)

Keywords: sexuality, gender, archaeology

Presentation Preference - Oral

This paper proposes to focus on the first elements of a research project taking an interest in the visual effect of adornments, the social status of the body and gender ideology. The main issue is to determine to what extent the social and symbolic status of the body can be understood in death archaeology by means of ethnographic record. Firstly, through different ethnographic data, it is possible to observe how adornments are used to emphasise the different parts of the body according to their attributes 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 individualized? 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 body and symbolic use of burial adornments.

TH3-05 Abstract 09
Was there always a man and a woman?
On flexibility of sexuality in historical Islamic Iran

Author: Prof. Papis Yazzdi, Leila, Neyshabour, Iran (Presenting author)

Co-author(s): Dezhamkhooy, Maryam, University of Heidelberg, Heidelberg, Germany

Keywords: flexibility, Safavid Iran, Teimurid Iran, sexuality, bisexuality, homosexuality

Presentation Preference - Oral

Being propagated repetitively, the general image of contemporary Middle Eastern Muslim women is comprised of feminine bodies raped by masculinity and women 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 propagates 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 emergence of Islam to historical Iran the change of the solid Zoroastrian dichotomic concept of men/women begun while afterwards the invasion of the region by central Asian Turks made bisexuality normative. Very famous pieces of literature such as Ghahvosenam (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 bisexuality as normal sex orientation to heterosexuality in order to control the bodies and also to revise the pre-Islamic value.

Analyzing pre-modern Islamic Shā’ī’a, it is obviously detectable that there were always ways to put these vast range 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 has 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 culture 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 produce differences - 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 (f 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 position with Duff is that objects/images are arguments concerning possibilities for being and becoming, not representations of being.

Using whalebone clubs as my forum, I show in this paper how the Nuu-chah-nulth people of Vancouver Island, British Columbia, create object “tellings” (ways of thinking) which set out a moral or ontological geography. Moral travel through this geography constitutes a process of becoming which produces difference (f 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 northwest 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 metaphoric expression in which the substance of the thing - its materiality, its ground - is left unquestioned. An absolute divide betweenfleshy 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, differences are 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 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 “Höhlengräber”. Bronze Age or in Late Iron Age burials near the oppidum Manching buried with foreign artefacts are combined with images of passive female roles. Influenced by a changed image of social female roles in Europe the interpretations permit actually similar Early Iron Age women an active role in trade networks around the Alps. But independent of interpretations the archaeological data are always the same – female burial with a mixture of local and non-local jewellery. So, how can we know how active or passive such women could have been as social actors in prehistoric times? This paper discusses the change of interpretation for the background of the increasing influence of gender theories in Archaeology and asks about the possibility of approximation to prehistoric realities beyond modern ideals and utopian (feminist) wishes. A further aspect of this topic is the influence of the new scientific methods like isotope analysis on actual mobility models.

TH3-05 Abstract 08
Contributions of social anthropology to the knowledge of the status of sexual orientation in archaeology

Author: Dr. Belaard, Chiitoi, University of Southampton, La Roche sur Yon, France (Presenting author)

Keywords: sexuality, gender, archaeology

Presentation Preference - Oral
Interpreting the late Iron Age record in Gaul

Author - F. Fleury, Béatrice, Bruxelles, Belgium (Presenting author)

Presentation Preference - Oral

Late iron age studies, by the very nature of the main written source, “Caesar De Bello Gallico”, our modern western view of war, and period 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 synthesizing the new discoveries, in the long term historical interpretation, one might still easily miss the presence of females in archaeological contexts, and therefore their role in society, with implications in the long term historical interpretative framework and therefore in the building of contemporary ideology.

Instead, 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.

In this paper, some new archaeological data from Gaul enable the distinction of criteria to re-examine older records, and 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.

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.

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 tenuous indications in earlier contexts. There, the arid nature of the archaeological witness, in a traditional interpretative schema make a precise conclusion while females were the most diverse of all sex assessment categories in terms of burial assemblages.

Based on a case study of Scandinavian Viking Age miniature objects and rune stone imagery, the situated sensing 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 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 interact: 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.

For the purpose of sociological interpretation, bolder authors refer to classical historical records, as well as later testimonies, so that sociological discourse oscillates between myth and reality: mentions in later Celtic societies of great Britain, or poetical works, and occurrence of alternative roles, exemplified in the short episode of the revolt of Boudicca and her daughters, their subsequent destiny (and maintenance in the status of the dominated).

Queering Skeletal Sex Assessment at Worthy Park, Hampshire, England

Author - Downer, Abigail Gorkiewicz, Trent University, Stouffville, Canada (Presenting author)

Co-author(s) - Williams, Jocelyn, Trent University, Peterborough, Canada

Keywords: Mortuary Archaeology, Queer theory, Skeletal Sex assessment

Presentation Preference - Poster

One of the first things bioarchaeologists do after coming across human skeletal remains is to assess the basic biological characteristics of an individual: their age and sex. Sex assessment involves looking at morphological and metrical characteristics in the skeleton that allows researchers to place an individual in one of six available sex categories: male, female, possible male/female, ambiguous, or indeterminate. Often, these categories are collapsed into two categories (male and female) in two ways: 1) possible males/females are incorporated into the male and female categories, or are excluded; 2) skeletons sexed as ambiguous are either left unreported or are seen as errors of the acting researcher. These approaches may leave out variability in biological sex that is naturally observed in humans, and may impede researchers investigating non-binary gender and sex identities.

In order to test this approach, this research investigated the early Anglo-Saxon Worthy Park burial ground in Hampshire, England using queer, performance theory, and Marxism. Worthy Park was chosen because it represents a cultural complex that is often left unreported or are seen as errors of the acting researcher. These approaches may leave out variability in biological sex that is naturally observed in humans, and may impede researchers investigating non-binary gender and sex identities.

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In order to test this approach, this research investigated the early Anglo-Saxon Worthy Park burial ground in Hampshire, England using queer, performance theory, and Marxism. Worthy Park was chosen because it represents a cultural complex that is
Friday, 2 September 2016, 14:00-16:00
Faculty of Philosophy, Room 107
Author - Bonney, Emily, California State University Fullerton, Long Beach, United States of America (Presenting author)
Co-author(s) - Johnson, James, Vienna Institute of Archaeological Science, Vienna, Austria
Keywords: community, prehistory
Presentation Preference - Regular session

Archaeological imaginations of 'community' are central to both our theoretical foundations as well as our methodologies. Whether explicit or implicit, community acts as a meshwork for how people, materials, discourses, and ideas are brought together to form meaningful enterprises, in addition to how archaeologists investigate communities. Recent additions to the increasingly rich body of literature on community focus on the relational ontologies of community, addressing the fluid and dynamic nature of human-based communities to be more inclusive of plants, and animals, geological formations. In Tim Ingold's (2011) terms, we must undo the inversion that seeks to turn communities into immovable and immutable points and dots. Instead, we should focus on meshworks that highlight the life, growth, and movement. Such meshworks are immersed in the ebb and flow of life. Building upon Ingold's idea of meshworks, we include in this the eventual breakdown or disintegration of community as an interesting and important topic of exploration.

Despite the important and theoretically vibrant research being done on community, the epistemologies involved in the identification of community remain relatively uninterrogated and/or avoided. This may be because considerations of ontology and epistemology in archaeological research of community are treated as separate 'knowable' conditions and are thus studied individually. We suggest that community ontology and epistemology are inseparable and should be treated as such. To better understand how communities were made in the past, and how best to identify them, we further suggest that archaeologists explore the life history of community, rather than just their emergence or other specific temporal and spatial points of interest. We invite scholars of European prehistory (broadly considered) to explore these meshworks and to critically interrogate their epistemologies for identifying communities in prehistory.

A phenomenological turn in archaeological explanation: is it possible?

Author - Asac, Professor Toonen, Tsani, National Institute of Archaeology and Museum - Bulgarian Academy of Sciences, Sofia, Bulgaria (Presenting author)
Presentation Preference - Oral

Archaeology borrows ideas from semiotics which in its 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.

The making, the breaking and the remaking of the Greek Neolithic Community

Author - Consulting Prof. Pyrgaki, Marie, Hellenic Open University, Athens, Greece (Presenting author)
Presentation Preference - Oral

This paper explores the meshworks and examines their epistemologies for identifying the Greek Neolithic Community. Community and its constituent parts were continually being made, broken and remade over the year (Amel 2002; van Veen 2008). The community acts as a meshwork for how people, things, feelings and ideas are linked by some kind of association. This paper has seen many journals and conference papers with references to networks, bundles (Kvane 2003, 2009), Faulkner (2013), entanglements (Hodder 2011, 2012) and assemblages (following Deleuze and Guattari 2007; DeLanda 2006). This paper discusses the Ingold's idea of meshwork. Ingold (Ingold, In Lines 2017) takes inspiration from Deleuze and Guattari's idea of assemblages and he explores the concept of a meshwork to describe the rhizomatic, living, co-creative entanglements of humans and other beings. Yet something, he stresses that knowing must be reconnected with being, epistemology with ontology, thought with life (Ingold 2011).

A Minoan Meshwork: Gathering the Natural World into Community

Author - Prof. Miller Bonney, Emily, California State University Fullerton, Long Beach, United States of America (Presenting author)
Keywords: community, 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 Cratan palatial culture (1625-1500 BCE) with its intricate architecture, sumptuous paintings and exquisite works in a broad array of media has commanded scholarly attention. Competitive display by elites accounts in many narratives for the elaboration of the palaces, and Aegeanists have inquired 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 Hitchcock (2007), Goodison (1998) and Chapin (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 baubles, and similar features point in this direction. This paper argues that these allusions are more than just referential. Instead they reveal the way in which the life history of community on Crete always was enmeshed in the landscape 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 effectively took with them the caves they had occupied and used for burial relocating these as built circular stone tombs or tholoi and eventually reasit as house tombs providing new the center for social interaction. Animal vases in the tombs further attest to this linkages with nature. The gradual acoceration of villages and towns in the territory around the tombs yielded at the transition into the Middle Bronze Age ca. 1590 BCE to a reorganization 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 - and visible as well in the penetration of animals and birds and plants in all media. Three case studies will consider this alternative to looking at the making and breaking of community.

Communities of death: Microarchaeological analysis of community reproduction in Bronze Age Hungary

Author - Polanyi, Tamas, Northwestern University, Evanston, United States of America (Presenting author)
Keywords: community reproduction, micro-politics of death, social discourse
Presentation Preference - Oral

Sociopolitical transformations of Central European Bronze Age were marked by the appearance of fortified settlements, long-distance trade in bronze and secondary animal products, warfare and radical changes in death rituals. In this paper I study the ways in which local communities negotiated and facilitated such broad historical changes. Challenging reproduction of communities, contradictions arose between local investments in subsistence, operational for the construction of communal identities, and distant relationships of trade and people. Emerging networks of exchange and prestige competition introduced new knowledge, wealth, and distinctive lifestyles, which created tensions within communities. Furthermore, the introduction of new materials provided means for innovative social and political configurations by opening up alternative sources of power for the construction of personal distinctions.

In this paper I will present archaeological evidence for political discourse to narrate processes that led to the slow transformation and subsequent dismantling of close-knit corporate communities in central Hungary by the end of Middle Bronze Age. Although often neglected in the analysis of social change, I argue that funerary practice offer an important insight into the life histories of communities. Here, I will demonstrate the active construction and negotiation of communities through a comparative and contextual analysis of multiple communal cemeteries. I propose a multiscalar and historical processual approach to death rituals articulating the micro-politics of funerals and the broader historical circumstances that shaped the lives of communities.
TH3-06 Abstract 05

Entanglements of pottery acquisition strategies in the Mycenaean palace at Pylos

Author - Zéman, Pirot, Adam Mickiewicz University in Poznan; Institute of Prehistory, Poznan, Poland (Presenting author)

Keywords: Entanglements, Mycenaean culture, Pylos, Pottery production, pottery acquisition

Presentation Preference - Oral

Mycenaean pottery has been a subject of numerous analyses, focusing mostly on various aspects of palatial redistribution, exchange and control system (Voutasiki and Killian 2001, Pullen 2010). The idea of the “palace”, which was supposed to be dominant in Mycenaean social and economic landscape, still constitutes the foundations of our thinking about the processes taking place in the Late Bronze Age Aegean. But in the meantime, many scholars have pointed out a clear duality in Mycenaean economy. It consisted of the “palatial” section, visible thanks to the archives of Linear B tablets, as well as “non-palatial” section, noticeable only by the archaeological remains and sporadically appearing in the archives (Shelmerdine and Palaima 1986, Bernet 2001, Knappert 2001, Whitehead 2001, Galaty 2007, Nakassis 2015).

Within the broad subject of Mycenaean economy I would like to scope only on the one particular subject of pottery acquisition strategies in the palace of Pylos, narrowing the analysis only to the last period of its existence. The duality of Mycenaean economic system mentioned above, can be clearly seen and presented within that subject. The period LH II B, dated roughly to the 13th century BC (Shelmerdine 2008: 4), is the climax of Mycenaean palatial civilisation, containing most of available archeological remains. The palace at Pylos, after 300 years of development was by that time a complex, bureaucratic, administrative and industrialized structure (Wright 1986). It’s organisation and ways of controlling the society and economy were the subject of numerous papers and analyses, approaching this extremely wide subject with different perspectives and propositions (Shelmerdine and Palaima 1986, Voutasiki and Killian 2001, Galaty and Parkinson 2007, Pullen 2010). I would like to propose a combined model based on earlier papers. The strategy of palatial pottery acquisition system will be presented as, an again two-dimensional system, with two main pillars. Firstly, the pottery industry has been affected with the designation of the “royal” potter, who probably together with his co-workers or competitors listed on tablets, had become high-rank and specialized producers, cooperating with the palace, supporting the waran in fulfilling its duties and enjoying special privileges. The second pillar of the pottery acquisition strategy was obtaining all the other needed vessels through a taxation of various local workshops, existing in the town of Pylos and the internal part of the Hither Province of the state. I would like to present this model using the idea of entanglements, created in 2008 by Ian Hodler (2012). Outlining the wide web of dependencies, between things and humans involved in Pylian pottery industry, will help to better understand its complexity and position in the Mycenaean community of Messenia.

TH3-06 Abstract 06

Creating Locality: Place and Community along a Fen River

Author - Dr. Kohring, Sheila, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Co-author(s) - Boulton, Kate, University of Cambridge, Cambridge, United Kingdom

Keywords: community, landscape, locality

Presentation Preference - Oral

How do you define 'being a local'? Often this is an intangible concept wrapped up in a sense of community identity including an intimate knowledge of your social network and immediate environment. Embedded in this is a shared understanding of the time depth and history of a place. However, communities within a given landscape are in constant fluctuation and while certain features active smaller units.

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TH3-07 Abstract 01

The Place and Importance of the Working Parties & Committees in the EAA

Author - PhD Yalman, Emin Nurcan, Cultural Awareness Foundation Istanbul

Co-author(s) - van den Dries, Monique, Leiden University, Leiden, Netherlands

Keywords: EAA, Strategies, Working Groups

Presentation Preference - Oral

The recent conflicts witnessed by the world have created a range of new dilemmas for the management of cultural heritage sites, museums, cultural artifacts and so on. Working Parties are one of the core elements of the EAA to produce knowledge, strategies and propose decisions about specific issues. There are positive and negative changes happening in the world and this fast rhythm of dynamism necessitates updating in the fields of archaeological practices, interpretations, documentations and protection measures. The Working Parties and Committees have crucial role in contributing to that updating process. This form of organization enables members to express themselves, to share thoughts, and to create proposals. The outcomes of discussions within these groups are unequivocally important for the future of European archaeology. This presentation aims to remember the initial objectives of Working Parties and Committees within the EAA, what the current situation is and to discuss how to generate a network and connection between related Working Groups and how to appeal to the wider members to join these active smaller units.

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 05

Working Party (WP): Integrating the Management of Archaeological Heritage and Tourism

Author - Williams, Anemaria; Amsterdorp, Netherlands (Presenting author)

Keywords: tourism, public archaeology, 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 at heart.

Our WP explicitly invites participation and input from all stakeholders that are involved in archaeological tourism and strongly support a multi-disciplinary approach. An ideal world the archaeologist plays a central when an archaeological site is developed for touristic activities. This is however not always the case and in order to achieve change we will invite other stakeholders that aren’t EAA members to join our WP and participate in our meetings and sessions and the EAA members of this WP will take part in other conferences and more prominently become part of the decision making processes that concern archaeological tourism.

TH3-07 Abstract 06

Public archaeology is a martial art

Author - 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 - Huégil, 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://www.a-a.org/working_groups.html), who meet in Round Tables during the Annual Meeting and give a short report on their activities at the Annual Members Business Meeting. Some of them even report on their Round Tables in TEE.

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 being 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

TH3-08 Abstract 01
Technology and the Arrow of Time
Author - Dr. Duckworth, Chloé, 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.

Without doing away with narrative approaches altogether, we can nonetheless benefit from a more complex and thorough handling of the archaeology of technology, which acknowledges the diversity of past practices and leads us to a closer understanding of where and how the material and the social worlds meet.

TH3-08 Abstract 02
Embracing variability as a mode of analysis
Author - Dr. Kohring, Sheila, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: chaine opératoire, improvisation, pottery
Presentation Preference - Oral

Archaeology excels at locating patterns in the distribution of material culture and interpreting the behavioural practices associated with these artefacts. However, in order to do this, we are often required to homogenise data towards ‘norms’ that fit macro-scale narratives about prehistoric lifeways. Often the variability underlying the complexity of social networks is ignored when, in fact, it could provide insight into the dynamics of how change at the macro-scale occurs. This paper explores how analysis of technical variability can be beneficial in assessing how knowledge is networked within communities and how it articulates with wider social and technological traditions. In particular, it uses Late Neolithic, Copper Age and Early Bronze Age pottery technology to assess how the analysis of variability (rather than the lack of variability) opens up questions on how social change occurs and becomes sedimented within local communities.

TH3-08 Abstract 03
Documenting the microscale of pottery technology in large samples
Author - PhD candidate Papaioannou, Anna, Aristotle University Thessaloniki, Thessaloniki, Greece (Presenting author)
Co-author(s) - Kitsakis, Kostas, Aristotle University Thessaloniki, Thessaloniki, Greece
Co-author(s) - Tsorkioti, Ourania, Democritus University of Thrace, Komotini, Greece
Co-author(s) - Chondrianni-Metoki, Areti, Ephorate of Antiquities of Kozani, Kozani, Greece
Keywords: forming techniques, Neolithic technology, pottery
Presentation Preference - Oral

Regarding the forming of pottery from Greek Neolithic sites, it is broadly characterised as handmade. Apart from this general statement about the technology of Neolithic pottery, little discussion has been made of the specific shaping techniques. The poster will present the ongoing study of forming techniques on large samples of pottery from two early Neolithic sites in Western Macedonia, Greece, namely Varahmeni Gouteni and Roditis Palembela, which are dated at 6340-5670 and 6220-5900 BC respectively. The techniques are studied macroscopically, based on attributes of the vessels’ surface, section and fracture that are considered diagnostic traits of the different primary shaping practices. The aim is to explore the vessels’ building in detail within the pottery assemblage of each settlement and to compare the techniques used by the potters of the two sites.

The technological traits will be compared to the common typologies of pottery based on vessel form and ware.

The study so far has shown the variability within and between the settlements in the microscale of performing the basic forming techniques, but also the common practices used in the neighbouring sites. So, the focus on the details of shaping techniques gives us insight into the communities, enriches our understanding of the Neolithic potters and their practical knowledge, and points to a more complex picture of Neolithic technology.

TH3-08 Abstract 04
Lost and Found: The Complexity of Find Contexts and the Technology of Bracteate Breakage
Author - Prof. Wicker, Nancy, University of Mississippi, OXFORD, MS, United States of America (Presenting author)
Keywords: metal technology, Migration Period, Scandinavia
Presentation Preference - Oral

Find locations of Scandinavian Migration Period (5th- and 6th-century CE) gold pendants known as bracteates are typically identified as burials or hoards. One of the grand narratives of bracteate scholarship is that mapping the find contexts leads to obvious interpretations, with earlier hoard finds in southern Scandinavia and northern Germany, and later grave finds around the periphery of this area from the island of Gotland, to western Norway, England, Normandy, and across Central Europe. However, the distribution patterns are not immutable, and single finds of these objects outnumber the find locations (not the overall number of specimens) of those recovered from burials and hoards. Dracks in the tidy categorization of find contexts have been begun to appear. In England, where bracteates are typically found in graves, a hoard was recently discovered at Brinham 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 to be recognized 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 offered ritually 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 render 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 manarch 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.
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 sufficient. In addition, specialists capable to read in the original language the ancient sources might not have been always familiarized with the principles of ancient context. Due to these causes, many of the stories concerning the beginnings of technology remained untold. We might have proof that a certain principle or method were applied, but we do not know HOW. Our presentation proposes a re-reading/re-analysis of the work Expositio et Ratio Omnium Formarum, dating most probably from the first decade of the 2nd century AD, and preserved in fragmentary copies from the 6th and 9th centuries. Taking the shape of a letter written by a certain Balbus and addressed to a certain Celsus, the work contains numerous data of topographic nature, including the mentioning of certain military survey applications. These latter ones present a particular interest. For example, the determination of the widths of a river over that had to be crossed or the height of a fortification that had to be conquered “without venturing within bowshot of the enemy” (M.J.T. Lewis) led to the development of ingenious methods. Although the volume is often cited, the accent on the politico-military conjecture prevailed, to the detriment of the technical information it provided, which was neglected. Our presentation will analyze exactly these neglected aspects. We will approach Balbus’ text at three interrelated levels. Firstly, we will try synthesis all the mathematical knowledge that Balbus possessed at the time. Then, strictly based on these, we will try to reconstruct the methods and, implicitly, the instruments that might have allowed the performance of the three military survey applications that Balbus mentioned in the text. The 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 Celsus), who, most probably, were people outside the upper classes and the governing group which traditionally provided most of the evidence that comes from literature (Brian Campbell 1996).

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-IHIV, 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. Tin concentration in coin increased with the time - at the beginning of 1st Century B.C. It was more or less proportionally to copper concentration. This could suggest that tin was produced and used instead of copper in alloying silver. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A similar situation is repeated in modern times, and graduated monnayages cuireux du Centre-Ouest de la Gaule avant la conquête , 2002, PhD thesis, Universite Paris-Sorbonne - coins from 1st Century B.C. emitted by Coriosolii having Ag=24%, Cu=66%, Sn=5%, Au=0.1%, Pb=0.5% (medium values), in M.F. Guerra and Ph. Abollivier, “Monetary alloys in Iron Age America: the singular case of the Osismi tribe” - Ag=60%, Cu=28%, Sn=10%, Au=0.4%, Pb=0.6% and in J. Corsi et all., “Compositional analysis of a historical coinage of Clasian Gaul’s coin kept at the Hungarian National Museum”, J. Anal. Spectrom, 2015, 30, 730-737 - Ag=27%, Cu=66%, Sn=5% (medium values). It is a Celtic procedure generalized in 1st Century B.C. from Bretagne and Northern Italy to Romania? This is the question. A possible “mentalitet” explanation related to 279 B.C Celtic Delphi defeat is discussed.
TH3-08 Abstract 09

Digging democracy

Author: - Swedberg, Stig, Kulturminneskapet, Fältbacka, Sweden (Presenting author)
Co-author(s): - Olistand, Annika, Kulturminneskapet, Fältbacka, Sweden
Keywords: - Cooking pits, Environmental archaeology, Sample strategies
Presentation Preference - Oral

The archaeological record has been part of the history about the national state. Still today this story is being retold, many times uncritically. At the same time we as archaeologist must admit that we also often retell the big linear story. A mound is given higher priority than smaller more insignificant graves, a settlement area with longhouses more than a site with cooking pits but no postholes. By systematically choosing not to excavate peripheral sites, small sites, and temporarily used sites we create a history of central places and big men. This is an undemocratic way of conducting archaeology.

We propose a democratic archaeology, regarding methods, sites and people. In our scientific research programme we decided to analyse the Neolithic archaeological sites so that they can be a part of our history. This includes, for example, carefully choosing the excavation methodology, and to supplement the collection of finds with scientific analysis in order to actively search for the stories of the people that didn’t have the power to erect stones or mounds.

Before the excavation of the site Tanem 1821 a strategy for sampling the site and structures, especially cooking pits, was formulated. A sampling of the surface was performed in relation to the structures. From excavated sections the section was sampled by a continuous grid and consisted of ten to twenty samples from each structure. These samples were used for geochemical analyses, main phosphate, magnetic susceptibility, loss of ignition and lipid acids. These samples were supplemented by samples for macrofauna 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 interpret 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.

TH3-08 Abstract 10

Technological variability of pottery in long-term perspective: a case of the Neolithic settlement

Author: - Kietina, Petr, Institute of Archaeology CAS Prague, Prague, Czech Republic (Presenting author)
Co-author(s): - Ther, 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 Bylany, located in the Kulhna Horo district in the Czech Republic. This project is based on a complex methodology with the aim of identifying the degree of variability of the technological chains and of interpreting the relationship between the technology and social environment of the settlement. The technological variability is being examined in relation to the chronological diversity and the spatial patterns of the site.

Macroscopic analysis establishes a grid of categories into which the observed phenomena are sorted. By using this approach there will always be some specific groups of pottery. In many cases, however, we do not know the real nature of these groups. Are there different groups of pottery that reflect the distinctive technological traditions of specific chronological phases or are there only continual variability together with one or two broad concepts regarding paste recipes? These are basic dichotomies that we set as basic dichotomies that we need continual variability together with one or two broad concepts regarding paste recipes? These are basic dichotomies that we need.

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

TH3-09 Abstract 01

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, Neolithic, 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 5.5m high pillars decorated richly, mainly with animal motifs, were built 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 workforces and ensure cooperation. The present contribution will explore the likeness and possible consequences of this scenario.

TH3-09 Abstract 02

Assessing food sharing and social cohesion in the Neolithic of the Levant

Author: - Dr. Dietrich, Laura, German Archaeological Institute, Frankfurt am Main, Germany (Presenting author)
Keywords: - Levant, Neolithic, 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 Shir, Syria. The settlement was extensively excavated by the German Archaeological Institute and represents one of the few explored sites of this period in the Northern Levant. It has a rich stratigraphic sequence which covers nearly a thousand years. So-called individual single room houses consist of ‘special’ multiple room buildings, singular grinding equipment with whole sets for ‘collective’ food processing, and isolated vessels with large storage rooms or buildings. The chronological sequence of the architecture and the contexts and evolution of grining 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.

Theoretical and methodological perspectives in archaeology

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 Haial Period in Near Mesopotamia (8000-5200 BC) and it falls between the Neolithic Transition (c.10500-7000 BC), and the Urban Transition (c.4000-2500 BC). Therefore, the time period is traditionally perceived as an important stage in the evolution of central authority and ritual and economic centralization that was the hallmark of the first city-states. The architectural structure and regional settlement patterns usually indicate a non-hierarchical organization that appears to be centered upon extended-households related through kin relations. Yet, it has been difficult to understand how these extended-household groups regulated their social relationships with other groups.

Within an alternative theoretical approach, this study reviews the space-object-person relations of the time period through analysis of the material culture, related ritual activity and settlement patterns in an attempt to draw a picture of social trends during that period. Following this, the significance of ritual activity is evaluated in context of these trends to understand the patterns of social change. At the same time, ritualized burial of artifacts, places and buildings may be a factor that prevents ‘alienation of objects’ and thus accumulation of personal or group capital. Such perceptions may have also been instrumental in the emergence of new alternatives for recording and manipulating social history.

TH3-09 Abstract 04
Food preparation, commensality and the formation of social cohesion in Late Neolithic Northern Greece

Author - Lymeraki, Maria, Democritus University of Thrace, Eleftheroupoli Kavala, Greece (Presenting author)
Co-author(s) - Urem-Kotaki, D., Democritus University of Thrace, Komotini, Greece
Co-author(s) - Kotsos, S., Hellenic Ministry of Culture, Education and Religious Affairs, Ephorate of Ant, Thessaloniki, Greece
Co-author(s) - Chondrosagis, A., Hellenic Ministry of Culture, Education and Religious Affairs, Ephorate of Ant, Kozani, Greece
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, Stavroupoli (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 use of cooking pots in Stavroupoli provide evidence for domestic consumption and consumption of food while in Toumba Kremasti Kozani the context of consumption of food must have been on a more public level. Subtle differences and similarities between houses underlining 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. Dzachkenko, 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 and super-region. In this respect emphasis is placed upon Tripolye site hierarchies and settlement structures.

TH3-09 Abstract 06
The importance of collective aspects in megalithic 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 ethnoarchaeological case study shows how collective efforts in building practices are shaped by and site size varies 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 their size show some clear patterns. With the ethnoarchaeological 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 size, 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 reference to the monuments in connection with feasting activities and collective aspects indicate importance in the preservation of a felt sense of group membership and community structure.

TH3-09 Abstract 07
The Boyne Valley, eastern Ireland – the epicentre of a Neolithic ‘super-ordinate’ identity?

Author - McVeigh, Thor, NUI Galway, Galway, Ireland (Presenting author)
Keywords: Boyne Valley, eastern Ireland, Neolithic, social cohesion
Presentation Preference - Oral
This paper explores the importance of the Boyne Valley Co. Meath, eastern Ireland in the construction and negotiation of group identities in the late-4th and mid-3rd millennium BC. The construction of substantial passage tombs at Dowth, Knowth and Newgrange indicates the potential significance of the Boyne Valley in the conception and mediation of large-group identities during the Middle Neolithic. It will be advanced that the sources of materials utilized in the construction of these monuments and the distribution of contemporary sites across eastern Ireland provide information about the scale and geographical extent of the groups involved in these construction projects in the later 4th millennium BC. The act of building will be considered from the perspective of strengthening group 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 calendrically scheduled winter solstice gatherings in the reinforcement of group identities will be discussed.
This page 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 Knosos and Phaistos, remains scarce. 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 collaboration and social organization. The first tombs, which would have looked more like mounds than the cylindrical structures often portrayed in reconstructions, evoked the caves in which the Neolithic population lived and buried their dead and some of which remained in use during the Early Bronze Age. Having relocated to areas which lacked caves - particularly to the south central part of the island - the settlers relocated their places of origin as a means of maintaining social unity. Although some have argued the tombs were built for the elite, burial goods were relatively modest - two to three pieces of pottery and perhaps a personal item - and the overall impression is that the mortuary practices were intended to bind the community together. There is no evidence in these early tombs for any individual receiving special attention. Instead it appears that every member of the group received the same treatment at the time of internment - deposition on the ground accompanied by a few objects. Bodies piled up over time, the desiccated remains swept to the side or long bones selected while the rest were removed. Some 400-500 years after the tombs were constructed the population finally constructed more substantial tombs that nevertheless remained visually proximate to the cemeteries which continued to serve the role of enhancing social cohesion. This role persisted throughout the Early Bronze Age as the emergence of a more robust built environment evoked the addition of anterooms to pre-existing tombs and the construction of more architecturally defined new tombs. Only the emergence of a supposedly palatial culture at the transition into the Middle Bronze Age supplanted these tombs as an important mechanism for social cohesion.

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Looking for a spa? A social cohesion at Santovka – case study

Santovka (formerly known as Mäďerce) is an Early Bronze Age - tell type settlement at southwest Slovakia. It is surrounded by thermal springs which are famous for their salubrious qualities. An ongoing excavation project (currently 8 excavation seasons) uncovered a medium-sized fortified site, with exceptionally high number of prestigious artifacts of exotic origin and clear evidence of extensive metalworking activities. Ceramic production and consumption is pretty much homogeneous, with predominant elements of so called mañarce, encrusted wares 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 proper social cohesion. We therefore welcome the topic of this paper, because we believe, that Santovka offers a nice example of a site, where theoretical models related to subject of social cohesion could be studied and applied. We suspect, that local thermal springs were a natural place to keep alive these associations.

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Collective harvesting at Százhalmobatta-Földvár, Central Hungary: a material cultural perspective

Százhalmobatta-Földvár, Central Hungary is a Bronze Age tell-settlement along the Benta river, at the delta of Benta river. Bronze Age in Hungary is the period between 2800-2700 BC and 800 BC. From this period, Százhalmobatta 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 three different regions of Bronze Age Europe. Százhalmobatta-Földvár, due to its size and geographical position, can be considered the head of the Bronze Age chieftain in the Benta 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 site-typologies show little indications of a difference in social hierarchy between each site. Hence, instead of political differences, they might be economical. Sickles are known findings at the site of Százhalmobatta-Földvár, where they are the main chipped stone tool type during the last major occupation of the site (1700-1400 BC). However, sickles are reason rare reflection on the Bronze Age site from the valley (Priskin 2014). This information suggests harvest was a centralised community activity controlled by Százhalmobatta-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

The studies on Bronze Age Italy have underscored 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 "econometric" 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 familialistic structure of power. Anyway, it is also interesting to reconstruct 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

The inherently, literally built-in segregative nature of Mycenaean palaces as the seats of political authority and the role of palatially sponsored feast, 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, ideally leading, from the palace's perspective, to what might be termed a 'competitive conformity' of the ruled. Following a discussion of the nature of prestige, potential visual mechanisms of ever more organisms and/or assets shared with the palace are sought as possible correlates, i.e. physical architectural evidence, of such a palace-fostered discourse. Specific attention is paid to such potential mechanisms which transpose iconographic themes closely associated with the socially exclusive architectural setting of the palace itself, e.g. themes in the canon of palatial wall-paintings, into different media and media of different degrees of exclusiveness. Possible case studies include drinking vessels, chariot and hunting iconography as well as depictions of antithetical faunes and griffins.
Ritual feasting as indication of social cohesion?
A late Bronze Age case study from Romania

Author - Prof. Dr. Metzner-Nebelsieck, Carola, LMU Munich, Munich, Germany (Presenting author)
Co-author(s) - Prof. Dr. Nebelsieck, Louis, Kantynel Stefan Wyszynski University, Warsaw, Poland

Keywords: ritual, feasting, Bronze Age, cohesion, competition
Presentation Preference - Oral

The talk 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 Bâa Mare, RO; Archaeological Institute, Kardynal Stefan Wyszynski 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 mantel, 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.

Do swords make warriors? Identity & cohesion among armed individuals in the European Bronze Age

Author - Notoft, 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 warfare with a closer look at the weapon’s changing expression in funerary ritual and deposition tradition of the Nordic Bronze Age. In the end the emblematical role of the sword symbol (respectively its substitution) in the constitution of group cohesion among individuals armed with and represented by a sword in Bronze Age Europe will be further explored.

Social cohesiveness as concept of habitus through the lens of archaeological record

Author - Pape, Eleonore, German Archaeological Institute, Frankfurt am Main, Germany
Co-author(s) - Uhl, Regina, Eurasia Department of the German Archaeological Institute, Berlin, Germany (Presenting author)

Keywords: 3rd Millennium, habitus, social cohesion
Presentation Preference - Poster

Social cohesion can be expressed, created and maintained through a variety of ritualized (and/or) performative events which can respectively involve different group constellations that constitute society.

Following Bourdieu’s concept of fields and habitus, we choose to focus on the entanglement and juxtaposition of different group identities at different levels, expressed 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.

HOUSE AND HOUSEHOLD MAKING ROOM FOR HISTORY
Thursday, 1 September 2016, 09:00-13:00
Faculty of History, Room 217
Author - Tagesson, Göran, National Historical Museums, Linköping, Sweden (Presenting author)
Co-author(s) - Linsdström, Dag, Historical Department, University of Uppsala, Uppsala, Sweden
Co-author(s) - Savela, Pasi, Historical Department, University of Turku, Turku, Finland

Keywords: historical archaeology, history, household
Presentation Preference - Regular session

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. This is also a field where the combination of material culture and written text is both rewarding and, in fact, necessary. Archaeologists as well as historians have collected massive amounts of empirical observations concerning houses and households, and they have developed theoretical approaches, but they have not very often collaborated systematically on these matters. Nevertheless, this is a field where the benefits of cooperation between archaeology and history, material culture and written texts, are obvious. It is also a field where methods and theoretical approaches have developed rapidly during recent years. Much new empirical evidence has also been added.

Within the disciplines of social, economic and cultural history a lively discussion is now taking place concerning households in relation to social practice, space and material culture. In historical archaeology, studies concerning the early modern period have increased rapidly, thus making possible very close household analysis in multidisciplinary studies. This makes possible new perspectives: emphasizing the complex structure of households, gender and agency, household cycles and family history as well as alternative models of households.

In our session we would like to welcome contributions discussing the relationship between house and household, both from theoretical and from methodological and empirical points of view. 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 history and archaeology.

Linear Pottery houses and their social context

Author - Dr. Zych, Renata, Biłgoraj Tyczynska, Poland (Presenting author)

Keywords: houses, Linear Pottery, society
Presentation Preference - Oral

The population of Linear Pottery culture constructed stave 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.

Ancestral Homes: Household Biographies in Late Iron Age Scotland

Author - Dr. Buster, Lindsey, University of Bradford, Hailfax, 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 Brommouth in south-east Scotland. The roundhouses display a variety of different forms and fabrics, and indicate the idiosyncratic nature of buildings which were far more than a passive backdrop to everyday life. Certain of the roundhouses, particularly those constructed in stone, demonstrate frequent and unusual developmental sequences and complex life histories, which were punctuated by special deposits. These modifications took place in a generation which 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
strong oral histories and practices designed to prolong the memory of successive generations of inhabitants of these buildings. As such, the houses themselves (their fabric and their spatial organisation) appear to have been central to the construction, maintenance and renegotiation of household identity in later prehistoric Europe, as glimpsed through various ethnographic examples in the more recent past.

TH3-10 Abstract 03

Household Archaeology in a small scale house in an early byzantine settlement

Author - M. A. Steinborn, Miriam, Römisch Germanisches Zentral-Museum Mainz, Mainz, Germany (Presenting author)

Keywords: Byzantium, Excavation, Household

Presentation Preference - Oral

The early byzantine settlement of Carićin Grad in southern Serbia can be identified with the imperial city Lusitana Prima known from De Aedificiis of Picozzi, which existed for merely 90 years. Without any marks of earlier or later occupation, the excavations provide unique evidence for the beginning of the 7th century. Excavations in Carićin Grad take place since 199 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 archaeobotany and soil science. The finds indicate a habitational function. The interpretation of the building bases on the results of interdisciplinary research. The simple configuration of the house and the multiplicity of potential uses of a single room structure challenge the examination. It raises the question whether it was a complete household or not. This is the crucial point where field work and the theories of Household Archaeology come together. Working with an entirely constructed house and a few objects connected with specific activities restrict the possibilities which houses with many rooms and outdoor-areas may provide.

Therefore the preliminary results of the excavation will be discussed from the perspective of Household Archaeology.

It is necessary to examine the activities in- and outside the building to understand the function the household fulfilled in the settlement. Taking their perspective on the settlement raises the question of their mentality and their everyday life. The household can be seen as the place where social roles are negotiated and thus as a social landscape which reflects the mentality of the dwellers. The analysis of installations and formation processes helps to understand activities carried out in daily routine and how the domestic space may be used. The observation which things were left behind or even don’t appear in the archaeological record allows statements about the end of occupation. Life in Carićin Grad took place in a time of far reaching cultural change. Written sources provide little insights in the situation of common life. In combination with the archaeological record they allow to delineate the possibilities of household-organisation for a specific historical situation.

The talk will examine if it is generally possible to work with the household concept if there are unspesific structures or if it is rather necessary to apply it to gain more information. With regard to cultural formation processes this also raises the issue of the possibility to detect pauperism archaeologically. For this purpose it will present the archaeological remains of a specific small house and compare it with the normal course of life in early Byzantium known from historic tradition.

TH3-10 Abstract 04

Pottery as personal belonging in a Clarisses convent in Vilnius

Author - Phd student Urbonaité-Urbė, Miglė, Klajpeda University, Klajpeda, Lithuania (Presenting author)

Keywords: historic archaeology, household, pottery

Presentation Preference - Oral

Pottery is the most common artefact in excavations of historic sites. Due to vast number of fragments pottery is often identified as mass artefact. Nevertheless, some early modern period pottery in Europe can be identified with personal needs and usage. Pottery with scratched marks such as initials, religious abbreviations, letters or numbers or unidentified scratches are found from medieval households in England, France, Netherlands and Germany. These marks are assessed as a personal sign of the owner. Most of these marked pottery fragments are uncovered from monasteries and convents. This fact leads to an interpretation that runs and monks possessed their own ceramic dishes while in most cases private property was forbidden. In a convent of Clarisses in Vilnius Old Town (Maironio street 11) 10 fragments of marked ceramic dishes from the end of 17th to beginning of 18th century were uncovered during the excavations in 1994 and 2007. These dishes had only marks of letters associated with two or more nuns.

It is known that no personal property was allowed in this convent as well as leaving the territory was also forbidden. This convent can be assessed as a private household with its own specific rules and domestic life. While no personal possession was allowed the presence of marked pottery is intriguing. These fragments can be interpreted as personal belongings. Dishes could be used for personal hygiene rituals or as a prevention of infectious diseases. There is also a possibility that some nuns had their specific diet requirements and some of the dishes could have been used for serving them food.

TH3-10 Abstract 05

House and Household – an archaeological approach

Author - PhD Tagesson, Göran, Swedish National Museums, Linköping, Sweden (Presenting author)

Keywords: early modern period, household, houses

Presentation Preference - Oral

The household is commonly identified as a fundamental element of social organization in past times. In archaeology, the household has often been regarded as an essential level of research, in order to bridge the gap between grand theories of cultural change and the practical archaeology on the ground. Theoretical discussions as well as analyses based on empirical observations now tend to take place in dynamic interactions where the household is understood as both a term and a concept, 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 production, property 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 inhabitants. The relations between the households will be analyzed in comparison with the building structures within a theoretical framework of actors and agency. The main focus is how to develop the analyses and understanding of households as function and structure in past times, and the relationship between houses and households, as for example through deeper cooperation between history and archaeology.
In this session we are exploring theoretical and methodological approaches to archive-based studies as well as the conceptual and methodological uses of archives. The importance of archives for archaeological research and field practice is undisputed in present-day archaeology. Nevertheless, 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 archival data. This greatly impacts anyone who studies the past in a particular site, the biography of an archaeologist, or the history of archaeology in general. In addition, the archive can work as a resource connecting the past, present and future 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: archaeological 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 broad-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 Abstract 01

Renovating practices in the history of archaeology

Author - Prof. Diaz-Andreu, Margarita, ICREA, Universitat de Barcelona, Barcelona, Spain (Presenting author)
Keywords: archives, history of archaeology, methodology, archives and archaeology
Presentation Preference - Oral

In the last two decades the history of archaeology has changed beyond recognition. Long gone are the days when a look at the past of the discipline was only undertaken on the basis of publications and anecdotal memories and limited to building an account of the main discoveries and events. The much wider variability of perspectives that historians of archaeology are employing today is also related to – and in many cases requires – a change in the methods once used. Taking advantage of archives as a source of information is one of the main ways in which historians of archaeology have renovated their practice. However, their work is usually hindered by the fact that archaeologists are rarely trained for this. This may well, at least partially, explain the huge differences among those of us who search archives for information.

In this paper I will analyse my own experience of working in archives. I have been researching in archives on and off since 1995 and the experience gathered over the years has allowed me to refine several data compilation techniques. I have found that checking and cross-referencing the information I have gathered from archives over the years is one of the most challenging tasks archaeologists have faced. Interestingly, however, I soon realised that looking at archives was not only a question of new methods, but also of how questions were posed. Initial questions had to be revised in order to be able to use the considerable potential of the newly found documentation. In my own research on how politics influences archaeology I found that most of the time the answers were much more complex than expected. Working with correspondence, for example, allows researchers to get a much more intimate knowledge of the individuals under study than with any other method (with the exception of oral history, which is only possible for most recent events). However, this privileged position makes us aware that overarching ideologies are put into practice in ways that are often too hard 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 Lluís Pericot.

TH3-11 Abstract 02

Archaeological archives – A deconstruction

Author - Frydenberg, Hilde Sofie, Museum of Cultural History, University of Oslo, Oslo, Norway (Presenting author)
Keywords: archaeological archives, archaeological processes, theory of science and methodology
Presentation Preference - Oral

In this paper, I propose a critical examination of the archaeological archive. Using my personal experience as an archaeologist working in the archives at the Museum of Cultural History in Oslo as a point of departure and a case study, I intend to explore the concept of the archaeological archive from two different angles:

1. In an archaeological context, archaeological contacts are always being interpreted with a conscious and reflective view on past research paradigms and history of science. Archaeological practice however, is very rarely subject to the same meta-archaeological scrutiny. Nevertheless, archaeological archives are historical artefacts with complex conditions of production, which, in the same way that archaeological artefacts can be read and interpreted as remnants from prehistory, can be read and interpreted, both as a historical source for the context and provenience of archaeological artefacts, as well as remnants of the theoretical and societal circumstances and conditions that have, in different ways, influenced the archaeological processes.

2. What has 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.

TH3-11 Abstract 03

History of the Museo Nazionale Romano: arrangement and management from the beginning to the 1930s

Author - Pietroletti, Irene, University of Rome Tor Vergata, Roma, Italy (Presenting author)
Keywords: Museo Nazionale Romano, Terme di Diocleziano, museology
Presentation Preference - Oral

Through research in various Italian archives, it is possible to reconstruct the history of the first national museums of Rome in the nineteenth and twentieth centuries. Some collections of documents (like those of the Archivio Centrale dello Stato) allow us to understand the institutional events that the museum experienced in the course of its life. The archives of the museum (like that of Felice Barnabei, preserved in the Palazzo Venezia in Rome) contain personal correspondence that enables us to draw a profile of the scholars who directed the museum in different periods. Lastly, the photographic archives permit us to reconstruct an idea of the arrangement of the museum exhibits over the years.

The National Roman Museum was founded in 1889 when, in the climate of nationalistic pride that followed the unification of Italy, the new government decided to bring Rome to the level of other European capitals, providing it with a large state archaeological museum, which could compete with the famous collections of the Vatican and Capitoline museums and with foreign public museums. In addition to this intention, there was also a practical problem: finding a shelter for the thousands of finds that the city had to find a place for the redevelopment of Rome Capitale progressively brought to light. The choice of where to build the museum fell on the Terme di Diocleziano, an archaeological environment of exceptional importance in the heart of the city, that however revealed all its limits quickly. The legal status of the Baths, which was partly in the hands of private owners, and the areas unsuitable for exhibition of the works created enormous difficulties in the life of the Museum. The directors who took turns dealing with its management attempted large restoration projects to transform the archaeological ruins in the exhibition, but the technical difficulties and the lack of money prevented the realization of various projects. In this difficult situation, ordinances and arrangements of materials representative of the cultural climate of the different eras were proposed: from the environmental museology to the rhetoric and grandiloquent exhibitions set during the years of fascism. The archival material sheds light on the facts and character of a season that is emblematic for the creation of legislation for the protection of antiquities in Italy.

Furthermore, part of the research is dedicated to the heritage of the museum. I have digitally studied the inventories of the Museo Nazionale Romano, preserved in the scientific archive in Palazzo Massimo. As a result of this work, I have created a database that collects information about the provenance and excavation context of some 35,000 artifacts. Diagrams that analyze these data enable the study of the chronological evolution of the museum’s heritage and the reconstruction of the history of archaeological excavations in Rome during the late nineteenth and early twentieth century. This part of the research represents another possible use of the archival data to enrich a reconstruction of the museum’s history.
Theoretical and methodological perspectives in archaeology

In this paper I 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 Deyo 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 prove this case by asking how 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 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.

Ontology of archaeological sources and the possibilities of archive - based research of Greek pottery

Author - Ma Milickic, Waerzyniec, Jagiellonian University in Krakow, Krakow, Poland (Presenting author)
Keywords: archives, pottery of ancient Greece, theory of archaeology
Presentation Preference - Oral

The concept of the archive came to me at different moments whilst I was investigating archaeology under the Estado Novo dictatorship in Portugal (1933–1974). In this research, I experienced archives “as a source” and “as a subject”. They were “a source” in the sense that archives were the “places” where I could find the raw materials to develop my work. They were “a subject” because, in picking up and ordering documents, I was constructing a “landscape” through which I was setting a research path; a “landscape” offering me clues and suggesting directions I hadn’t envisaged at the outset. This exemplifying the way archives were questioning me, led me to read Jacques Derrida’s Archive Fever (1998) to try to understand this experience. Derrida shows us the archive as a place of two principles: the principle of commencement, since the archive is the place of physical, historical or ontological origin; and the principle of commandment, because the archive is also the place from which laws are exercised. This made sense to me because I was experiencing archives both as a source and as a subject, a place of “origins” (of documents) and “law” (to re-organize my research). But, more importantly, with Derrida’s notion of the archive, I realized how this experience of using archives in doing “history of archaeology” was so close to the experience of doing archaeology itself, and how Derrida’s work could be read while thinking about the conditions under which we do archaeology. This perspective on Derrida’s work became clearer after reading Gavin Lucas’ Understanding the Archaeological Record (2012) where Lucas argues archives can be discussed as a translation process based on the interaction between “the site” and “the copy” (ibid.: 237–239). In this paper, I aim to look in detail at the intertwining of Derrida and Lucas’ ideas, with a view to discussing the limits and possibilities of the ways we shape our “archaeological experience” (ibid.: 231).

Archives – Can You Dig It?

Time, Materiality, and the Archaeology of Archives

Author - De Armond, Thea, Oakland, CA, United States of America (Presenting author)
Co-authors: Duray, Anne, Stanford University, Stanford, United States of America
Keywords: archives, history of archaeology, materiality
Presentation Preference - Oral

Archaeology and the archive occupy similar metaphorical space. Both are regularly invoked as specific modes of historical thinking (consider, e.g., Foucault 1969, Derrida 1995, Olivier 2008), not only for their cultural resonance but also for the particular way in which they have been portrayed as (more or less intentional) materializations of memory, as palimpsestic accretions, as memory practices. 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 (see, e.g., Lucas 2012, Shanks 2012). That archaeological practice quite literally entails the creation of an archive – that the archaeological process involves collecting, selecting, organizing, and preserving materials – will not be surprising to any of its practitioners. But, despite archaeologists’ familiarity with the archiving of archaeology – as well the conceptualized overlap between archaeology and the archive – practical considerations of what archaeology might bring to the archive are generally rare (Barz 2012). What is archaeology of the archive?

Following historians of science, Nathan Schlanger has argued that, “To reach the science in the making as much as the applause result, to grasp the quotient as much as the extraordinary, historians of archaeology need to turn to... the archives of the making of the past” (2006: 6). Archives, more than published results contain the traces of scientific practices – of course, they are, at the same time, the traces of another set of practices. And so, historians of archaeology are in an exceedingly advantageous position to understand the significance of the archives and archaeological documentation. In one of his papers James Deyo 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 prove this case by asking how 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 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.

Archives and Archaeological Economy

Author - Gomes, Sérgio, Porto, Portugal (Presenting author)
Keywords: archaeological economy, archive
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 archive stands, standardized and transformed into other archives, at later times.

The importance of archives will be illustrated by means of the case study of Veleia, a Roman settlement located in the northwestern part of Italy. The site was discovered in 1747, when pieces of the famous Tabula Alimentaria Veleiae were unearthed by chance. Such a long history – which consists of moments of excavations and restoration, followed by periods of inactivity – led to many undocumented changes, even to the planimetry of the buildings, due to restorations conducted without modern methods and cautions. Some restorations 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 Veleia 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 Veleia, where deep archival study has long been neglected, leading to incorrect interpretations of archaeological remains. Both in the case of the so-called ‘Amphithetre’ 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 Veleia.
Albert Cyrenaica, being one of the prominent regions of the Greco-Roman civilization, attracted the attention of scholars from the medieval period onwards, its political isolation after the Arab and later, Ottoman conquest, gave reason to the visible delay in real-world physical space, not in kilometres of shelving, but in computer servers. As Glasgow University’s Great War project has seen, however, the bureaucratic records of everyday life - often times astounding in banality - are of real value to later scholars. By thinking archaeologically about these archives, this paper offers a look at how interdisciplinary collaboration can enrich and enhance research, while making us think critically about our work.

TH3-11 Abstract 12
Archives and shipwrecks in the Baltic
Author - PhD Student Alvik, Riikka, The National Board of Antiquities, Helsinki, Finland (Presenting author)
Keywords: archives, maritime archaeology, 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? 
We argue that we, as archaeologists and archivists, are well placed to talk about a war of overabundant materiality, the epitome of which is the First World War. The collaborative research is needed to collect the data. When there is an idea of the port of origin of the find, there is a chance to use these records to find out the ship’s history and the more detailed information of the ship. The national and international institutions involved need to lead the way to the research and working together. The project of shipwrecks has been on-going for many years at the National Board of Antiquities and the results are still growing. The project has been important for the research of the Baltic waters and the Baltic Sea. The project is a good example of the collaboration between archivists and archaeologists for an interdisciplinary research.

TH3-11 Abstract 11
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 tantalizing 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 contributions of these two distinct but related practices while undertaking research into the First World War, and highlights our roles as arbiters of the past. As Pierre Nora (1989: 10) observed in Lieux de Mémoires, “To interrogate a tradition, venerable though it may be, is no longer to pass it on intact.” As archaeologists and archivists, we largely accept the interventionist nature of our work – we know that we must necessarily change, reorder, or otherwise destroy the past in the process of investigating it and preserving it for the future; furthermore, we try to acknowledge our biases, our subjectivity, and our modern viewpoints. How then do we approach a topic as big as the First World War and the challenges of 20th-century archaeology and archives? It is accepted that we, as archaeologists and archivists, are well placed to talk about a war of overabundant materiality, the epilogue of González-Ruibal’s (2008, after Auge) supermodern era. How do we deal with the material legacy of the supermodern, as well as what Nora felt was a modern society gone “archive-mad” where we immediately historicise the present? Archaeologically, the First World War leaves us with millions of spent shells, millions of broken bodies, kilometres of trenches. Likewise it generated an astonishing amount of clerical paperwork: forms in duplicate and triplicate, millions of records, all filed away, some of which survive today. Today we continue to archive the supermodern seemingly limitless digital files created every day that take up real-world physical space, not in kilometres of shelving, but in computer servers. As Glasgow University’s Great War project has seen, however, the bureaucratic records of everyday life - often times astounding in banality - are of real value to later scholars. By thinking archaeologically about these archives, this paper offers a look at how interdisciplinary collaboration can enrich and enhance research, while making us think critically about our work.

TH3-11 Abstract 9
Archives Vs Archaeology: the case study of the building beneath Via di San Nicola de’ Cesarini, Rome
Author - Guagliandone, 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 new 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 cadaster 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.

TH3-11 Abstract 10
Digging in Archives: Writing the Scientific Biography of Archaeologist Zsófia Torma
Author - PhD Candidate Coflofian, Laura, Brukenthal National Museum, “Lucian Blaga” University of Sibiu, Sibiu, Romania (Presenting author)
Keywords: archival materials, scientific biography, Zsófia Torma
Presentation Preference - Oral
Zsófia Torma (1832-1899) was a remarkable Hungarian archaeologist who had a significant contribution to the development of prehistoric archaeology in nineteenth-century Transylvania, which was then part of the Austro-Hungarian Empire. She is most notably known for her research conducted at the prehistoric settlement of Turda-Luncșa (Hunedoara County, Romania) which is one of the most important archaeological sites in today’s Romania, as well as for her international academic network that she developed through her vast scientific correspondence with well-known scholars of the time, such as Archibald Henry Sayce, Francis Haverfield, Johannes Flanke, and Albert Voss. After Zsófia Torma’s death, her activity was underestimated and ignored by most Romanian and Hungarian archaeologists for almost a century. However, the systematic excavations conducted at the site of Turda-Luncșa between 1992 and 1998, as well as the preventive ones in 2011, have revealed the necessity of re-evaluating her archaeological activity and writing her scientific biography.

This paper is a case study about the experience of working with archival sources in the process of writing Zsófia Torma’s scientific biography, within a complex research that has been undertaken during the past three years, in seven Central and Eastern European institutions. These institutions are as follows: The National Széchenyi Library (Budapest, Hungary), The Hungarian Academy of Sciences (Budapest, Hungary), The Hungarian National Museum (Budapest, Hungary), The National Archives of Hunedoara County (Deva, Romania), The National History Museum of Transylvania (Cluj-Napoca, Romania), The Brukenthal National Museum (Sibiu, Olt county, Romania), and The Szekler National Museum (Blaj, Hunedoara, Romania). These institutions are the richest in archival materials concerning Zsófia Torma’s personal and scientific life. The first part of this paper aims to trace the differences and similarities between the archival materials from Romania and Hungary, by taking into consideration various aspects ranging from the content and relevance of the documents to their accessibility, way of preservation and even state of conservation. In addition to this, the second part of the paper focuses on the methodology employed in this research, as well as its main results and conclusions. Finally, the paper emphasises the importance of archival materials in establishing Zsófia Torma’s place in the history of Hungarian, Romanian and European archaeology.

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TH3 Theoretical and methodological perspectives in archaeology

TH3-11 Abstract 10
Digging in Archives: Writing the Scientific Biography of Archaeologist Zsófia Torma

TH3-11 Abstract 9
Archives Vs Archaeology: the case study of the building beneath Via di San Nicola de’ Cesarini, Rome

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Theoretical and methodological perspectives in archaeology

TH3-11 Abstract 11
Digging in the repository: finding the First World War in the University of Glasgow archives

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TH3-11 Abstract 12
Archives and shipwrecks in the Baltic

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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 that were sunk in the Bruthach a'Tuath on the Isle of Benbecula during 1956 in advance of the building of a Rocket Range in the Uists; the results of which were never published. 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. Details for the excavated deposits were lacking, although the location of the artefacts and the date they were found was recorded on the finds boxes; consequently, a finds matrix formed the basis for interpreting the stratigraphy on site. A radiocarbon dating program was undertaken to identify the timing and sequence of activity related to the wheelhouses. Twenty-six radiocarbon measurements were taken from single-entities of wood charcoal, animal bone, human bone, and pottery residue. A Bayesian approach that considered stratigraphic contexts and feature formation processes was used to estimate the site chronology and 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 deposits that are recorded. Further, these demonstrate the potential that artefacts in older archives have for producing new chronologies 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 14

Analysing Archived Material to Unravel Wheelhouse Chronologies in the Western Isles, Scotland

Author - Dr. Kua, Anthony, University of Glasgow, East Kilbride, United Kingdom (Presenting author)
Co-author(s) - Brown, Lisa, Historic Environment Scotland, Edinburgh, United Kingdom
Co-author(s) - Goldberg, Martin, National Museums Scotland, Edinburgh, United Kingdom
Keywords: Archaeological Analysis, Bayesian Chronological Modelling, Scottish Iron Age
Presentation Preference - Oral

The site of Bruthach a'Tuath on the Isle of Benbecula was investigated as part of rescue excavation which was undertaken in 1956 and 1957 in advance of the building of a Rocket Range in the Uists; the results of which were never published. 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 was recorded on the finds boxes; consequently, a finds matrix formed the basis for interpreting the stratigraphy on site. A radiocarbon dating program was undertaken to identify the timing and sequence of activity related to the wheelhouses. Twenty-six radiocarbon measurements were taken from single-entities of wood charcoal, animal bone, human bone, and pottery residue. A Bayesian approach that considered stratigraphic contexts and feature formation processes was used to estimate the site chronology and 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 deposits that are recorded. Further, these demonstrate the potential that artefacts in older archives have for producing new chronologies 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: archival, archaeological, Adamesteanu
Presentation Preference - Oral

Today, with the use of commercial drones, aerial pictures of archaeological sites and landscapes can be easily obtained and, thanks to more or less user-friendly software, easily processed – as it was recently discussed at the 2nd International Aerial Archaeology Conference that took place in Rome in February 2016 – and present-day records can be compared with “pre-economic boom” images to better understand what has changed in our landscapes and single sites.

Since its creation, the Aerofototeca Nazionale, based in Rome, has acquired several different collections of aerial photographs. Today it houses aerpograpic materials that date from the very end of the 19th century (e.g., the images taken by G. Boni during his excavations in the Roman Forum) to recent years. The core of the collections are the thousands of images taken by the Allied air forces while surveying war zones during WWII; despite their often precarious preservation state, those images depict several areas of the Italian Peninsula that look totally different today, due to the growth of urban areas and the development of infrastructures.

The Aerofototeca, founded in 1958, is a historical photographic archive of the ICOM – Istituto Centrale del Catalogo e Documentazione – part of the Italian Ministry of Culture (MIABACT).

The archaeological duo Adamesteanu was the first directors of the Aerofototeca. He organized the first body of archival materials and designed the archive as an instrument for the collection, preservation, cataloguing and study of aerial photographic records. The Aerofototeca is an essential source for archaeological research and the safeguarding of our heritage.

The author of this paper, during an 18-month internship at the Aerofototeca, followed by field research, worked on the rearrangement of a group of more than 4,000 slides, the so called “fondo Adamesteanu”, a focus on a selection of those slides was published on the periodical Archeologia Aerea VI, 2012. The aim of this paper is to show a few examples of the potential of this archive as a fundamental source for understanding the development of our fast-changing landscapes and as a tool for the safeguarding of Italian archaeological sites.

In particular, starting from the pioneering 1908 aerophotographic survey of a stretch of the Tiber River, some areas along the river will be analyzed on the basis of the materials available at the Aerofototeca, retracing phases of ancient and recent history of the landscape.
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, reviews 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 2005, PDfS of papers more than a year old have been available to view freely online via the Archaeology Data Service (http://archaeologydataservice.ac.uk/archives/view/psas/index.cfm); 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 collective common link is often the Society itself. How can the Society best use its own heritage and archives to inform future work? One of the research projects of the Society is the Scottish Archaeological Research Framework (ScARF). This free-to-use online resource (www.scottishheritagehub.com) summarises what the acknowledged experts in their fields – not only archaeologists but also those in related disciplines such as geosciences, environmental sciences, history and museums – thought about Scottish archaeological knowledge at the time of the first reports in 2012. The work is divided by time period and each period ‘panel’ made a series of recommendations for future research. Now, in 2016, the panels are beginning work on the next version of these reports. This will mean that the 2012 reports become, in effect, an archive themselves. One of the challenges moving forward will be to ensure that as the first set of questions posed are answered, that the archaeological information that led to them are not forgotten or archived so that in the future, contemporary trends and lines of thinking can be studied. It is planned that the new reports will contain links to more of the raw data and archives used in their creation and it is possible that many of these data and archives will be available online. However, the ability to view these will only be a useful addition if they are openly accessible. The Society has a privileged position from which to think about the long-term survival of our archaeological heritage as it has been around since 1780 and, as long as there remains 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 undiscovered script to the public
Author: Dr. Tomas Helena, University of Zagreb, Zagreb, Croatia (Presenting author)
Keywords: 3D scanning, ancient inscriptions, digital archives
Presentation Preference - Oral

Creating databases with digital archives of ancient inscriptions has become customary over the past decade. Digital databases of cuneiform tablets are particularly popular, and thanks to advanced digital technologies, especially 3D scanning, thousands of cuneiform inscriptions can now be freely browsed through by both specialists and non-specialists, meaning that they have become easily accessible to anyone interested in studying them. Yet, there are many inscriptions in other ancient scripts that still await a similar treatment. One such script belongs to the realm of the earliest European literacy: Linear A, used during the Minoan civilisation and still undeciphered. A digital archive of clay tablets inscribed with this script is still non-existent, but hopefully such a state of affairs is soon to be changed. By taking Linear A tablets as a case-study, the paper presents various aspects of how our understanding of ancient inscriptions can be improved by using their 3D images. Previously used plaster casts, photographs, drawings and text copies of tablets have not proved accurate enough, especially when it comes to analysing various physical features of tablets. For decades clay tablets were treated as secondary to inscriptions they carried, and it is fairly new to approach those documents as archaeological objects themselves and pay full attention to their physical properties. Studying those physical properties is nearly impossible from conveniently published corpora, whereas access to actual tablets is limited to a small circle of specialists (and even they sometimes face obstacles, such as the fact that relevant inscriptions may be scattered around the world, musealised, either displayed behind glass in museum galleries, or locked away in museums’ 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 inscriptions achieved 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 undiscovered script. For the simple reason of inaccessibility to its tablets, crowdfunding is automatically excluded from the field of Linear A studies – an important thing to keep when reminding ourselves that a successor to Linear A – the first known Greek script called Linear B – was deciphered by a non-specialist.
Archaeological field schools are the primary means to expose students to their first excavation and to train future generations of archaeological stewards, as it traditionally reflects something done at the end. Interestingly enough, a good number of graduates in archaeology find themselves faced with the question of whether or not they should enter the field. In the United States, it is part of Anthropology or Classics Department. Archaeological Science is becoming increasingly relevant, and in Europe, archaeology used to be taught solely in History departments. The primary purpose of this session is to analyse archaeologists’ working methods on developing a successful field school, with the aim of answering the questions above. The discussion should focus on issues encountered during the development of projects and on means for providing the best training for archaeology students, where the focus should be placed on improving their skills in a limited time-span, but also reducing the costs of running the field school. The objective of this session is to provide the base for further improvements in the creation of effective and well-organized projects, which can turn archaeology students into actual professionals on archaeological sites.

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 Archaelogical 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 objectives, and logistical challenges, and program costs are explored, proposing a strategy to keep costs low and learning outcomes high. When offered as a study abroad program, such instructional research projects afford students with the skills necessary to pursue careers in archaeology as well as valuable cultural experiences translatable to a broad variety of careers.

TH3-12 Abstract 02
The many meanings of Archeological Education: field schools in archeological heritage management
Author - Dr. Perez-Juez, Amalia, Boston University, Madrid, Spain (Presenting author)
Co-author(s) - Dr. Elle, Ricardo J., Boston University, Boston, United States of America
Co-author(s) - Langitz, 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 in Europe, archaeology used to be taught solely in History departments. In the United States, it is part of Anth...
The flotation method to process archaeological sediments is proved to be the most efficient way to recover plant macroremains. Although the importance of flotation of sediments for a successful sampling, it is still not always applied systematically, biasing the further representation and interpretation of archaeological remains. Many are the reasons that have been holding back its application and most are linked with logistical issues. The development of the Bucket Flotation by Dorian Fuller has allowed to apply this method in a simple and efficient way, even under conditions where limited access to water is available.

This project aims to characterize the occupation of Middle and Upper Palaeolithic in the Lis Basin (Lisboa, Portugal), applying the most new methodologies for field and lab work, towards a high-resolution archaeological record. As well as scientific goals, our project intends to provide formation as field school for students that participate in the excavations, allowing them to contact with all the methods and techniques applied in this project. Here we present the first results from the flotation field-lab work with students, applying the Bucket Flotation method to the total sediments excavated from the site Abrigo do Pogo. The processing of all samples from Abrigo do Pogo were measured in both volume and time to understand how expedite the task was being. The application of this method in the 2015's EcoPLis campaign, was shown to be easy to set, fast do to and intelligible to students. Moreover, because students are involved in every step of the process (excavation, recover, flotation, sorting and identification) they understand better the relevance of each small detail and how they organically link to each others, the meaning of the results and, very important, they became very enthusiastic, as they feel their importance as potential future researchers of the project.

Our preliminary results motivated us to share our experience, on what it proved to be an important field-lab work technique for students to acquire and as highly efficient method to process sediments.
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 represent the results from the past years, showing the excellent collaboration between the Regional historical museum in Yambol and 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.
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 pintboard-archaeology, and during a short workshop I will let you all be a part of excavating the local community through a pintboard 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 context, looking at how training in practical archaeology had developed over the last 50 years in relation to the economy, government legislation and the archaeological sector in general. The second addressed the issue of definitions comparing the different terms used for practical training – field school, course, dig, fieldwork, excavation etc. - and seeing where the term ‘field school’ belonged and, importantly, who belonged within it. The balance discussions from sections 1 and 2, the final section looked to real data. Drawing from the first database of archaeological field schools in the UK and from a qualitative survey of individuals who attended field schools recently, they offered an insight into the current situation of field schools in the UK today. The response demonstrated a broad confusion over the definitions and expectations of field schools, fuelled by a 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 regulations required by its participants. In light of the economic difficulties field schools are facing, they are being forced to compromise and develop. It is therefore a perfect opportunity, albeit 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 09

Layers of living in layers of time

Author: PhD Synnestvedt, Anita, University of Gothenburg, Gothenburg, Sweden (Presenting author)
Keywords: art and archaeology, heritage, theory and practice
Presentation Preference - Oral

In 2013 the largest urban archaeological excavation ever undertaken in West Sweden started in the area of Gamlestaden in Gothenburg. The town of “Nya Lödöse”, which lay here between 1473 and 1624, is being excavated. The area is set to undergo major transformations. New construction activities with buildings, a new hub for public transport, walkways and bike lanes will transform the urban landscape. The archaeological dig is done behind fences. You can have a glimpse of what’s going on, but you don’t get a feel for the context or the experience. 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.

TH3-13 Abstract 06

Visual aesthetic of archaeological practice: a creative approach

Author: Mermel-Martínez, José-Antonio, Arqueología de Guardias Association, Béniagar (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 active practice to integrate, on purpose, the archaeological works into the citizens’ 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 aestetic 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 the citizens’s interests. Taken into account the destruction of social, cultural conventions which are posed by some special visual styles.
SETTLEMENT VARIABILITY AND SOCIO-ECONOMIC PROCESS

TH3-14

Theoretical and methodological perspectives in archaeology

Thursday, 1 September 2016, 14:00-18:30
Faculty of Philology, Room 114

Co-author(s) - Rosen, Christina, National Historical Museums, Malmö, Sweden
Co-author(s) - Sappanen, Liisa, University of Turku, Turku, Finland

Presentation Preference - Regular session

The relation between settlement and the socio-economy has remained one of the prime topics in archaeology. However, there is no simple, straightforward link between settlement organisation and socio-economic processes. The same general form may correspond to different socio-economic situations. In the case of urban settings for instance a certain neighbourhood in a town can, at one point, be considered a slum, and during another period house individuals and families of the upper class. The general layout of the area may be almost identical, while the population, interiors and details have changed.

The meaning of words like urban, village or hamlet are not at all simple and straightforward, and the particularity of given timespace situations is of great importance. In the Early Modern setting the town becomes a kind of ideal, in different ways for different actors, while still being a relatively unusual settlement form.

We wish to develop an analytical approach, which helps to identify similarities, while acknowledging the significance of the variability. When exploring settlements we need a broad range of theories and methods to work with and it is important to avoid initiating the analysis with rigid concepts and models. Instead of departing from simple typologies at the first stage of analysis, it could be more interesting and advantageous to start by tracing several factors, and subsequently look for correlations. It is most likely that such an approach allows for multiple perspectives when identifying socially, economically and/or politically relevant variables.

This session invites papers addressing to settlement analysis, in which variability is taken as an asset, even when looking for the general. We will discuss how archaeologists can identify variability and similarity at different spatial and social levels. Focus will be on examples from the Early Modern, but we are happy to include other relevant examples as well.

TH3-14 Abstract 01

Farms, hamlets, villages and towns. Settlement variability in Early Modern Scandinavia

Author - Dr. Rosin, Christina, Arkeologiska SHMM, Töllsjö, 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 record show no clear link between spatial form, socio-economic situation and socio-political 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. Sappanen, 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 practises 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 Sweden. The first presentation of the layout of the city are from the 1630s and the last revision in 1830s. In 1830s it was an urban settlement in the north of Sweden and a large part 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 labeled the concepts and interpretations about the socio-topography of Turku in earlier periods and on what grounds? The city is a living organism with variable elements transforming the character and dynamics of different parts and remoulding the relations between them on a different scale and bearings. The paper presents answers for the following questions. What elements formed the settlement of Turku in the 16th century and what was the relation of this settlement to earlier as well as to later inhabitation of the town? What kind of picture of events and socio-economic topography can we create with the help of 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 03

Norrköping and Kalmar: A spatio-temporal 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 spatio-temporal 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 and spatial relations are examined in the towns as a whole, but also 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 have on the lives of the town residents. Some processes are slowed down by the inertia of society while others are more rapid, such as seasonal changes. The data from about two hundred archaeological field reports together with a theoretical orientation helps to unfold a more diverse picture of the Swedish early modern town.

TH3-14 Abstract 04

Same name, same background, same function? Similarities and differences of the Scandinavian Husebyer

Author - Dr. Lemm, Thorsten, Stiftung Schleswig-Holsteinische Landesmuseen Schloss Gottorf, Schleswig, Germany (Presenting author)

Keywords: cultural-Historical background, royal administration, royal farm

Presentation Preference - Oral

Since the early 20th century the more than 130 hamlets or farms in Scandinavia and the Orkneys known by the name Huseby, Huseby, Husby, Huseby, Husby etc. have been a relevant topic in historical, archaeologico-all and onomastical research, closely linked to the discussion of kingship and political administration. Es-cially the highly frequent use of the place-name Huseby, their uneven distribution over Scandinavia, and the use of husabyr as an apppellative 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.
Did socio-economic developments change the landscape of Ireland?

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

Keywords: Agriculture, Early Medieval Ireland, Economic Development

Presentation Preference - Oral

The two greatest influences to the socio-economic landscape of Ireland in the early medieval period were the coming of Christianity and then the raiding and subsequent settling of the Vikings in the coastal emporia, such as Dublin and Waterford. But how did these events shape the socio-economic changes at this point? I hope to show that these events were in themselves, the catalysts, rather than the instigators of change.

In the aftermath of the Late Iron Age lull, which ended c. AD300, there was an increase in crop production, the growth is seen in stark contrast to the previous five hundred years or so, which it seemed to be a time of stagnant growth. The increase of crop cultivation, as well as the introduction of new technologies, such as the water-mill and the coulter plough, increased production, allowing specialisation and creating a surplus, furthering a division of labour and exchange networks.

When talking about the early medieval period in Ireland, one instantly thinks of the ubiquitous ringforts, of which it is now estimated, there was as many c.70,000. Despite Stout's estimation that they went out of use after c. AD900, there is no other type of secular settlement found in all areas of the country to populate the landscape. It is possible that although ringforts did not change in morphology after this period, many being re-occupied in the later medieval period, their possible location echoed a change in their function, away from being a cattle pen to being one used to control and exploit the agricultural producers. While some have attributed the inception of souterrains as refuges from Viking raiders, I would view them as drier storehouses for grain allowing specialisation and creating a surplus, furthering a division of labour and exchange networks.

Despite the strongholds of Christianity, the church was a force for change, with the increased wealth and prestige of the Church, it was able to take advantage of the influence of the Church on the socio-economic 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 urbanization and marginalization of the rural world is observed, which led to a virulent confrontation between old and new Christians.

A multi-proxy approach on identifying stabilizing patterns in prehistoric times

Author - Eberl, David, Free University, Berlin, Germany (Presenting author)

Keywords: animal husbandry, spatial analysis, stabilizing

Presentation Preference - Oral

The identification of stable 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 stabilizing. 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 stabilizing features. But also settlements with inferior preservation can hold evidence of stabilizing that can be proven by various scientific methods. Finally, it will be tested whether it is possible to evolve these results on different settlement concepts and periods.
TH3-14 Abstract 10
Islands on lakes – life and rituals of Slavs in Pomerania during the pogan-christianity transition

Author - Prof. Chudziak, Wojciech, Nicolaus Copernicus University, Torun, Poland
Co-author(s) - Prof. Makowiecki, Daniel, Nicolaus Copernicus University, Torun, Poland (Presenting author)

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 Szczecin, Wolin, Kołobrzeg and Gdańsk. 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 Toruń, 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. Dychanko, Aleksandr, Institute of Archaeology of the NAS of Ukraine, Kyiv, Ukraine

Keywords: demographic development, settlement, social complexity
Presentation Preference - Oral

Oversimplified 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: Colonialism, 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 Calchaqui 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 - Girotto, 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 setting in close proximity to the most important rivers of the region, the Neckar and Tauber. Although high density settlements exist 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 were both possible items. The ability to trade suggests o 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 rulership. Instead social organisation on a smaller scale, governed by economic success could have been the starting point, leading to the later presumably hierarchical societies of the Iron Age.
Keywords: Christianity, nature, 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 sacred places were created in this context, and how these ideas a materialist approach raises new questions of personhood and ontology which might be applicable 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 carving to emplacement and experience in the landscape, reveals embedded beliefs on the efficacy of specific kinds of stone. The movement of stones by sea is one way in which these attitudes can be spotted; water-worn boulders are frequently used, and substances such as quartz and ochre also have liquid-like aesthetic qualities. Finally, landscape location and the situation of carved stones with relation to the sea can be seen as a linking characteristic of several early Christian sites in the area. All this raises questions about the theological and ontological position of stone as mnemonic of sacred places and the sacred dead, and how the broader notion of 'Christendom' was actually created and expressed locally.

TH3-15 Abstract 02
Comparing early Christian stone monuments in north-western Europe: movement and identity

TH3-15 Abstract 03
Self Affirmation: Building new identities through contact and exchange in early medieval Northumbria

TH3-15 Abstract 04
The recreation of identities in the late Iron Age and Roman period in Ireland (AD1-500)

TH3-15 Abstract 05
Theoretical and methodological perspectives in archaeology

In the past various interpretations have been used to explain the evidence of Roman material in Ireland, the likely impact of external cultural influences and the probable adoption and take-up of a shared value system in parts of Ireland in the late Iron Age (AD1-500). The most recently published research used multiple lines of investigation and multidisciplinary methods to explore the Roman material evidence and its distribution across Ireland in this way. Adopting a new approach here - especially one that encourages a via media - frees the author from the prior constraints that limited wider theoretical discourse. In developing an alternative perspective, we can now move forward from the outdated dichotomies that placed Roman and native (or in this case Irish) locals into a state of perpetual opposition. This paper will use local and regional spatial similarities between settlements and society in both Roman Britain and Roman Ireland, and demonstrate where these overlap and are connected over time. Prior investigations by the author using AMS dates and strontium and oxygen isotope analysis on burials previously classified as 'Irish' have demonstrated that some of these burials date to the Late Iron Age/Roman period and that for some their origin and early childhood was spent in Roman Britain. The focus of the discussion will be on how identities were being recreated in Ireland through the use of Roman-type objects for bodily adornment and how this would have impacted on the sense of self for the individual but also wider community relations. It will also explore how and why people appear to have adopted or emulated Roman ritual practices at key sites around Ireland. In presenting a comparative analysis with other societies engaging with the Roman administration but outside formal control and territory, temporal and geographical indicators will be explored to foster an understanding of Ireland's identity in an Atlantic context.

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 assessed 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.

FRAMING NEW PERSPECTIVES IN THE FIRST MILLENNIUM AD: FRAMING NEW PERSPECTIVES

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 conterminous 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 across the arc. Furthermore, papers are also sought addressing the ways in which different areas of the arc interacted with their inland neighbours, both with social mega-configurations such as the Roman and Frankish Empires and on a more micro-political level, either affecting or not affecting cultural change and identity shift.

Multidisciplinary papers treating this issue 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 processual context. Similarly, papers dealing with areas adjacent or otherwise connected to the session's spatial remit may also be accepted to set the Atlantic Arc in its wider geographical context.

Keywords: carved stones, Christianity, movement
Presentation Preference - Regular session

Author - Dr. Maldonado, Adrián, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Co-author(s) - G. Riaños, Russell, Ruhr-University, Heidelberg, Germany

Theoretical and methodological perspectives in archaeology

The Atlantic Arc and its Neighbours in the First Millennium AD: Framing New Perspectives

TH3-15 Abstract 01
The materiality of early Christianity: stone and the sea in western Scotland

Author - Dr. Maldonado, Adrián, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Keywords: Christianity, materiality, religion
Presentation Preference - Oral

TH3-15 Abstract 05
The theoretical and methodological perspectives in archaeology

TH3-15 Abstract 04
The recreation of identities in the late Iron Age and Roman period in Ireland (AD1-500)

Author - Dr. Wilson, Jacqueline, University of Bristol, Bristol, United Kingdom (Presenting author)
Keywords: boundary, material, religion
Presentation Preference - Oral

Author - Dr. Maldonado, Adrián, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Co-author(s) - G. Riaños, Russell, Ruhr-University, Heidelberg, Germany
Keywords: Atlantic Arc, Christianity, materiality
Presentation Preference - Regular session

TH3-15 Abstract 02
Comparing early Christian stone monuments in north-western Europe: movement and identity

Author - Dr. Wilson, Jacqueline, University of Bristol, Bristol, United Kingdom (Presenting author)
Keywords: boundary, material, religion
Presentation Preference - Oral

TH3-15 Abstract 03
Self Affirmation: Building new identities through contact and exchange in early medieval Northumbria

Author - Dr. Maldonado, Adrián, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Co-author(s) - G. Riaños, Russell, Ruhr-University, Heidelberg, Germany
Keywords: Christianity, materiality, religion
Presentation Preference - Oral

TH3-15 Abstract 01
The materiality of early Christianity: stone and the sea in western Scotland

TH3-15 Abstract 04
The recreation of identities in the late Iron Age and Roman period in Ireland (AD1-500)

TH3-15 Abstract 05
The theoretical and methodological perspectives in archaeology

TH3-15 Abstract 02
Comparing early Christian stone monuments in north-western Europe: movement and identity

TH3-15 Abstract 03
Self Affirmation: Building new identities through contact and exchange in early medieval Northumbria

TH3-15 Abstract 04
The recreation of identities in the late Iron Age and Roman period in Ireland (AD1-500)
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 Lithuanian scholar who contributed immensely to the studies of the Balts as a rest of Europe; the impact on formation of medieval Lithuanian, Russian, Polish, German, and Swedish states will be discussed in this Theme.

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**TH4-02**

**ARCHAEOLOGY OF HILLFORTS IN THE BALTIC**

**Thursday, 1 September 2016, 14:00-18:30**

**Faculty of Philology, Room 107**

**Author - Dr. Valk, Heiki, University of Tartu, Tartu, Estonia (Presenting author)**

**Co-author(s) - Zabiela, Gintautas, Klaipėdos universiteto**

**Presentation Reference - Oral**

**Keywords:** chronology, hillforts, long-term perspective

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: How the settlement pattern 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 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 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**

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**TH4-02 Abstract 02**

**The evolution of hillforts in Lithuania according the C14 data**

**Author - Ass. prof. Zabiela, Gintautas, Klaipėda university, Klaipėda, Lithuania (Presenting author)**

**Keywords:** C14 data, hillforts

**Presentation Preference - Oral**

About 200 hillforts (from about 900 known) were investigated in Lithuania until 2015. According to the data, got in time of these excavations, was made the general evolution of hillforts. The main stages of development of fortifications were designed in basis of typological dating of archaeological artefacts. Until the last decade of this century the C14 data in Lithuania were seldom...
The application of geophysical investigations in Baltic hillforts

**Author:** Dr. Messafl, Sebastian, German Archaeological Institute, Berlin, Germany (Presenting author)

**Co-author(s):**
- Spatkeviciute, Eglė, 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/Vilkijūnka, 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 hillfort to unknown information about the settlement context like in Taurapilis and Opatnica/Vilkijūnka (fortification ditch) or Jakai (burial mound). These new results clearly show the potential of noninvasive, especially geomagnetic methods for archaeological purposes, not just for archaeological research, but also for cultural heritage management. The geomagnetic 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.

Signals of subsistence economy as revealed by pollen data: a case study from Lithuanian hillforts

**Author:** Dr. Stanciukaitė, Miltė, Nature Research Centre, Vilnius, Lithuania (Presenting author)

**Keywords:** hillforts, Lithuania, pollen data

**Presentation Preference:** Oral

During the recent decades archaeobotanical survey became an important part of the archaeological 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 most 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. Herewith a new data revealing the peculiarities of the vegetation pattern, introduction and expansion of the cultural plants and cultivars or indicating changes of the cultural traditions were obtained based on results of pollen survey.

Recently pollen investigations were conducted in the territory of Impilis (Late Iron Age – the Middle Ages), Skomantai (Early Iron Age – Migration Period and the mid-13th c; mid-14th c. AD), Jaudony (the early Iron Age – the Early Middle Ages) and Petrosiai (1st-3rd century AD – Historical times) hillforts or in the closest vicinity of mentioned monuments. An intensive human activity began in the Impilis area, W Lithuania, shortly before 900 AD, generally coinciding with the onset of the "Medieval Warm Period" and the first appearance of rye (Secale cereale) and flax (Linum usitatissimum) pollen grains is the earliest in the region, which indicates the development of permanent agriculture using some field rotation system. Herewith the paleobotanical evidence establishes that human interference in the Skomantai included mixed pastoral/land use with Secale cereals and Fagopyrum cultivation during the Early Middle Ages. Occurrence of the latter plant is in a positive correlation with the regional signal (mid-13th c., Vilnius Lower Castle, E Lithuania) suggesting active trade and exchange.

The environment of the Sambia hillforts according to the pollen studies

**Author:** Dr. Ibsen, Timo, ZBSA, Schleswig, Germany (Presenting author)

**Keywords:** hillfort, pottery, radiocarbon

**Presentation Preference:** Oral

In addition to the late Holocene sediments associated with human activities, well-preserved organic sediments with radiocarbon dates 8000-10000 BP were found in the floodplain of the creek near the hillfort. Pollen analysis allows us to reconstruct the local environmental conditions at the boundary of the Peatlake and Holocene: the gradual transformation of a shallow freshwater reservoir in the marl and than in the fen, while pine forests dominate the surrounding landscapes.

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 were found at the bottom of the ditch. Radiocarbon date 1240 +/-30 (GIN-15093) fits well with traditional archaeological 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 far answer. Various forms of reconstructed activities are discussed in report.

Drilling the past - New approaches in dating hillforts in the Baltic region

**Author:** Dr. Ibsen, Timo, ZBSA, Schleswig, Germany (Presenting author)

**Keywords:** C14 dating, hillforts, Kaliningrad Region

**Presentation Preference:** Oral

Though most of the more than 2500 hillforts in the Baltic Region are mapped and discussed on a military-strategic background since the beginning of the archaeological research in the 19th century the number of intensively investigated monuments until now is surprisingly low. Especially the northern part of former East Prussia, nowadays as Kaliningradsky Oblast a part of the Russian Federation, shows a significant lack of data. For instance, for the Sambian peninsula we know approximately 90 hillforts, from which only 22 have been examined by surveys and only 7 have been partly excavated. In addition only a few excavation results have been comprehensively published.

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 radiocarbon method is a promising opportunity to fill this gap.
Moving forward in the understanding of medieval ring-forts in Central Poland. Rozprza case study

Author - Dr. Sikora, Jerzy, Institute of Archaeology University of Lodz, Lodz, Poland (Presenting author)
Co-author(s) - Dr. Król, Piotr, Department of Geomorphology and Palaeogeography, Faculty of Geographical Science, Lodz, Poland
Co-author(s) - MA Wroniacki, Piotr, Independent researcher, Warsaw, Poland
Keywords: archaeological prospection, Early Middle Ages, ring-forts
Presentation Preference - Oral

Medieval ring-forts in Central Poland were a subject of archaeological interest since the 1930’s. Twelve features included in our projects were previously either partially excavated. These studies despite gathering new data regarding stratigraphy, chronology and material culture usually failed in bringing forth definite understanding of the ring-forts functioning in the landscape. Since the 1990’s along with the rapid advance of non-invasive methods new possibilities were opened up for the study of ring-forts and their landscape contexts. In 2013-2015 three projects based on combinations of non-invasive and geoarchaeological methods were undertaken. Multiple methods such as magnetic gravimetry, earth resistance, aerial prospection, photopenetration with a simplified field method, analysis of archival aerial data, airborne laser scanning, intensive analytical field walking, RTX GPS and Total Station surveys and geophysical surveys 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 data such as previously unrecorded information about the spatial structure of fortification features: additional rampart lines in Chelm, the course of not preserved ramps in Wrók and Rękoria, a developed moat system in Rozprza, a previously unknown second, smaller ring-fort in Stare Biłowieźko. 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. It was excavated in 1960s but revaluation of previous knowledge is now necessary. Remains of the Rozprza ring-fort defensive system are poorly preserved but still visible in the field as earthenworks. Currently, the site occupies an area covered with meadows and fallow fields situated between the contemporary main channel of Luciação and Rajaska river in the central part of valley floor, but on the Pleistocene alluvial Terrace remains 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 rampsarts which appeared to be a palimpsest composed mainly of elements of late medieval motte and bailey residues, which replaced an earlier, early medieval one. The surveyed area included the existence of earthen and timber ramparts as well as moats with a depth of up to 1.4 m with organic fill of gyphal and paet 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.

Acknowledgments: This research project was financed by three one-year grants from The Ministry of Culture and National Heritage No. 01615/13/FPK/NID (2013), 4962/14/FPK/NID (2014), 4962/14/FPK/NID (2015) and by a grant from the National Science Centre based on the decision No. DEC-2013/11/B/H53/03785 (2014-2017).

TH4-02 Abstract 11
Is Hollenstedt 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/Helmsmuseum, Hamburg, Germany
Keywords: Carolingian Border, ceramic, dendrochronology
Presentation Preference - Oral

The stronghold „Alte Burg“ near the village of Hollenstedt is an Early Medieval fortification, which was long-interpreted as the place where Charlemagne met representatives of the Danish king Godofrid in AD 804. It was partly destroyed and then excavated in the late 1960s and 1970s. Since that time there is no consensus about the dating and the related interpretation of the site, which is ranging between the early 9th and 10th c. AD. This question is of major importance not only for the historical interpretation of the site but especially for the understanding of the ceramic finds. The excavations at Hollenstedt revealed a unique complex of pottery showing both Saxonian and Slavonic influences. The solution to the dating problem can establish Hollenstedt as a reference site for those “hybrid” ceramics. In autumn 2014 recent research including excavation and of geomorphological anomalies and crop marks documented during aerial reconnaissance, 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 dicitur Holdunsteti“ in the Royal Frankish Annals in 804 AD.

TH4-02 Abstract 10
Moving forward in the understanding of medieval ring-forts in Central Poland. Rozprza case study

Author - Dr. Sikora, Jerzy, Institute of Archaeology University of Lodz, Lodz, Poland (Presenting author)
Co-author(s) - Dr. Król, Piotr, Department of Geomorphology and Palaeogeography, Faculty of Geographical Science, Lodz, Poland
Co-author(s) - MA Wroniacki, Piotr, Independent researcher, Warsaw, Poland
Keywords: archaeological prospection, Early Middle Ages, ring-forts
Presentation Preference - Oral

TH4-02 Abstract 09
Late Bronze Age hillforts in Pomerania: an overlooked problem

Author - Niedźwiedź, 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 Pomerania, they were not noted in Pomerania, besides Lower Oder region. This survey is surprising, especially taking into account relatively numerous appearances of hillforts in Great Poland that is a region directly neighbouring with Pomerania from the south. On the other hand, investigations conducted in the 1960s to verify Pomeranian hillforts described as originating from Early Medieval and Medieval Period resulted in detecting at least a dozen sites with materials from the latter Bronze Age. The aim of this paper is to introduce the problem of alleged presence of Lusatian culture hillforts in the central part of Polish Pomerania. It is highly probable that this kind of settlements played an important role in interregional contacts between Eastern and Western parts of Pomerania, together with Great Poland. In wider perspective their role in the course and working of the Amber route at the end of the Bronze Age should also be taken into account and investigated. It seems that new tools available for archaeologists like GIS software and LIDAR data may bring a new opening and new perspectives in researching this case study.

TH4-02 Abstract 08
Reconsidering early hillforts in the East Baltic: conflicts and metallurgy

Author - Podarav, 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 metalurgy 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 „Dzibys“ hillfort is presented as a case study with spatial analysis of household and technical ceramics, bone artefacts 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 Asava, Rīdala and Krivaudija hillforts. In addition, distribution of early hillforts and early bronze axes are analyzed as well as conflicts 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 Majdole type bronze pin that indicate a possible end of PII. Casting moulds for socketed axes from Asava, Gauja and Krivaudija hillforts are one of the earliest evidences, dated to PN-VI, of locally executed metalurgy in East Baltic region. The historiographical classic route of Daugava river seems to attract most of the early metalworkers. Casting moulds for Mälar-type socketed axes are an indication of a late 2nd millennium B.C. age. Finally, metallographic analyses of the hillforts. The latter casting moulds, like the rest of the technical ceramics types, are scarce, with similar amounts in Narkūnai and Krivaudija and one newly found in the National Museum of Lithuania from Garmi I hillfort. However, the Mälar-type bronze axes are not specific to the East Baltic region, on the contrast the axes are mostly found in Scardinavia and in Upper Volga region of the inseparable Akozino-type axes. Furthermore, spatial analysis of Narkūnai hillfort technical ceramics indicate that the Mälar-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 concentrating the spatial analysis of bone, ceramic and metal artefacts, and the emergence of locally executed metalurgy as a relatable process.
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 D'yakovo culture. The remains of the fortifications of these settlements are the ramparts and moats, which define local cultural centers. The research considered the organization of space in the settlements D'yakovo culture from the 8th century BC 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 more cooling and moistening climate. It is falls on top of the second and third stages of life on the hill-forts. All settlements were divided into three layers corresponding chronological periodization. Stage 1 - 8th century BC - 6th century BC, stage 2 - 5th century BC - 2nd century BC, stage 3 - 1st century - 7th century AD.

The 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 D'yakovo 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.
There are over a thousand cairns on Gotland that has been discussed as burial sites belonging to the Bronze Age time and around 200 of these have monumental dimensions, ranging from 20 to 50 meter in diameter and 2.5-7 meter high. Only a few of these structures have been partly excavated and only one have so far been totally excavated with archaeological scientific methods. These cairns have so far only been discussed as burial sites but due to our recent archaeological excavations in relation to three of the largest cairn environments on Gotland (Göggarderjärvi, Härjedalshögen and Hägerö) and re-examination of the material excavated at Kauparveroin 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.

Digital re-construction of a Bronze Age stone wall enclosure and the landscape at Lina Mire, Gotland

The aim of the project was to digitally re-construct the stone wall enclosure at Gothemsammar and to understand its location in the surrounding landscape. Excavations into the feature uncovered its internal construction details, as well as, dateable materials from domestic animals and charcoal. Fifteen AMS dates gave a clear and somewhat unsuspected age of the structure to the mid Bronze Age ca. 1000-700 BC. The northern end of the wall 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 reconstruced 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 Gothemsammar was strategically located at the entrance of this water system.

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 controversion 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 points 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.

Between Social Dynamics and Cultural Constancy. Case Study of the Trzciniec Culture

Author - PhD student, Agne, Zilinskaitė, Vilnius University, Vilnius, Lithuania (Presenting author)

Keywords: Bronze Age, pottery, Trzciniec Culture

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 (Miar 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-Racon (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.
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**

**Landscape transformations at the turn of Bronze and Iron Age at the southern coast of Baltic Sea**

Author: Niedźwiedzka, Kamil, University of Gdańsk, Gdańsk, Poland (Presenting author)

Keywords: Eastern Pomerania, human impact, Pomeranian culture

Presentation Preference: Oral

According to the archaeological data, intensive cultural changes took place in Eastern Pomerania (Northern Poland) at the end of the Bronze Age and at the beginning of Iron Age. From the point of view of traditional archaeology, these changes were connected with the origins of Pomeranian culture, which had developed on the background of local group of Lusatian culture, identified with Urmfeld tradition. Appearance of Pomeranian culture was tied with new patterns in burial rite: people started to put ashes of their deceased in impressively made urns with images of faces (so-called face urns) which afterwards were buried in a cist graves. In contrast to the previous rite, Pomeranian culture cemeteries were smaller but more numerous - the dense network of flat burial grounds covered Eastern Pomerania. On the other hand, large barrow cemeteries from the end of the Bronze Age ceased to be used. This may indicate that these changes must have had a strong impact on the local cultural landscape. Moreover, basing on the pollen analyses it is visible that changes were also visible on the natural environment, what can be linked with their economic activity. The main aim of this paper will be presenting endeavour undertaken to reconstruct natural environment together with the cultural landscape of Eastern Pomerania and attempt to answer the question – how intense and what kind of influence on the local surroundings had societies from the Late Bronze and Early Iron Age.

It is obvious that new tools which are available for archaeologists, such as GIS software, LiDAR data and modern aerial photography, together with results of palaeoecological studies offer a significant support in researches conducted on the Late Bronze and Early Iron Age landscape of Eastern Pomerania. It could also give a good evidence to present described changes from a wider – cultural, social, and environmental perspective.

**TH4-04 Abstract 10**

**Crown Torque from Jamlitz**

Author: Vorotinskaya, Larissa, The State Hermitage Museum, St.Petersburg, Russian Federation (Presenting author)

Keywords: Germany, Kronenhalsringe, spectral analysis

Presentation Preference: Poster

The State Hermitage keeps the crown torque from Jamlitz, Lkr. Beeskow, north-eastern Germany. It had been found by accident while plowing a field, then bought in 1925, and subsequently kept by the Berlin Museum (Staatliche Musee zu Berlin Nr II 10965). Today, the torque is part of the collection moved from Germany after the Second World War.

The torque is one of the so-called Kronenhalsringe, mainly found in Denmark and Northern Germany. The few findings of such crown torques are known to have been made in Poland, Romania and Ukraine. An accumulation of at least seven items was discovered in the area of Leski and Grabya villages in Podoleysy, Chernivetz region. Nearly in all cases, the findings were made in swampy areas and were apparently of votive nature. Apparently, these items belong to the German Jastorf Culture that existed in Northern Germany and Denmark. In Eastern Europe, such findings are probably due to the relocation of the Germans to the east.

The Jamlitz crown torque is type IV according to Jochenz Brandt’s classification and probably dates back to Step C1 according to M. Schuhknecht (i.e. the last quarter of the 3rd BC – first half of the 2nd BC). According to Björn Rauchfuss, the torque belongs to shape 2: Crown torques with an oval, almost quadrangular cross-section.

Parts of the Jamlitz torque and the pivot pin were cast from wax models. The hole for the pin was made in the wax model and subsequently refined on castings. The casting was followed by further finishing. Obviously, this torque was originally defective, since the lock does not close, and parts of the lock are poorly fit to each other. The torque opens up and cannot be used for its designated purpose. This is characteristic of the Jamlitz torque. Similar items from Podoleysy close perfectly, and the lock keeps the parts of the ring together.

The Department for Scientific and Technical Examination at the State Hermitage carried out optical analysis of the Jamlitz crown torque’s metal using a Bruker ArtTAX X-ray fluorescence spectrometer. The torque is made of tin bronze with a considerable admixture of lead.

This data is consistent with that of the analysis of the crown torques from Zalesye (Ternopol Region, Ukraine), Lochteldt (Pulovo, Kaliningrad Region) and Mecklenburg, with the ratio between the main elements used in the metal alloy (copper, tin and lead) varying to a rather large degree.

**TH4-04 Abstract 11**

**The Early Roman Iron Age site at Ellinniitty, Rauma Finland**

Author: PhD Uotila, Kari, Muuritutkimus, Kaarina, Finland (Presenting author)

Keywords: digital documentation, early Roman, iron finds

Presentation Preference: Poster

During the years 201-2015 of field studies both ground-penetrating radar and aerial photographing with a drone were tested. Documenting of the cairns was mostly done with laser scanning technique. This is the largest 3D-documented 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 phase. At the last phase of the excavation the whole hill was opened with a digger, which revealed about 250 cairns. Based on the total amount of cairns can be estimated to have been about 300 and about 200 of these have been man made.

The most surprising finds were two iron bracelets, two pieces from iron knives and two small pieces of iron. These were all found 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. \*M*acrofossil analysis revealed seeds of barley and wheat.

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TH4-04 Abstract 12

Pre-Roman Age tarand graves - trends and specialities

Author - MA Kiirküüts, Anu, University of Tartu, Tartu, Estonia (Presenting author)
Co-author(s) - Olli, Maarja, University of Tartu, Tartu, Estonia

Keywords: Burial rituals, Pre-Roman Iron Age

Presentation Preference: Poster

Tarand graves spread in Estonia and around the Baltic Sea during Early Iron Age (500 BC – AD 450). This grave type was the most preferred one during a long time in the area of nowadays Estonia. The overall type of grave changed only slightly during these centuries, but the exact construction and contents of the grave varied regionally as well as temporally. Nevertheless, aside the differences, there are numerous similarities that allow the researchers to group the graves and see their evolution through time and both internal and external influences of the Early Iron Age society.

The poster will concentrate on a handful of case studies of Pre-Roman Age tarand graves and intends to map the influences and trends that have lead the mourners to build these monuments, bury their dead either cremated or inhumed, and to choose and place the items suitable for the grave.

TH4-05 Abstract 01

Extraordinary in death – the Hoby graves

Author - Dr. Blankenfeldt, Ruth, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany (Presenting author)

Keywords: High status graves, Local communities, Settlement

Presentation Preference: Oral

A richly furnished inhumation grave dating from the Early Roman Iron Age was discovered in 1920 at Hoby, Western Lolland, Denmark. The extraordinary ensemble of grave goods encompasses tableware and a drinking set of Italian origin, two unique silver beakers showing scenes from Homer’s Iliad and Germanic items made of bronze and precious metal. Another find from a comparable property is a bronze vessel dated to the final part of the Pre-Roman Iron Age which was submitted in 1897 to the National Museum. Inside the vessel lay burnt bones and parts of an iron scabbard. It turned up during gravel extraction but unfortunately the exact find site is not recorded in the archives.

The preparation and equipping of a grave happened according to certain patterns and standards – especially in such an outstanding case like the famous Hoby grave. An analysis of such burials is therefore closely linked to cultural and social as well as individual dimension of the deceased and the interring community. Hints to simple graves or a burial site from the Old Roman Iron Age are still lacking in the area around Hoby. However a contemporary settlement site has been located in close proximity to the grave. Thus a good basis is created to investigate the social and structural connection between an unusual grave complex and a nearby settlement.

TH4-05 Abstract 02

Extraordinary in Life - the Hoby Settlement

Author - Curator Klingenberg, Susanne, National Museum of Denmark, Copenhagen, Denmark (Presenting author)

Keywords: Activity area, Settlement structure

Presentation Preference: Oral
In Holly 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 excavations in the following years revealed a settlement from the same period as the richest graves in the area. In the period from 2010 to 2015, larger excavations have been carried out in the settlement and activity area. These investigations have been carried out in collaboration between the Museum Lolland-Falster, Center for Baltic and Scandinavian Archaeology (ZBSA), and the National Museum.

The settlement and activity area cover an area around 100×105 meters (328×3492 feet), and about a third of this area has been excavated up until now. On larger parts of the Holly 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 Holly 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 masts and etc. The activity area and the house constructions are contemporaneous.

In this 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
Rosenholmvej: a central site in Middle Jutland

Author - Ole Hansen, Martin, Rinhert, Museum Midtjylland; Herning, Denmark (Presenting author)
Keywords: Central settlement, Lübeckergraves
Presentation Preference - Oral

Central settlement and hinterland – life and death in the 1 Century AD. A complex of rich graves and mansions in the central part of Jutland. Museum Midtjylland has excavated a number of sites that all relate to an extraordinary rich site, Rosenholmvej. This central site is a settlement that covers most of the period from 500 BC through 200 AD, but with a “highlight” in period B1a. At this time a grave yard is constructed which includes a number of extraordinary rich graves with gravegoods and constructions that place them in a large-scale context. It links them to other regional groups in Denmark, Europe and in 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 on the Iron Age 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 the time of 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 analyse 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.

The research on the Iron Age settlements in Lithuania is relatively well known for the material culture of the Iron Age represented by the artefacts coming from burial monuments. Current research in Lithuania is mainly 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 the time of 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 analyse 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 one example from Kernave settlement which shows that we can obtain valuable data applying new methods by reconstructing 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 several times denser. This now provides the possibilities for conducting research in order to achieve tangible results, the wide range of information not limited to certain type of sites must be used.

TH4-05 Abstract 05
An attempt to define ratio of barrow cemetery and settlement site in term of community size

Author - Dr. Strimatiene, Andra, Lithuanian History Institute, Vilnius, Lithuania (Presenting author)
Keywords: barrow cemetery, rural communities, settlement site
Presentation Preference - Oral

The material culture of the Iron Age represented by the artefacts coming from burial monuments is relatively well known for the archaeologists; however, information on the local communities which left this legacy is rather scarce. One of the main characteristics describing any human community is its size. Usually, the size of the community is identified on the basis of the data derived from the burial monuments. However, there are other methods of establishing the size of the community on the micro-level, as well: for instance, they include area estimates or dwelling-based-estimates. In ideal cases, data derived from different sites forming archaeological complexes should be correlated for the demographical analysis.

The region of eastern Lithuania is an area with very frequent occurrence of barrow cemeteries of different size, ranging from one to tens and hundreds of mounds, which suggests (apart from being impeded by destruction) the communities of different size. On the contrary, the number of known settlement sites is rather low. The settlement research is still very fragmented and limited to small-scale excavation producing small and biased samples. At best, only the location of a settlement site can be identified in an archaeological map by arranging into the national register and, further, the presence of barrow cemeteries. To illustrate the approach, the archaeological complexes consisting of a barrow cemetery and a settlement site were distinguished in 1920 in the East Lithuanian Barrow Culture and one relatively well preserved and excavated complex was chosen for the further case study. Analytical tasks were as follows: 1) to define the possible extent of the settlement site by combining tradition archaeological methods with geo-archaeological research data and micro-topography; 2) to assess the resultant area against the density coefficient, deriving this coefficient: a) from the data of excavated area, b) by analogy with 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. Kurlis, 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 East Lithuanian barrow culture (this is only in the territory of the present-day Lithuania, as precise data about Northwestern Belarus are lacking), and there had been many more in the past.

Both barrow cemeteries and hillforts have received a great deal of attention in Lithuanian archaeology, but until now they are viewed as isolated rather than related to each other. In other words, the spaces of the living and the dead are perceived as two different worlds rather than an arena of permanent interaction. The fact that very few flat settlements of this period are yet known does not contribute to research, but this can be advanced only by large-scale surveys, and this is a task for the future. Another barrier is the lack of research on a micropalaeontological 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 burial cemeteries in East Lithuania. The Register of Cultural Properties data with some author’s additions, different GIS 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. Banyte Rowell (Rowell), Rasa, Lithuanian Institute of History, Vilnius, Lithuania (Presenting author)

Keywords: burial grounds, dwelling sites, Roman Period

Presentation Preference - Oral

This paper surveys categories of finds that were found in Roman Iron Age dwelling sites and in burial grounds in Lithuania. Grave-goods belong to the sphere of sacrum where property donated for the dead might reflect a distorted picture of reality. Grave-goods are the result of creative activity performed in “real life”. Therefore finds from dwelling sites have great importance for connecting artefacts from burial grounds back to sphere of profanum.

We can seek answers to where the production of tools and ornaments took place. Another interesting question is whether the regional shapes/types of artefacts, usually placed on maps according a database of burial sites are distributed in a similar way in the settlement pattern of the same territory. Such a comparison raises the question of whether regional ornament styles were created under the influence of “the regional taste” of several artisans of a particular region and that process reflects the existence of a regional identity. Or perhaps these regional features have a more practical origin - the distribution of particular types in particular regions was outcome of network of trade and range of influence of production centres on the market.

West Lithuania was an area where Roman coins were placed in graves during the Late Roman period (end of phase C1a – phase C1b). This tradition testifies to the importance of the Lithuanian coastline for the maintenance of far-flung contacts with the Roman provinces. It is interesting that Roman coins have been found in the cultural layers of hillforts and settlements in Žemaitija and Central, Southern and Eastern Lithuania while the tradition of placing Roman coins in burials is almost absent. The latter finds testify to the circulation of Roman coins in all regions of Lithuania and such finds in dwelling sites leads us to consider their function in everyday life. Roman-Iron Age finds in dwelling sites in Eastern Lithuania have especial importance because the database of burial sites from this period is still small. They reflect the fact that Eastern Lithuania, despite its location in the Baltic hinterland, was a region where various cultural influences from neighbouring areas and the European Barbaricum made an impression upon local traditions.

Summarising, it is possible to state that a comparison of finds from dwelling sites and burial grounds may provide new insights into the prehistory of the Balts during the Roman period. Therefore it is important to integrate the databases originating from the spheres of sacrum and profanum.

TH4-05 Abstract 08

A changing community in north-east Estonia from 400 BC to 900 AD

Author – PhD student Olli, 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-foot 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.
CULTURAL ENCOUNTERS: PERSPECTIVES ON MOBILITY AND CULTURAL IDENTITIES IN THE BALTIC SEA REGION 4000–2300 BC

Saturday, 3 September 2016, 09:00-13:00
Faculty of Philology, Room K. Donelaičio
Author - Andersson, Anna-Carin, Gothenburg, Sweden (Presenting author)
Co-author(s) - Mazet, Laurent, Saglandet Lejre, Lejre, Denmark
Co-author(s) - Macančia, Algirdas, Department of Historical studies, University of Gothenburg, Gothenburg, Sweden
Presentation Preference - Regular session

The mentioned time period in the North-European prehistory is very dynamic, and is acknowledged by three more significant subsistence 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 cattle 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.

Ski Archaeology or tracking genesis & evolution of mobility technology across Prehistoric Eurasia

Author - MA Mazet, Laurent, Saglandet 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 carving motives, show 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 question the mobility of flint, antler and bone tools, but also the early development of durable (but perishable) woodworked 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 & bones, early backpacks & later coracles, rafts & early wheeled carts are examples of technological kinship, finding alter egos in vehicles or dwelling shapes, recorded by subarctic ethnographies across three continents: fur-shod 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, spokeshaves, - 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.

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Travois & skates, dugout canoes & grooved runners, skis & bones, early backpacks & later coracles, rafts & early wheeled carts are examples of technological kinship, finding alter egos in vehicles or dwelling shapes, recorded by subarctic ethnographies across three continents: fur-shod 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, spokeshaves, - 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.
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 asbestos concerned with thin walls of the vessels and shallow ornamentation, typical for Karelia and south-eastern Finland. Another component is organic temper (leather with shields) and mostly comb ornamentation which is most probably characteristic for the upper Volga region. Interference of contacts during the EMP resulted in a variety of Comb Ware tradition - and the relative ease and speed of the spread of these it’s an evidence of probable relativeness of their bearers.

In the Ill millennium BC Corded Ware tradition appears in the eastern part of the Gulf of Finland region. It also seems to be homogenous. There are some ‘typical’ vessels, which have a wide range of analogies in Eastern Baltic and even in so-called ‘Baltic-Boreal’ ‘A-horizon’. At the same time there are some ‘hybrid’ vessels, that have some features of Comb Ware: imprints of comb stamp and pits, decorated and cut inside rim. This is probably the case when Corded Ware tradition was influenced by the local one - and this can be seen in exterior imitation on the vessels.

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 coiling technique. At the same time, vessels made in Corded Ware tradition are modelled from small separate patches of clay. The difference of the two processes of modelling and assembly 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. Brorsson, Torbjörn, Ceramic Studies, Sweden, Nyhamnsläge, Sweden (Presenting author)
Co-author(s) - Lucius, Jenni, Åland museum, Mariehamn, Finland
Co-author(s) - Stenbäck, Niklas, Societas Archaeologica Upsaliensis SAU, Uppsala, Sweden
Keywords: Åland, Pitted ware Kiukais 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 Neolithic has traditionally been explained by a triptych and migration.

This study challenges the traditional interpretations by examining if there is a local craftmanship 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 (Kai I and II) and late (Kai III) Comb ceramics, Jettebe I and II type of Swedish pitted ware and Kiukais Comb ceramic, represented as mixed with influences from both comb- and pitted Ware, representing the succession between traditions. It is important to study the technology of the mixed pots and if they e.g. were tempered with limestone. Preliminary results show that there is a local technological continuity in the Neolithic ceramic traditions on Åland, visible in the preferred clay. A chronological difference in the use of temper suggests different cultural preferences. Limestone as temper is more or less synonymous with pitted ware, and it is important to analyse if there are limestone in the ware in the pots belonging to the other cultural groups for comparison and contextualisation of the results. The ICP analyses have given us answers that some of the artefacts, as e.g. a clay figurine seems to have been of non- Åland origin, and the question is if this figurine originates in mainland Finland or Sweden.

The Åland ceramics have been compared to ceramics from mainland Sweden and Finland and we will present the results of this study at the conference.

TH4-06 Abstract 06
Three Anthropomorphic Clay Figurines from Vantaa Jokiniemi, S. Finland

Author - MA Fast, Jan, University of Helsinki, Eksjo, Finland (Presenting author)
Keywords: Baltic Sea region, Comb Ceramic Culture, Settlement interaction
Presentation Preference - Oral

In July of 1990 an extremely detailed and realistic head torso of an anthropomorphic clay figurine was found during excavations conducted by Heureka 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 lover 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 typological similarities of the Jokiniemi clay figurines as compared to anthropomorphic clay figurines found in the Baltic states and on the Åland islands suggest that contacts in the Baltic Sea region in the subnecolith (pre agricultural) 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 fillings. The 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 accompaniment, 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 - Frazer, Magdalena, Uppsala University, Campus Gotland, Visby, Sweden (Presenting author)
Co-author(s) - Sanchez Quinto, Federico, Evolutionary Biology Centre, Uppsala University, Uppsala, Sweden
Co-author(s) - Gätterström, Anders, Archaeological Research Laboratory, Stockholm University, Stockholm, Sweden
Co-author(s) - Jakobsson, Mattias, Evolutionary Biology Centre, Uppsala University, Uppsala, Sweden
Keywords: Genomics, PWC, TRB
Presentation Preference - Oral

The Ansarve Dolmen in Tofta 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 isotopic 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 wide spread along the coastal areas. Previous genomics research has shown that hunter-gatherer individuals from the Middle Neolithic Pitted Ware culture on Gotland had different biogeographic affinity to that of contemporary TRB individuals from the Swedish mainland (Skoglund 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 Bourdieu: New Perspectives on the Pitted Ware Culture on Gotland in the MiddleNeolithic

Author - Dr. Andersson, Anna-Carin, University of Gothenburg, Gothenburg, Sweden (Presenting author)
Keywords: Bourdieu, 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 as suggested, has presumably never been done before. Though the reasoning of Bourdieu have been used in studies of archaeological material, an examination of a number of these earlier studies surprisingly revealed a simplified use of the concepts, 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 contextualization 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 example was the genomic differentiation observed between hunter-gatherers and Neolithic farmers. Scandinavian individuals from a Funnel Beaker farmer context were genetically closer, 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 descendants from the Funnel Beaker population is highly unlikely, considering that the two groups are as differentiated as the most distant populations of Europe today. Recently, it has also been shown that 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 Yamanaya remnants.

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 the individuals that are genomically characterized. This implies that 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 the individuals that are genomically 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.

The settlements of the Waldburg type and the origin of Primorskaya Culture
Author: Dr. Zaltzman, Edvin, Archeological Institute of Russian Academy of sciences, Kaliningrad, Russian Federation (Presenting author)
Keywords: Corded Ware Culture, Primorskaya Culture, Settlement archeology
Presentation Preference - Poster

The questions, related to the genesis of Primorskaya Corded Ware Culture, still remain the most difficult and complicated. It is ultimately determined by the lack of research in some regions. The archeological research, started in the 90s of the XX century, allowed us to define a particular group of settlements on the coast of the Vistula Bay (Pribrezhnoye, Ushakovo 1, 5) – the settlements of the Waldburg type. Their equipment greatly differs from the previously known Primorskaya Culture complexes.

Unlike many other Primorskaya Culture settlements, the remains of the deepened up to 0.80 m into the subsoil and up to 35 m at length constructions are preserved in Pribrezhnoye. The main part of the eighteen C-14 datings, obtained from charcoal, bones, and hazelnut shell found in the lower and the upper levels of construction, corresponds with the interval 3100-2900 BC. These datings do not comply with the traditional concepts of Primorskaya Culture existence as it coincides with phase III of GAC. The ceramic complex accentuates the peculiarity of the monument even more. Different kinds of wide-mouthed pots with small bottoms and ear-like handles developed here instead of one of the most widespread pottery forms Wulstleistentöpfe, which can’t be found in this monument. The amphorae are remarkable for the oval shape of the neck. The amount of the beakers does not exceed the average 5-6%. The main cultural complex of the settlements Ushakovo-3 and Ushakovo-2, which are situated 8 km to the south of Pribrezhnoye, belongs to the post-classical phase. In accordance with the radiocarbon data, obtained from the charcoal of the upper and the middle parts of the cultural layer, the monuments existed in the interval 2400-2200/2100 BC (post-classical phase). As a whole, ceramic forms and the ornamentation had transformed into widespread forms from adjoining territories, though some ware types, inherited from the previous periods, preserved.

Wood and charcoal from the lower layer in Ushakovo-3 showed the interval 2850-2700 BC. The majority of the pottery types repeat the ceramic forms from the lower level of the constructions in Pribrezhnoye. A complete identity can also be found in the technology. The ornamentation is represented by cord semi-ovals, triangles and waves. The prevailing type of the ornament is the combination of simple horizontal cord imprints and pitti or cipelli.

Thus, taking into account the striking peculiarity of the local cultural complex and the early C-14 datings, we can assume the existence of the prephase in the development of Primorskaya Culture, which theoretically refers to the period 3100-2900 BC. We can assume, that the original impulse came from GAC, though the main forms of wide-mouthed pots and boat-shaped vessels are most likely related to Cordim Culture.

Peculiarities of the household constructions, ceramic complex, and material culture as a whole differ fundamentally from the antiquity of the GWC. The cultural processes on the coast of the Vistula Bay apparently took their course differently than on the adjoining territories, at least on the initial stage. GAC and Bus-Nestinich cultures could play the main role in those processes.
TH4-07 Abstract 01

Looking for patterns in prehistoric diets – is there an objective approach?

Author - Meadows, John, Centre for Baltic and Scandinavian Archaeology, Germany (Presenting author)

Co-author(s) - Bérard, Élise, Institute of Baltic History at the University of Latvia, Riga, Latvia

Co-author(s) - Lübke, Harald, Centre for Baltic and Scandinavian Archaeology, Germany

Co-author(s) - Zagońska, Iga, Institute of Baltic History at the University of Latvia, Riga, Latvia

Keywords: diet reconstruction, stable isotopes

Presentation Preference - Oral

In recent years several programs have been developed and refined to reconstruct individual diets on the basis of stable isotope data, typically in terms of consumption of two or more isotopically distinct food groups. Instead of simply looking for statistically significant patterns in human stable isotope values, therefore, we may attempt to test whether food consumption patterns varied over time, geographically, between sexes or age groups, according to mortuary ritual, within an individual’s lifetime, etc. Such attempts often meet with scepticism because they require the relevant food groups to be defined, and appropriate values applied to parameters that cannot be measured directly, such as fractionation between diet and human isotope values. The identification of human groups for comparison (e.g. defining appropriate regional or chronological samples) is also subjective. Rather than ignore these questions, we investigate how sensitive our interpretations are to factors such as the software and parameter values used, periodisation, sample size, and statistical testing criteria. We use new and previously published isotopic results from prehistoric burials at Lake Burtneks, Latvia, to show which of the informed choices we have to make have the greatest impact on the final narrative.

TH4-07 Abstract 02

Mesolithic diversity in the Baltic region

Author - Dr. Eriksson, Gunilla, Archaeological Research Laboratory, Stockholm University, Stockholm, Sweden (Presenting author)

Co-author(s) - Lübke, Harald, Centre for Baltic and Scandinavian Archaeology, Germany

Co-author(s) - Lidén, Kerstin, Archaeological Research Laboratory, Stockholm University, Stockholm, Sweden

Keywords: Mesolithic, Motals, stable isotopes

Presentation Preference - Oral

Taking the two Mesolithic sites in Motals – Kanaljorden and Strandvågen – as a starting point, stable isotope data from a wide range of Mesolithic sites both east and west of the Baltic Sea will be discussed. The large variability in carbon, nitrogen, sulphur and strontium isotope values 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 Lubāns Stone Age sites, South-eastern Latvia

Author - Legzdina, Dardeiga, Institute of Latvian History, University of Latvia, Riga, Latvia (Presenting author)

Co-author(s) - Zara, Gunila, Institute of Latvian History, University of Latvia, Riga, Latvia

Co-author(s) - Looe, Iza B., Latvian Academy of Sciences, Riga, Latvia

Co-author(s) - Lee-Thorp, Julia, Research Laboratory for Archaeology and the History of Art, Oxford University, Oxford, United Kingdom

Keywords: animal bones, stable isotopes, Stone Age

Presentation Preference - Oral

A long-standing systematic archaeological research at the Lake Lubāns valley have revealed the region to be an area with a number of significant Stone Age settlements and burial grounds. So far, 27 Mesolithic and Neolithic sites have been detected, and in 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 isotope analysis method.

In this paper we present animal bone carbon and nitrogen stable isotope analysis results from different sites and introduce a discussion about the local isotope ecology of the Lake Lubāns valley.
The Neolithization of the north European lowlands:

Archaeometric results on human remains

Author - Dr. Pleazonka, Henny, German Archaeological Institute, Berlin, Germany (Presenting author)

Co-author(s) - Prof. Dr. Terberger, Thomas, Lower Saxony 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. In the earliest phase, the Funnel Beaker Culture plays a key role for the question of an intermixing of the last hunter-gatherers and the southern farmers. There are indications that in the north, local forager communities continued to exist alongside the newly arrived farmers for centuries. Further east, the foraging way of life formed the basis of subsistence even longer.

The last decade saw increasing progress in the analysis of human remains by archaeometric methods. Here we present results of systematic stable isotope (13C/15N) studies on Stone Age human remains from northern Central and Eastern Europe. The individuals cover the time period from the Preboreal to the Subboreal (c. 9500 to 2000 calBC).

By determining information on the diet of the sampled individuals and linking it to chronological information, the data set sheds light on changes in subsistence economy against the background of cultural developments and absolute chronology. The results of the isotope analyses show a considerable consumption of fresh water resources during the Mesolithic and (early) Neolithic. It is interesting to notice that a major shift towards farming economy in northern Central Europe is visible not before the 3rd millennium calBC.

TH4-07 Abstract 06

Deconstructing the conception of pre-Neolithic farming in SE Baltic

Author - Dr. Piłaczkiewicz, Giadek, Wroclaw University, Wroclaw, Lithuania (Presenting author)

Co-author(s) - Kisielienė, Daiva, Nature research centre, Vilnius, Lithuania

Keywords: SE Baltic, Subneolithic, Substainance

Presentation Preference - Oral

This paper is a critical evaluation of zooarchaeological, micropalynological 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, re-interpretation of the impact of bioturbation and palimpsest on the formation of the archaeological strata, and low attention paid to stratigraphical 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 3200/3000 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.

TH4-07 Abstract 07

Zedmar Culture in the Light of 14C dates - Relating to Sub- and Neolithic Cultures in the SE Baltic

Author - Kozicka, Magdalena, Nicolaus Copernicus University in Toruń, Iława, Poland (Presenting author)

Keywords: Bayesian modelling, subneolithic, Zedmar culture

Presentation Preference - Oral

Zedmar Culture (later: ZC) is phenomenon which absorbs researchers from one hundred years. In spite of it still it is known not more than a few peat bog sites of mentioned archaeological unit in three areas separated with not very great distances in the Northeastern Poland and in the Kaliningrad Oblast. As of today it seems like the range of the ZC is impossible to determine credible. What is most riveting is to figure out its origins especially due to establish proveniences of pottery making. This is because it seems the ZC was one of those archaeological cultures which mixed ceramic traditions (probably notably only them) from both – agricultural and hunter-gatherers-fishers worlds.

To this day there is no 14C radiocarbon dates estimated and published for sites of the ZC. What is more important main groups of it where taken as a series from stratigraphical record from two epizomic sites. This allows to use Bayesian modelling in creating absolute chronology of the ZC. It is worthwhile to mention that there are sets of 14C measurements taken from pottery sherds, which were carried out in different traditions, and they also may be combined in some statistical calculations.

Bayesian statistic has been used in analysing and interpreting radiocarbon data for a quite long time and is quickly developing part of archaeological research. Yet there is many obstacles in correct applying and understanding its results, mainly due to radiocarbon dating disadvantages. In case of the ZC peat bog site’s stratigraphy is also an difficulty.

Although after analyzing all of accessible data it is possible to establish a chronology of ZC. Moreover it enable to correlate it with other subneolithic cultures from the Southeast Baltic region (like Narva, Neman, Pitt-Comb Ware cultures). There are available radiocarbon measurements for all of them however in diversified amount specially depending on a region and ceramic style.

It seems and it must be considered also that radiocarbon impact onto the ZC particularly the Funnel Beaker Culture group influence onto the ZC particularly the Funnel Beaker Culture group impact onto the ZC.

Bayesian chronology and model will be used in the study. Noticeable set of its radiocarbon dates constitutes one of the best backgrouns for joining into discussion for pottery’s origin in the ZC.

TH4-07 Abstract 09

Human occupation of the SE Baltic region: first trends from the middle- upper paleolithic transition

Author - Dr. Drzuchinia, Olga, University of Museum of Nature and History, Kaliningrad Oblast, Russian Federation (Presenting author)

Co-author(s) - Molodkov, Anatoly, Research Laboratory for Quaternary Geochronology, Institute of Geology, Tallinn, Estonia

Keywords: Luminescence Dating (IR-OSL), Middle-Upper Paleolithic, MIS 3

Presentation Preference - Poster

The territory of the south-eastern Baltic region might be described as lying on the margins of the classical Paleolithic world. No Middle and Upper Paleolithic sites have been found so far in this part of Europe, and on the basis of available data the initial habitation of the region has been related to the Bugian warming or Greenland interstadial sub-stage GI-1a, which began in northern Europe at about 14.7 cal ka BP. The recent discovery of traces of human occupation at the Ryadino-5 archaeological site (north-eastern part of the Kaliningrad region RF) has made possible a significant revision of our understanding of the early colonization of this territory. The luminescence (IR-OSL) age of the deposits implies that human occupation of the south-eastern Baltic region occurred at least between 50 ka and 44 ka ago, during the first half of MIS 3.

The dates obtained for the culture-bearing horizon place the Ryadino site among the most ancient sites of the transitional period from Middle to Upper Paleolithic in Europe such as Kostenki 12 (53–42 ka), Khotylevo 1 (55–46 ka), Willendorf II (~43.5 ka), Willendorf III (~41 ka), Kastovsky 1 (~50 ka), and Ryadino 5 (~44 ka). The dates obtained for the culture-bearing horizon place the Ryadino site among the most ancient sites of the transitional period from Middle to Upper Paleolithic in Europe such as Kostenki 12 (53–42 ka), Khotylevo 1 (55–46 ka), Willendorf II (~43.5 ka), Willendorf III (~41 ka), Kastovsky 1 (~50 ka), and Ryadino 5 (~44 ka).

The lithic assemblage of the Ryadino site comprises more than 2000 flints and includes various kinds of tools, but the chronology of the site has been established with confidence, the cultural attribution of the flint assemblage has yet to be identified. In the concerned time period, three groups of assemblages have been assigned to the earliest modern peopling of...
Loose human bones from cultural layers at Zamostje 2, central Russia (c. 6500–4000 cal BC)

Author - Törö, Mari, University of Tartu, Tartu, Estonia (Presenting author)
Co-author(s) - Meadows, John, Center of Baltic and Scandinavian Archaeology, Foundation of the Schleswig-Holsteinische Schifffahrtsgesellschaft, Kiel, Germany
Co-author(s) - Lozovskaya, Olga, Peter the Great Museum of Anthropology and Ethnography (Kunstkamera), Russian Ac. St. Petersburg, Russian Federation
Co-author(s) - Moiseyev, Yury, Moscow 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 the extraordinary 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 18 individuals, ranging in age from 0 to 70 years old. Two cranial fragments have been dated by radiocarbon to the Late Mesolithic (aceramic) period (c. 6500–5900 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 faunal and archaeological 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. Ethnographically this individual shows no sign of having consumed aquatic species. Without a Mesolithic cemetery at Zamostje, it is unclear whether the culturally modified loose human bone belonged to an atypical individual, or whether the excellent preservation of fish remains and fishing structures gives an exaggerated impression of the importance of aquatic resources at this site.
Keywords: Construction, Fortification, Kalmar
Presentation Preference - Oral

The town Kalmar is situated in the southeast of Sweden and was together with Gotenburg and Jönköping the most important
outposts in the early Great Power period. As decisions were made in 1640 to move the town Kalmar to a new and strategically
more beneficial location, the town would also be surrounded with a modern fortification. Several archaeological excavations have
been made in the last years on one of the nine bastions. Carolus Norus (Charles IX). In addition contemporary maps have been
studied describing the work in progress. This has concluded that the work on this bastion alone propagated over 50 years and it
took more than 50 years to finish the whole fortification. This puts questions on an efficient defense for the town, its population
and administration. The studies revealed solutions to problems regarding the construction, and also the development over the
years to keep up with modern types of the construction of bastions.

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TH4-08 Abstract 03

The Strong Link in the Chain? Jönköping Castle - a Swedish border fortress with hidden defects

Author: Persson, Claes B., Jönköping County Museum, Jönköping, Sweden (Presenting author)
Keywords: Conflict, Fortification, Siege archaeology
Presentation Preference - Oral

In the beginning of the 17th century the vulnerable southern border of Sweden was defended by modern fortresses. While Kalmar
and Elfsborg protected the coastline, Jönköping castle should secure the inland routes towards the central parts of the realm. The
site was strategically well suited, being a major crossroad with access to waterways.

The castle was originally a Franciscan convent, taken over by the Crown after the Reformation and fortified with walls, dry
moats and corner towers. Vastly enlarged and modernized in the first half of the 17th century, this artillary fortress and its outworks
covered an area of 10 hectares. From contemporary plans and drawings it is obvious that these defenses were built according to
the latest principles in the art of fortification.

However, recent excavations and extensive GPR-mapping of the ruins have given reasons to doubt the battle-worthiness of
this major border fortress. While written sources speak of cracks in the masonry and crumbling walls, archaeological observations
of insufficient foundations and poor craftsmanship points in the same direction. It is questionable if the castle could have resisted
a serious siege. Within lies the paradox of Sweden as a military state - its great ambitions in conflict with limited resources.

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TH4-08 Abstract 04

The bastions of Christian 4th

Author: MA Simonsen, Rikke, Copenhagen Museum, Copenhagen, V.
Keywords: Baltic region, Fortifications
Presentation Preference - Oral

Christian 4th is considered one of the most influential Danish kings. From 1598-1648 he ruled the kingdom Denmark-Norway,
which included the southern part of Sweden and the islands of Gotland and Saaremaa. This gave Christian 4th control of the waterways
to the Baltic Sea and a huge profit on the Sound toll – an important factor for the king in fighting for the Baltic Sea demonstration
and engaging the country in several wars. Christian 4th made great effort to modernize the fortifications of the realm introducing the bastioned fortification on a big scale. He built more than 30 fortresses and fortified towns within today's Denmark, Norway, Sweden, Germany and Estonia.

This paper wants to look into what concerns influenced the king's strategy of building fortifications which had a strong focus
on the Baltic region. Was the king demonstrating a general plan for the safety of the realm or was he reacting to sudden and
changing threats? Many plans were made for building new fortifications and renovating old ones. Why were the plans carried
out in some places but changes given up in others? Were finances, incompetence, enemy threats or international politics responsible
for the fate of the fortifications?

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TH4-08 Abstract 05

The Early Modern Fortifications of Halmstad

Author: Lena, Bjuggner, Regional Museum Halland, Halmstad, Sweden (Presenting author)
Keywords: early modern, fortifications
Presentation Preference - Oral

Halmstad, situated in the former eastern part of the Danish kingdom, was from the beginning of the early 14th century a simply
fortified town built on royal ground. 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 16th century and a new fortification was erected between 1598-1605 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
was made possible for the Danish king Christian IV to rebuild the town with a reinaissance plan after a devastating fire in 1619.
The defensive works was reinforced during the following decades. Through the Peace Treaty in Brömso 1645 Halmstad and the province of Halland became Swedish. The fortifications were maintained during the end of 17th century but started slowly to disapperate 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 some architectural 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.

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TH4-08 Abstract 06

From earthworks to scars of the cold war - 500 years of coastal defence on Gotland

Author: PhD Svedjemo, Gustaf, Uppsala University, Visby, Sweden (Presenting author)
Keywords: artillery, coastal defenses, 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 21st 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 sconces 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 Mats Stenbock 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 1651, ordering the Danish governor of Gotland to put all sconces 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.

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TH4-08 Abstract 08

Kuressaare fortress (Estonia) as an example of the transformation of bastion fortifications

Author: Nuk, Ragnar, Tallinn University, Aruküla, Estonia (Presenting author)
Keywords: 17th century, Baltic Sea hegemony, bastion fortifications
Presentation Preference - Oral

Recent archaeological investigations have revealed, that the development of the bastion fortifications of Kuressaare fortress
was more complicated than has been presumed. Kuressaare, located on the Saaremaa Island in the Baltic Sea, is one of the few medieval fortresses in historical Livonia where the modernization of the fortifications continued also after the Livonian War (1558–83). It was a foothold, in succession, of Denmark, Sweden and Russia.

This paper wants to look into what concerns influenced the king's strategy of building fortifications which had a strong focus
on the Baltic region. Was the king demonstrating a general plan for the safety of the realm or was he reacting to sudden and
changing threats? Many plans were made for building new fortifications and renovating old ones. Why were the plans carried
out in some places but changes given up in others? Were finances, incompetence, enemy threats or international politics responsible
for the fate of the fortifications?
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 two periods using some wooden constructions two times. The inside part of the hillfort was practically free of cultural layers. The Muscovites was there nearby to the hillfort. After the Great Northern War it lost its significance.

The road between Muscovite fortress Ladoga and Swedish fortress Nöteborg (former Orshaž) 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 temporal garrison (in 17th century from 20 to 200 persons). In 1657 a significant battle between Swedes and Muscovites was there nearby to hillfort. After the Great Northern War it lost its significance.

The 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 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 but one could say that just in 17th century it was two times rebuilt.

Breaching walls and sinking ships: experimental evidence for the performance of 17th-century heavy artillery

Author - PhD, 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 1626 for Vasa and her sister ships. This gun later equipped both the largest warships and field artillery units during the Thirty Years War, ending its 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.

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 Swedden. 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 a witness to Prussian-Swedish hostility during the Seven Years’ War. Its last act was the annexation of Swedish Hither Pomerania with Stralsund in 1750.

One of the key factors for this struggle were the fortifications. They were built during the wars (field fortifications) and during peace time 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, between 1648 and 1720, Prussian activity was focused on securing the Farther Pomerania. Its main city and most important fortress was Kolberg. The bastion fortifications of this city were already built by Swedish forces during the last stage of the Thirty Years’ War, but the Prussians thoroughly rebuilt it during the long modernization between 1655 and 1716. Apart from Kolberg a fortress in Rügenwalde was also 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 Pomerinn, 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 (assemarnates 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 (1563-1570) and the Kalmar War (1611-1613). These wars were two major conflicts between Denmark and Sweden and a result of both countries constant rivalry for dominion in the northern Baltic Sea.

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 Älvsborg 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 (saepe), 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.

TH4-08 Abstract 13

The Outdating of Medieval Fortifications – The Castle of Raseborg and the Town Wall of Vyborg

Author - PhD docent Haggren, Georg, University of Helsinki, Espoo, Finland (Presenting author)

Presentation Preference - Oral

The castle of Raseborg (Finland) and the town of Vyborg (Russia) both locate on the northern coast of the Gulf of Finland. Raseborg was built in the 1370s by the Swedes and during the next 150 years the castle was gradually enlarged. The town of Vyborg situated close to the eastern border of the Swedish realm and it was continuously threatened by the Russians. There was an older castle close to the town of Vyborg but in the 1470s the town itself was fortified too. From now on high walls surrounded the medieval town.

When Raseborg was founded fire arms were not yet in use along the northern Baltic Sea. A century later when Vyborg was surrounded by the walls fire arms were known but on those days most of them were light weapons making no harm to stone structures.

In dawn of the early modern era or the early 16th century, the role of the fire arms had changed. New guns were heavier and more effective than the earlier ones. Simultaneously the range of the fire arms had become much longer. Old medieval fortifications offered not anymore a safe haven. The new era meant remarkable changes for the old fortifications. The castle of Raseborg had lost its military importance already in the 1520s. In 1550 King Gustaf Vasa made a decision to abandon the old castle and build a modern one called Helsingborg in his new town called Helsinki. 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 Lorentz Stobaeus was ordered to modernize the fortifications. The outdated town walls were now pulled down. In Vyborg 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 the 18th century fire arms were known but on those days most of them were light weapons making no harm to stone structures. 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 Lorentz 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.

TH4-08 Abstract 14

The fortifications of Copenhagen: The western boundary as seen at Rådhuspladsen (Townhall square)

Author - Lyne, Ed, Museum of Copenhagen, Brøndby, Denmark (Presenting author)

Keywords: Bastion, City Gate, Fortifications

Presentation Preference - Oral

Prior to excavations carried out at Rådhuspladsen in 2011/2012, relatively little was known with certainty about Copenhagen’s former western boundary. What knowledge was available mainly stemmed from cartographic sources and historical references, as well as present day street layout (particularly Vester Voldgade). The first map however was only drawn in 1599, 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 CYCLING, 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.
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 Archaeozoologia in 70’s and 80’s. There are also two archaeozoological and synthetic works about past Polish fauna by Piotr Wysoki (1985, 1994). However in present research authors revisit old records and opinions on this topic. Special attention will be also paid to fusion of archaeozoological, historical and ethnographical knowledge. It will be possible thanks to considering the time, space and category of archaeological contexts. Therefore the picture of medieval hunting, which is usually related to the social status, will be possible to obtain. In this context it is important to emphasize special species such as red deer, elk, wild boar or brown bear. Crucial role played also aquatic mammals like beaver and otter, and its use as a fur-bearing animals. Apart from considerations on cultural aspects some osteometric observations will be performed. Measurements will be used for detecting the diachronic and synchronous trends in body size changes.

TH4-09 Abstract 03

The role of big game hunting among Iron Age boreal zone farmers

Author: PhD Student Kirkkinen, Tuula, University of Helsinki, Helsinki, Finland (Presenting author)

Keywords: animal hair identification, inhumation burials, wild animals

Presentations Preference - Oral

The role of big game hunting among Iron Age boreal zone farmers. Alces alces and Ranger in bioarchaeological assemblages at Iron Age and Early Medieval sites in South-Eastern 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-Eastern 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 Ranger in turnus fennoicus 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.

TH4-09 Abstract 04

In search of an animal skin: applying SEM for the soil of the Pertulanmäki Corded Ware grave, Finland

Author: PhD Vajanto, Krista, Nanomicroscopy Center Aalto University, Espoo, Finland (Presenting author)

Keywords: animal hairs, Corded Ware grave, SEM

Presentations Preference - Oral

In the acidic soils of Finland, where organic materials from Stone Age are only rarely preserved, the Pertulanmäki Corded Ware grave is an important exception. The soil from the grave excavated at the 1930’s, is the only Corded Ware grave in Finland with preserved human bone material. Aside 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 the acidic soils of Finland, where organic materials from Stone Age are only rarely preserved, the Pertulanmäki Corded Ware grave is an important exception. The soil from the grave excavated at the 1930’s, is the only Corded Ware grave in Finland with preserved human bone material. Aside 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.

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TH4-09 Abstract 01

Bioarchaeology in action – a multidisciplinary approach on animal remains in ritual contexts

Author: PhD Manneam, Kristina, University of Helsinki, Helsinki, Finland (Presenting author)

Keywords: interpretation, material studies, rituals

Presentations 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, quantification 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, in this case 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.

TH4-09 Abstract 02

Wild mammals in culture and landscape of the medieval Poland

Author: MA Wieczkow, Daniel, Nicolaus Copernicus University in Torun, Torun, Poland (Presenting author)

Keywords: archaeology, hunting, Poland, wild mammals, Middle Ages

Presentations 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 Archaeozoologia in 70’s and 80’s. There are also two archaeozoological and synthetic works about past Polish fauna by Piotr Wysoki (1985, 1994). However in present research authors revisit old records and opinions on this topic. Special attention will be also paid to fusion of archaeozoological, historical and ethnographical knowledge. It will be possible thanks to considering the time, space and category of archaeological contexts. Therefore the picture of medieval hunting, which is usually related to the social status, will be possible to obtain. In this context it is important to emphasize special species such as red deer, elk, wild boar or brown bear. Crucial role played also aquatic mammals like beaver and otter, and its use as a fur-bearing animals. Apart from considerations on cultural aspects some osteometric observations will be performed. Measurements will be used for detecting the diachronic and synchronous trends in body size changes.

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TH4-09 Abstract 05
A critical appraisal of using relative bone weights of reindeer from archaeological sites

Author: Prof. Bartosiewicz, Łaszło. Osteoarchaeological Research Laboratory, Stockholm University, Stockholm, Sweden (Presenting author)
Keywords: meat consumption, reindeer, relative bone weight
Presentation Preference - Oral

Quantification in archaeozoology requires a combination of various approaches. In addition to primary osteological data (Number of Identifiable Specimens and weight) derived measures have been calculated to compensate for bias caused by fragmentation and selective preservation. Fragment weights have remained underexploited in developing such methods. The argument against their uncritical use is the changing specific weight of bone during diagenesis which precludes estimating absolute quantities of meat and even comparisons between bone deposits of different preservation.

Reichstein (1994) used the relative weights of elements in complete skeletons for cattle, sheep and pig as standards in analyzing the summarized fragment weights of elements in archaeological assemblages, presuming that the criterion of homogeneous preservation is met. Aside from NISP, weight 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 Paleolithic Europe and throughout the history of the northern Baltic region and adjacent areas. Skeletal element weights of young male were chosen against whose proportional portions 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.

TH4-09 Abstract 06
Swine and ritual at the turn of fourth millennium BC on the Polish Plain

Author: MA Lisowski, Mikolaj, University of Sheffield, Sheffield, United Kingdom (Presenting author)
Co-author(s): Prof. Szmyt, Marzena, Adam Mickiewicz University in Poznań & Poznań Archaeological Museum, Poznań, Poland
Keywords: Neolithic, Poland, Zooarchaeology
Presentation Preference - Oral

The paper explores the role of pig in ritual communities associated with Globular Amphora Culture (GAC) at the turn of 4th millennium BC on the Polish Plain. Distinct ceremonial practices involving domestic animals are well-documented at sites linked to this culture, including commonly documented practice of so-called cattle burials. Pigs play also an important role for GAC communities, and are also present in burial 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 Widziszewo in Greater Poland region we aim to explore this issue. The deposit excavated in one of pits at this site consisted of a tight cluster of remains of six pig carcasses, disarticulated and consumed in distinctive and standardised manner during a short-time event. The evidence from Widziszewo represents hitherto undocumented aspect of ritual activity of GAC communities, and has no direct analogies in the Polish Plain. Based on the data, it is possible to trace the significance of pig as an animal consumed and/or deposited in ritual contexts of GAC. Particular emphasis is put on differential treatment of pig body parts, depositing heads in human burials (e.g. in Chodzież), and communal consumption of carcasses (as documented in Widziszewo). This issue will be a subject for further research to determine whether it was a widely applicable rule or a single instance.

TH4-09 Abstract 07
Cluttered faunal remains from a Roman Iron Age burial mound in Sweden: a taphonomic perspective

Author: Stolla, Bettina, Stockholm University, Uppsala, Sweden (Presenting author)
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, looting as well as contemporaneous and later activities on the site have hampered a straightforward interpretation. An advanced approach, contextual taphonomy, was thus used to analyse the faunal content of the chamber tomb and to distinguish effects of later activities.

The identification and quantification of the remains will be accompanied by a comprehensive analysis of e.g. fragment size, weathering and fracturing. The matter is challenging and complex, but it is hoped that contextual taphonomy might offer a means to approach faunal remains in disturbed archaeological settings. This study will thus contribute to the discussion about the ritualization of animals during the Roman Iron Age and demonstrate the possibilities and limitations of archaeozoology today.

TH4-09 Abstract 08
Animals of the living and the dead. Animal bones of Iron Age burials and settlement at Old Uppsala

Author: PhD Magnell, Ola, National Historical Museums of Sweden, Lund, Sweden (Presenting author)
Co-author(s): - Spilling, Emma, SAU Societas Archaeologica Upsaliensis, Uppsala, Sweden
Co-author(s): - Pizar, Sofia, SAU Societas Archaeologica Upsaliensis, Uppsala, Sweden
Keywords: animal bones, cremations, social zooarchaeology
Presentation Preference - Oral

Around the Baltic Iron Age burials animals reflect the importance of animals to humans in the Pre-Christian societies. Burials and ritual depositions of animal bones reveal complex social and symbolic relationships between humans and animals beyond the use of animals as a food source. It is evident from several studies that animals had different social and symbolic significance for the living and for the dead in the burial rites. Excavations in Old Uppsala, Sweden of a Late Iron Age settlement with a large contemporary cemetery have resulted in unusual conditions to study the animal and human relationship. A comparative study of faunal remains from settlement and burial have been performed to examine the handling of different animals in the everyday life of the living at the settlement and burial during the dead. The study is based on abundance of domestic animal species, but also the age and sex of the animals. The taphonomic effect of cremations on bones from the burial in relation to the unburned bones from the settlement has been important to consider.

The representative set of animal bones has been studied to evaluate if whole animals or body parts of animals have been put on the funeral pyres and to compare with consumption patterns and depositions at the settlement. The study explores the use of animals to express status and/or identity, but also considers religious symbolic meaning of the animals. The relationship between animals and humans in Uppsala will be related to regional and inter-regional trends.

TH4-09 Abstract 09
Sämi animal offerings, changing religious practices and human-animal relationships

Author: Dr. Salin, Anna-Kaisa, University of Oulu, Oulu, Finland (Presenting author)
Co-author(s): Åkäs, Tiina, University of Oulu, Oulu, Finland
Co-author(s): Fallsström, Markus, Stockholm University, Stockholm, Sweden
Co-author(s): Spangenberg, Marie, Stockholm University, Stockholm, Sweden
Keywords: animal offerings, reindeer domestication, Sámi archaeology
Presentation Preference - Oral

In recent years, archaeological excavations have been conducted on Sámi offering sites (dating ca. 11th to the 17th centuries) in Finnish Lapland. Moreover, many materials from Northern Sweden and archived in museum collections have been revisited with new methods and questions. Zooarchaeological analysis, radiocarbon datings of animal bones and stable isotopes analysis reveal new information about religious ritial, religious change, and human-animal relationships among the Sámi. We argue that there was a change in the offering tradition, interweaving with changes in the subsistence economy and especially reindeer domestication. Our results indicate that reindeer domestication, acknowledged to have had a major impact on social organization and economy, was also a major factor in the transformation of Sámi indigenous religion. However, the underlying nature of the offering tradition remained consistent although the focal species of economic and religious interest changed.
**TH4-09 Abstract 10**

**Reindeers in Lithuania: a technological study of antlers artefacts**

**Author:** Daugrona, Linas, Klaipėda University, Klaipėda, Lithuania (Presenting author)

**Co-authors:** Girininkas, 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 2014-2018 three Lyngby type implements made out of reindeer antler were found within territory of Lithuania. One of the Lyngby type artefact dating back to the 44000 to 42000 BC, the other two - 12 000 BC – to Late Allerød - 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 were 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.

**TH4-09 Abstract 11**

**Late Neolithic V-perforated buttons from a female burial in SE Poland - revisiting a case study**

**Author:** Wrinicka, Kinga, University of Wrocław, Institute of Archaeology, Wrocław, Poland (Presenting author)

**Keywords:** Bell Beakers, osseous materials, personal adornments

**Presentation Preference:** Oral

The aim of this paper is to revisit a case study presented at the 21st Annual Meeting of the EAA in Glasgow in 2015 using results from all analyses conducted and offering an interpretation on their basis. During my presentation in Glasgow I argued that in regard to small and weathered finds it is often impossible to identify the raw material only by macroscopic evaluation but the use of low-invasive archaeometric 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 button finds from a Bell Beaker female grave found at the Sandomierz-Zawichost Hill site in south-eastern Poland. Low power microscopic approach revealed qualitative features indicating that the osseous material used in the manufacture of these buttons might be animal dentine (ivoxy). If confirmed, it would link this eastern Bell Beaker enclave to the Iberian Peninsula, where the use of ivory for the manufacture of V-perforated buttons is well-known.

In order to test this hypothesis, different analytic non-destructive and low-invasive techniques of imaging and morphometrics were employed: conventional microscopy (high and low power approach), scanning electron microscopy with energy-dispersive X-ray spectroscopy (SEM-EDS) and micro-computed tomography (microCT). The results were cross-checked using Zooarchaeology by Mass Spectrometry (ZooMS) method, developed at the BioCh 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.

**TH4-09 Abstract 12**

**From Mesolithic to nowadays – few minutes on recent advances in Estonian zooarchaeology**

**Author:** Reinmaa, Eve, University of Tartu, Tartu, Estonia (Presenting author)

**Co-authors:** - Loogas, Lembi, Tallin University, Archaeological Research Collection, Tallinn, Estonia

**Keywords:** Animal husbandry, Estonia, Zooarchaeology

**Presentation Preference:** Oral

During the last few years Estonian zooarchaeology has focused on several distinct topics, including the Late Bronze Age Avau settlement in Saaremaa Island, and the Late Iron Age elite habitation site in the mainland Viinistu followed by the transition to the Middle Ages. Medieval assemblages have been analysed in numbers, considering both mammal, bird and fish remains. The results have contributed, for example, to the pattern of long distance fish trade, everyday life of the order castles, as well as revealed small matters of daily animal husbandry. Research on ancient mitochondrial DNA has elucidated the development of sheep husbandry from the Late Bronze Age onwards, while as a closer look on animal tooth and bone pendants have given new information on the perception and rituality the past people had in relation to the natural world. Short overview of this vast span of themes will be given in the presentation, with an objective to open up possible collaboration and discussion on zooarchaeological research in the Baltic.

**TH4-09 Abstract 13**

**The use of aquatic resources by Early Mesolithic foragers in southern Scandinavia**

**Author:** Boethius, Adam, Lund University, Lund, Sweden (Presenting author)

**Keywords:** Early Mesolithic, Fish, Foraging subsistence

**Presentation Preference:** Oral

A long tradition in the research of prehistoric southern Scandinavia recognizes a full use of aquatic resources in the Late Mesolithic Ertebølle culture (5500-4400 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-focused diet in the Early Mesolithic period (9500-8000 BC) can be reinterpreted and the use of freshwater resources is found to be more important than previously known. Aquatic resources can therefore be seen as a major source of sustenance for foraging societies in Scandinavia much earlier than has been realized previously. In Norje Sumunsand, 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.
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 types and the fragmentation level of the bones encountered in manor help to determine the animals’ slaughtering technologies. In XV – XX centuries wild meat firstly added variety to the noblemen’s table and also was a splendid entertainment. Mostly hunted animals were deer (Cervus elaphus), elk (Alces alces) and wild boars (Sus scrofa). Zoological research 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 Stanislovas Skalvis sent 60 partridges for Prussian Duke Albrecht, three years later he sent 100 partridges. We also know that the householders of manors of the seventeenth century already took care of animal husbandry, productivity and improvement of the species. It is believed that at the beginning of the seventeenth century the Dutch cattle came to the major manors in Northern Lithuania, most likely through Riga. Pedigree cattle and horses, which were fed and conserved better than ordinary ones, were grown only on larger manors. But this innovation spread slowly. Recently, we have integrated our investigations of the excavated bones with technical and analytical development to gain an all-round perspective on social zooarchaeology. As the past researchers, we have to try to realize the full potential of zooarchaeological data and different methods of zooarchaeology.

TH4-09 Abstract 18
How to process meat for a 17th century warship
Author - Gormik, Björn, University of Kiel, Kiel, Germany (Presenting author)
Keywords: butchery evidence, GIS, zooarchaeology
Presentation Preference - Oral

Researching the fauna remains from the famous VASA, while testing a new GIS based system for displaying and analyzing butchery marks on bones.

The 17th century warship Vasa was launched in 1628 in the time when Sweden was on the rise to their stormaktstiden, the time of their greatest power, but the ship capsized around 20 minutes after the launch. This catastrophic event 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 diversified social structure.

More than 2000 mammal bone fragments could be mapped and specially analyzed within the ship, showing the main provision storage in the hold and distributed spots of presumably personal food at the upper gun deck 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 of game and birds. The only probably not food-related bones are 5 cat bones.

A special emphasis was placed on the butchery practice. Following the idea from David Orton (thepythonpractice.org/bonecomposites/tiems/show/1686) 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 Driech (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 19
Evolutionary history of Baltic seals inferred from the analysis of historical and subfossil samples
Author - Dr. Pilz, Malgorzata, University of Lincoln, Lincoln, United Kingdom
Co-author(s) - Ukkonen, Pirko, Finnish Museum of Natural History – LUMMUS, University of Helsinki, Helsinki, Finland
Co-author(s) - Makowiecki, Daniel, Nicolaus Copernicus University, Institute of Archaeology, Toruń, Poland
Co-author(s) - Daugnora, Linas, Klaipėda University, Institute of Baltic Sea Region History and Archaeology, Klaipėda, Lithuania (Presenting author)
Co-author(s) - Karlsson, Olle, Swedish Museum of Natural History, Stockholm, Sweden
Co-author(s) - Hassel, Rus, Durham University, School of Biological and Biomedical Sciences, Durham, United Kingdom
Keywords: Baltic sea, mtDNA haplotypes and haplotype diversity, seal species
Presentation Preference - Oral

Local or global 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 two populations, sympatric, closely related seal species may help understand the reasons for extinction. In this study we analysed population genetic changes in Baltic harp seals and three extant Baltic seal species: ringed seals Pusa hispida, grey seals Halichoerus grypus, and harbour seals Phoca vitulina, during the Holocene. Each extant species showed a decline in the number of mtDNA haplotypes and haplotype diversity between historical samples (from 1843-1970) and modern samples (collected after 1975).

Keywords: animal products, Medieval Time, shipwreck
Presentation Preference - Oral

The archaeological excavations of shipwreck that was found at a construction site in Kärdling, 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, 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 sunk and become 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 17
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

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TH4-09 Abstract 16
Birds and people on polish seaside in Middle Ages
Author - MA Wiejacka, Nicolaus Copernicus University in Torun, Torun, Poland, Poland (Presenting author)
Co-author(s) - Prof. Makowiecki, Daniel, Nicolaus Copernicus University in Torun, Poland
Keywords: birds, archaeozoology, Poland, Middle Ages, polutry, hunting
Presentation Preference - Oral

A special emphasis was placed on the butchery practice. Following the idea from David Orton (thepythonpractice.org/bonecomposites/tiems/show/1686) 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 Driech (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.
reflected a demographic bottleneck in 1970-1980's. Subfossil samples (9,500-2,800 yBP) had higher haplotype diversity than historical samples of each extant species, suggesting that seal populations have been losing genetic variability throughout the Holocene, and not only as a result of recent population declines. An effective population size estimated from nucleotide diversity of subfossil samples was lowest for harbour seals and highest for ringed seals, which corresponds well with the inference based on the relative frequency of these species in archaeological sites at the Baltic coast. The effective population size of harp seals was comparable to ringed seals and higher than grey and harbour seals, suggesting that frequent occurrence of harp seals in archaeological record reflects their abundance rather than being a result of preferential hunting for harp seals. Reconstruction of the harp seal population dynamics suggests that their extinction was preceded by an abrupt rather than gradual decline. If the decline was due to an intensified hunting pressure, this would have likely affected all the seal species, and we found no evidence for this. Therefore, it is unlikely that the extinction of Baltic harp seals resulted solely from the hunting pressure.

TH4-09 Abstract 20

Worked bone and antler use-wear technology at Lielais Ludzas lake settlement complex

Author - Danīče, Guna. Čēsis, Latvia (Presenting author)
Keywords: bone, antler, Lielais Ludzas lake, methods

Presentation Preference - Poster
Since 1950ties in Latvia is known a Stone Age settlement complex around Lielais Ludzas Lake in Eastern part of Latvia. The coastline of the Lielais Ludzas lake has not been changed or reconstructed since 1954, when the water level was regulated and it lead to finding a lot of tools made of bone, antler and stone in different shapes and sizes. The discovered uncountable number of tools interested the locals so they started to gather them for private collections.

In the following years a number of archaeological excavations were organized in several settlements. The archaeological excavations in Kreiči, Budžanka, Jurizdika I and II, Kreiči burial-ground were led by Rauls Šnore, Francis Zagorskis, Lūcija Vankina, who confirmed that the territory around the lake was inhabited during the Middle Stone Age. But after few years of surveying archaeologist R. Šnore found more story find concentration sites all around the lake that could also have been a settlements - Baltais point, Baznīckunga island, Harpuņu island, Jurizdika I, II, Kalvi, Kubulova, Lummuža, Ludza town, Seļekova I, II, Šeļupiene, Užeļ un Vīķis (Dūn). Material use-wear was important all Stone Age but only used material depends of climate and accessible animal species. Environment combined with material use-wear technology was an important part of Stone Age people lifestyle so it is important to see correlation between worked bone and tool from excavated sites and stray find concentration places, also to clear out what kind of methods were used to make hunting and fishing tools in Stone Age settlement complex all around Lielais Ludzas lake in Latvia.

Mostly all tools were polished by stones, sawed on top or at the bottom of tool, part of fishing gear is bored for fishing hook holes and 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 decorated of the deer, elk, wild boar bones and antlers (identified by K.Paavere). Although not all tools were analysed, the dominance of the previously mentioned animals matches with the Latinian paleozological 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 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 elks.

TH4-10 Abstract 01

Traces on Material Culture: Craftspeople and Contact Networks in the Nordic Bronze Age

Author - Dr. Ngarega, 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 craftsperson behind the objects. Different craftspersons and their area of influence could be identified, from a craftsperson’s point of view, and as such also workshops and contact networks. With the knowledge of distinct techniques, the different skill levels of craftspeople and their affiliation to each other may 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 method of stylistic elements clearly separate the 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 track the idea of the itinerant craftsman back into the light of research.

TH4-10 Abstract 02

Technology exchange and iron trade around the Baltic Sea

Author - Jouttiläinen, Aine. Helsinki, Virum, Denmark (Presenting author)
Keywords: metal trade, iron, smithing traditions

Presentation Preference - Oral

From the rock carvings depicting ships in the Scandinavian Bronze Age to the age of the Hanseatic League and its mighty cargo ships, the Baltic Sea has always played an important role as a travel zone, facilitating interregional contacts and dissemination of cultural and technological knowledge. The study of technological 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 discrete 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 “chain of operations” of workshops. The interdisciplinary nature of the session will encourage discussions between cultural-historical approaches, experimental and archaeometric studies, to enrich our understanding of technological practices and to explore how metals, technologies and traditions were spread and shared within the region.

**TH4-10 Abstract 20**

Worked bone and antler use-wear technology at Lielais Ludzas lake settlement complex

Author - Danīče, Guna. Čēsis, Latvia (Presenting author)

Keywords: bone, antler, Lielais Ludzas lake, methods

Presentation Preference - Poster

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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, indicating 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 was introduced in ten多年的Danmark. One illustrative example is a number of single edge swords found in the votive deposit at Vimose 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 France. One 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 knifes 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 imported 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 analyzes of slag from iron smelting, will be able to open new perspectives in the identification of the trade of metal in the past.

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TH4-10 Abstract 03
Vendel period seaxes from Grobin

Author - Abolins, Arts, Riga, Latvia (Presenting author)
Keywords - Baltic Sea region, Metal Working, Vendel period
Presentation Preference - Oral

There has been little written about the Scandinavian seaxes found on the Eastern shore of the Baltic sea, and this paper is an attempt to present an overview of the finds from the Scandinavian colony in Seeburg (modern days Grobin) in Latvia. Since it is the only known Vendel period colony outside their primary territory, it holds the special interest for researchers, but, so far, no special attention has been devoted to the sax finds. There are several fine examples in collection of the National History museum of Latvia, including one especially impressive longseax over 70 cm in length. After careful examination of the blade one can conclude that it was once a very fine example of blade smiths art of the period, consisting of mix of mono-steel and pattern-welded elements. This sax and the technologies involved in the production of it and similar weapons will be the focus of the paper. Examining the other items connected with the burial that contained this seax, it is clear that it would once have belonged to a person of importance in his society, so it not only serves as a testimony of the skill of the maker, but also provides us with additional information on the people of this fascinating time period (burial is dated to the late Vendel period (most likely, 8th century).

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TH4-10 Abstract 04
Bronze Age fine metal working in Nordic Europe - gold discs and vessels

Author - Dr. Habi. Armbruster, Barbara, Laboratoire d’archéologie TRACES - UMR 5668, Toulouse, France (Presenting author)
Keywords - Fine metal working, Nordic Bronze Age, sun discs and vessels
Presentation Preference - Oral

Gold work was an important means of cultural and social expression and exchange during the Bronze Age, a period particularly rich in golden prestige items. Along Baltic and Atlantic Europe, ideas and peoples moved exchanging information, goods and technological knowhow. This paper deals with the esthetic appearance and social function as well as symbolic meaning of a particular group of luxury items from Scania, and in particular a sun” discs and containers made in gold. It focuses on their fine metal working technology essential to create their specific shape and decoration. The presentation aims in scrutinising the development and interdependence of form, function and technology of gold work. One topic will be the goldsmith’s workshop, its tool kit and materials used, as well as its social role in Bronze Age society. The presentation also intends to highlight the particular decoration techniques and tools applied to these sheet ornaments and luxury table ware.

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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

The question of local weapon production in the lands of the western Balts during the end of prehistory and with the beginning or Medieval period and during the Baltic Crusades is closely connected with a problem of formation of the early statehood of the local peoples in the Eastern Baltic, Western Latvian weapons finds, especially more than hundred evidences of the double edged swords, pattern welded spearheads are significant source about warrior elites with similar identities across the whole region. These finds also reflect developed craftsmanship and several possible production centers of these weapons in Couronian lands, using both imported material sources, as well as using the skills of local craftsmen working with non-ferrous metals.

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TH4-10 Abstract 06
New archaeometallurgical investigations on Bronze Age metal objects from the Eastern Baltic region

Author - Dubcowska, Elka, Curt-Engelhorn-Zentrum Archäometrie gGmbH, Mannheim, Germany (Presenting author)
Co-authors - Čivilytė, Agnė, Lithuanian Institute of History, Vilnius, Lithuania
Keywords - Archaeometallurgy, Bronze Age, Metal Objects
Presentation Preference - Oral

This archaeometallurgical study presents new research results regarding Bronze Age metal objects from the Eastern Baltic region. Since the last published analyses from Markieviczus in 1973 and Möldring in 2010, this new study sheds more light on the metallurgical development in this remote and seldom investigated region when taking of Bronze Age metalurgy.

Since the Eastern Baltic region lacks own copper ore deposits and metal finds are rare, this project aims to answer various questions, e.g., which sorts of metal occur during the Bronze Age in the Eastern Baltic region? Were the Early Bronze Age objects imported or self-produced? From which deposit derive the used copper ores? What can be said about trade, import and/or self-production within that time span? The investigated objects can be classified to different chronological periods reaching from the Early to the Late Bronze Age. The metal finds derive from different find spots in Lithuania, Rianingard district (Russia) and Belarus. Most of them are single finds and one newly discovered hoard find from the Late Bronze Age, Kobleibule.

We present the latest results of the performed analyses. Two analytical methods were applied on approx. 40 samples from metal objects (copper-bronze alloys). First, the chemical composition was determined by energy-dispersive X-Ray fluorescence analysis. Using those results, it was possible to classify different material groups and to make statements regarding the alloying behavior. Second, stable lead-isotope ratios were analyzed for the first time in that region and the results were compared with lead isotope signatures from different copper ore deposits to identify possible regions of origin of the used copper. The geochemical fingerprints of the different deposits were taken into account as well.
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 this regard 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.

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 Käiku), Finland (Gubbacka and Tonttimäki) and Russia (Minino I and Gat) to get a better understanding of the smithies from the 11th to 13th century. Secondarily, 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 crusades 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 smithies, which can help to fill the gaps in our knowledge from that period.

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

Metallurgical debris is by far the most informative source material for studying the metal craftsmanship of the past. In comparison to the knowledge of the same material and the 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 organization, 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-loys within 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 utilized and the chronological variation of multimetal craftsmanship. A primary 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 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 multimetality 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 serves as examples of how multimetality was manifested on the sites and in the landscape.

TH4-10 Abstract 10
On some aspects of specialized production in Roman Iron Age. A case study of S-shaped clasps

Author - Patalan, Krzysztof, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany (Presenting author)
Keywords: Goldsmith, Roman Iron Age, S-shaped clasps
Presentation Preference - Oral

The main topic of the paper are goldsmith products from the Roman Iron Age in the southern and western zone of the Baltic Sea region with emphasis put on the production of golden and silver S-shaped clasps which were used as a closure of the necklace. Although one can speak about chainé operators in context of the individual specimens or in some cases products from limited geographical area such generalizations are not possible to the whole material. The use of certain techniques, order of their application or attempts to bypass them provide important information about local production and can be used to identify the producers or at least in attempt to limit the area of origin of the analyzed objects. In the presentation the production of S-shaped clasps will be outlined and compared in the different areas of their distribution. This would show the strength and direction of influences in the goldsmith production of the Roman Iron Age. On the other hand this deliberations - based on the assumption that S-claps may be perceived as both status and group affinity symbol – would allow to discuss those connections between the populations of the Baltic Sea region that were presumably based on heterogeneity.

TH4-10 Abstract 11
The path of knowledge - Transfer of knowledge of bronze casting in the Late Bronze Age Scandinavia

Author - PhD Cand. Nilsson, Andreas, Lunds Universitet, Lund, Sweden (Presenting author)
Keywords: Bronze Age, Bronze Craft, innovations
Presentation Preference - Oral

The Scandinav bronze craftsmanship has been discussed countless times. But the discussion can continue thanks to new discoveries and new approaches within the research. I intend in this talk to discuss technology dissemination and the availability of bronze casting technology in southern Scandinavia during the Late Bronze Age. Was the knowledge of bronze casting a closed knowledge or was the technology available to more people than specialists in bronze crafts? What paths have new innovations in form and function and the knowledge of changes in bronze casting technology taken? Can we see varieties and ingenuity of bronze smiths at a local level? Was there space for everyday craftsmen or were all bronze craftsmen specialists? I will try to approach these questions by examining the various steps needed in the chainé operating of bronze casting and by discussing different parts of bronze casting technology such as soapmoulds, crucibles, technical ceramics and examine specific everyday objects made out of bronze such as socketed axes.

TH4-10 Abstract 12
Markers of ethnicity and female power? Some reflections on Scandinavian brooches in Viking Age Rus

Author - Nebl, Michael, Uppsala University, Uppsala, Sweden (Presenting author)
Keywords: Baltic metal working, Artefact biography, Runikild dynasty, Viking diaspora, Viking Age Rus
Presentation Preference - Oral

Prehistoric pictures are a special sort of source material. Pictures are not random products – they were created to convey messages. This statement applies especially to the oral culture of the Viking Age. However, Viking Age pictures rarely occur as independent monuments. More often, they appear as animal art on metal artefacts. The starting point for my reflections is a group of grandiose brooches from Viking Age Russia.
To begin with, a recent "object autopsy" on the famous Gnezdovo hoard revealed that two circular brooches should be regarded as locally made reconstructions of an elder brooch type, once imported from Scandinavia. In fact, no corresponding brooches from mainland Scandinavia display similar amounts of antiques. Why was there so much effort put into restoring the Gnezdovo brooches? One intriguing possibility is that these brooches represented heirlooms from an earlier generation of settlers. Presumably, over time some of these heirlooms transformed into important symbols of Scandiavinian ethnicity.

In the case of the grandioso 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 Scandiavinian and Oriental elements. Yet, being a female dress accessory, we might ask whether the Yelets emblem represents the might of the princely dynasty or the power of an individual female known from written sources. There is plenty of circumstantial evidence to conclude that Yelets brooch was made for a woman with close ties to the Rurikids, possibly during the second half of the 9th or the early 10th century. Ancient concepts of personhood were such that the actions of an upper class female fell back on her entire clan. Thus, we should perceive the mere act of commissioning that sumptuous brooch as a statement of might and power. Special consideration should also be given to the role of women in the building of alliances, as well as the function of female heirlooms within the social interplay. In fact, the Yelets brooch displays signs of wear and repair that might indicate that it had been passed down to later generations. As Viking Age craftpeople 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. Ambruster, Barbara, Laboratoire d’archéologie TRACES - UMR 5608, Toulouse, France (Presenting author)

**Co-author(s):** Pesch, Alexandra, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany

**Keywords:** fine metal working, gold, collar, Migration period

**Presentation Preference:** Oral

The Swedish gold collars from the Migration period are enigmatic masterpieces of Early Medieval fine metal working. Their refined imagery, complex form and decoration, and sophisticated manufacturing techniques were studied within the scope of an international research project coordinated by Pesch, Alexandra (Schleswig). This paper deals with the technological aspects of these fineries including the "chaîne opératoire" of the production processes and the tools implied. It provides new insights on the collars' technology chosen by the goldsmiths to create the composite body, the figurative elements and the filigree and granulation work. Especially interesting are the technological features of the construction of the tubular sheet work and the making of the so called miniatures. The specialized and complex knowledge of the makers will be set in the context of fine metal working in the North during the Early Medieval period.

**TH4-10 Abstract 14**

**Iron smelting processes in the Žarde-Bandužiai archaeological complex (Lithuania)**

**Author:** Misuliene, Ieva, Klaipėda University Institute of Baltic Region History and Archaeology, Klaipėda, 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

The chronology of the Bandužiai (Žarde) and Bandužiai settlements is very broad, economic activities connected to iron smelting and other not defined domestic activities were conducted in this territory from 1st millennium BC - early 2nd millennium AD. Chemical analyses (XRF, SEM-WDX) of iron metalurgy 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 Mesolitcic sites in Lithuania: morphology and affinities**

**Author:** PhD Zubova, Alisa, Institute of archaeology and ethnography RAS, Novosibirsk, Russian Federation (Presenting author)

**Co-author(s):** Daubaras, Mantas, Lithuanian Institute of History, Vilnius, Lithuania

**Presentation Preference:** Oral

Dominais and Spiģinas 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 VIII millennium BC. Spiģinas Mesolithic graves belonged to the period from the second quarter of the VII millennium BC to the middle of the IV millennium BC (Česnys, Butrimas, 2009 table 1). According to the results of previous investigations, the complex of non-metric traits in the sample from Donkalnis and Spiģinas was connected with so called «Middle European» dental type [BaltGienė, Česnys, Jankauskas, 1992; BaltGienė, 1985, 2012]. The main features of this type are the absence of eastern traits such as, for example, shoveling of upper central incisors and distal trigonid crest on lower first molars, and at the same time absolute prevalence of five-cusped lower first molars and high frequency of Carabelli trait on the upper first molars. Middle European complex widely spread in the Middle, East and West Europe. It has a lot of variants inside, some of them are signally distinct from each other. So we need a more precise definition of the dental status of these findings and it is one of the aims of our research. The second one is the comparison of the Lithuanian samples with the Mesolithic findings from the other regions of North, East and Middle Europe for determination of the main directions of biological affinities.

The dentitions from six Mesolithic craniums were observed using ASUDAS, Russian dental system, called after A.A. Zubov and the program of the archaic traits accounting. Also the main dental dimensions (mesio-distal diameter, bucco-lingual diameter, crown height and root height) were measured. Obtained data were compared using the Principal Component Analysis (PCA) with the Mesolithic samples from Latvia (Zvelebilis, 2001), Russia (BaltGienė, 1985, 2012) and Neolithic and Mesolithic sequences from Ukraine (Vasilevka, Vorovniki-1, Vorovniki-2, Nikitovka, Yasinnovka) because some of the Neolithic burials of this region were synchronous to the Baltic Mesolithic.

The results of our analysis showed the population from Dominais and Spiģinas 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 Ystaham and minimally in Lithuania and in Latvia. So we can suggest that its presence depends on the distance from the Baltic Sea. Lithuanian findings lack almost all eastern non-metric markers, exclude the six cusps, but proportions of molar crowns they have close to contemporary Saami, Latgalis and some mongoloid groups. This differ them from all of the Ukrainian samples which belonged to clear middle European dental type, without any eastern admixtures.
Evidence for venereal syphilis in post-medieval Riga, Latvia

Author - Petersone-Gordina, Elina, Durham University
Department of Archaeology, Durham, United Kingdom (presenting author)
Co-author(s) - Gerhardis, Gunhild, Institute of Latvian History, University of Latvia, Riga, Latvia
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 (RDCDC) 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 flat bones, as well as bilarial, 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 RDCDC population, and 74 males, 45 females and 77 non-adults in the SPCC population. Six individuals from the RDCDC 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 RDCDC. In addition, changes possibly related to late congenital syphilis were observed in a 6-8 month old 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 skeletal remains 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 ordinary, poor residents of Riga who belonged to St. Peter’s parish. The evidence for VS in these two post-medieval cemetery populations complements historical data about the spread of the disease in Riga during the 16th – 17th centuries AD, along with the development of sea trade and the growth of Riga as a significant port city in the Baltic region. It also helps to understand how VS was introduced into the territory of Latvia: the only individuals with possible VS in the archaeological populations of Latvia have so far been found in Riga and Ventspils, which were relatively large port cities in the Baltic Sea trade route during the post-medieval period.

References:
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. Our approach involves the application of ancient DNA technology in combination with statistical and computational tools, to study skeletal remains from Finnish historical burial grounds. Our objectives are to resolve the historical relations of Finns with the neighboring populations, such as other Finno-Ugric peoples, and investigating the migration patterns over time. We also hope to address the local dynamics of hunter-gatherer communities as well as the patterns across the entire genome that are informative about ancient ancestry and the migrations in ancient times. 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 Saaremaa materials along with current archaeological methods to generate a database with DNA profiles and information about individuals from the boat graving. 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 and genetic analysis. The project provides the opportunity to compare DNA profiles of Viking age remnants to ancient and contemporary European populations for information about ancestry and the migrations in ancient times. Our data may also provide information about phenotypic traits of these seafarers from early Viking ages.

DNA analysis of the individuals buried in the Saalme boat graves

Abstract 08

Two boat-graves, Saalme I and Saalme 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 archeological examinations have given indications of sex, age, and social status. However, with recent developments, modern human DNA technology can enable a comprehensive genetic analysis. Today we can get information about ancestry, origin, and skin color, ethnic groups, population history, and sex. It is also possible to predict physical appearance with regards to hair, eye, and skin color, length, weight, body odor and BMI.

The introduction of next generation sequencing (NGS) has opened up a whole new field allowing numerous analyses that would not otherwise have been possible. We will use NGS technology and massive parallel sequencing for a detailed genetic analysis of the Saalme materials along with current archaeological methods to generate a database with DNA profiles and information about individuals from the boat graving. 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 and genetic analysis. The project provides the opportunity to compare DNA profiles of Viking age remnants to ancient and contemporary European populations for information about ancestry and the migrations in ancient times. Our data may also provide information about phenotypic traits of these seafarers from early Viking ages.

Keywords: ancient DNA, bioarchaeology, Eastern Baltic region, human remains, Next Generation Sequencing, Presentation Preference - Oral
Kivutkalns complex of cemetery and hillfort has been considered as the largest Late Bronze Age bronze-working centre in Latvia. One third of the archaeological artefacts found at Kivutkalns hill-fort in the lower Daugava river are related to bronze working (Vaiksa 2010). According to archaeological excavations the Hill-fort was built on top of a cemetery, from which burials of more than 220 individuals have been found. Recently, a set of radiocarbon dates on both the hillfort and cemetery provided new information on the relative dating of these and even challenged the old interpretation (Oinonen et al 2013).

In 2014 Finnish Cultural Foundation provided support for a new project to study chronology of the site, and cultural and genetic connections between Kivutkalns site and eastern Fennoscandia. In this contribution, we present the status of this project. First, we discuss the cultural connections based on archaeological investigations of the artefacts from Bronze Age cultures of north and south of Gulf of Finland. Second, we present new 14C-based chronologies of the site to shed light on both absolute and relative dating of hillfort and cemetery. Third, we present new data on dietary habits and discuss genetic affiliation of the people based on a 13C, 15N isotopic data and ancient DNA measurements on human bones, respectively. Particularly, possible genetic connections between Kivutkalns and ancient and present populations of eastern Fennoscandia are discussed.


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

Author: Pshenig, Sasja, Institute for Archaeological Sciences Tübingen, Tübingen, Germany (Presenting author)
Co-authors: Mittke, Alissa, Max Planck Institute for the Science of Human History, Jena, Germany
Co-author(s): Aitallae, Raïli, School of Humanities, Tallinn University, Tallinn, Estonia
Co-author(s): Krause, Johannes, Max Planck Institute for the Science of Human History, Jena, Germany
Keywords: ancient DNA, Estonia, Neolithic
Presentation Preference - Poster

The Neolithic Revolution, describing the transition from a hunter-gatherer subsistence to farming, is one of the most important processes in human history and has been found to be largely a result of demographic diffusion. The arrival of the first farmers in Europe led to an influx of genetic diversity not seen 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 Mesolithic to the Late Neolithic. By determining the haplogroups of the individuals, we show that the typical European hunter-gatherer maternal lineages are represented exclusively in all individuals from all sites until the Middle Neolithic. From the Late Neolithic 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: Savulyte, Sandra, Bournemouth, United Kingdom (Presenting author)
Co-authors: Smith, Martin, Bournemouth, United Kingdom
Presentation Preference - Poster

During an excavation in Vîlنيus 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 Vîlنيus 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 Kronan

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.
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 territory during the adoption of the slowly rotating potter's wheel and Baltic ware pottery. As indicated by the 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 potter 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 potter's wheel is taken up only partly, preserving previous pottery production methods and using them alongside the new methods. The high-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.
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 burial ground in Fedorovo, Ruvnina Dolna (Unterplelen, Równina Dolina, Poland), Prudno/Alt Wehlau, Simonischken, Klincovka (Wiliais, Kunterstrauch), Rybachy (Stangenwald). Such artifacts are also known in Belorusussia 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 shire.
INVESTIGATING GEOCHEMICAL AND PETROGRAPHIC METHODS FOR FLINT IDENTIFICATION IN ARCHAEOLOGY

Friday, 2 September 2016, 09:00-13:00
Faculty of History, Room 217

Author: Sobczak-Talak, Iwona, Institute of Archaeology and Ethnology, Polish Academy of Sciences, Poznan, Poland (Presenting author)
Co-author(s): Wierna, Dagmara H., Autonomous Unit for Prehistoric Flint Mining in Warsaw, Institute of Archaeology, Warsaw, Poland

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 compositions-is of crucial importance in determining the 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

Archaeopetrological 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): Garca-Anglés, Pilar, University of Barcelona, Barcelona, Spain Co-author(s): Mangado, Xavier, University of Barcelona, Barcelona, Spain

Keywords: Archaeopetrology, 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 archaeopetrological study. First of all, results were obtained by use of mineralogical techniques: macroscopic and microscopic (petrographic) analysis, Scanning Electronic Microscopy (SEM), Micro-Raman and X-Ray Diffraction (XRD), thus combining mineralogical, petrological and micropaleontological methods. Additionally, a geochemical technique was applied: LA-ICP-MS. One of the aims of this presentation is to show 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, Università Bordeaux Montaigne, Pessac Cedex, France (Presenting author)
Co-author(s) - La Bourdonnec, François-Xavier, Université Bordeaux Montaigne, Pessac Cedex, France
Co-author(s) - Dubernet, Stéphane, Università Bordeaux Montaigne, Pessac Cedex, France

Keywords: chert characterization, geochemistry, lithic raw materials procurement

Presentation Preference - Oral

An intense fieldwork 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 textual, petrographic and micropaleontological characterization of chert using macroscopic and microscopic methods. However, results showed that these techniques had some limitations regarding the evident similarity between several formations. Thus, recovering the previous data obtained after the textual, petrographic and micropaleontological 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 - Chatzipavlou, Petros, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: Chert, Maltese, sourcing

Presentation Preference - Oral

The purpose of this paper is to present petrological/geochemical techniques (e.g. LA-ICP-MS), which can contribute to the investigation into the origin of chert assemblages found in prehistoric sites in Maltese islands. This research is part of a greater project (FRAGSUS) investigating the extent to which these islands were laboratories of human activity and, in particular, their degree of connectivity with neighbouring areas. The project focuses on the Stone Temples on Malta (between 4th and 3rd millennia BC) and identifies the circumstances under which these unique monuments were built.

Although these stone artefacts have been studied in the past, the research on their sources has been inconclusive. The advantages of these techniques are: their great accuracy, the speed with which results are obtained and, most importantly, they are non-destructive. They are considered perfect for identifying the mineralogical and geochemical context of rock samples. These specific characteristics, combined together, can be great indicators of the origin of these chert assemblages.

Finally, the main principles, functions, equipment and limitations of these techniques will be demonstrated. Secondly, preliminary results from both chert assemblages and chert outcrops from Maltese islands will be presented. Moreover, this paper will also show how the results should be processed in order to obtain the necessary and useful information in sourcing chert assemblages. Finally, a comparison will be made between these techniques and those used in similar research in western Greece.

TH5-01 Abstract 04
Renewed petrographical and geochemical studies of flint from secondary deposits: Belgian case study

Author - Dr. Moreau, Luc, McDonald Institute for Archaeological Research, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Co-authors - Dr. Feulner, Paul, Stedelijk van Baerle-Denktal, France
Co-author(s) - Dr. Brandl, Michael, Institute for Oriental & European Archaeology, Austrian Academy of Sciences, Vienna, Austria
Co-author(s) - Prof. Filimonov, Peter, Institute of Statistics and Mathematical Methods in Economics, Vienna University, Vienna, Austria

Keywords: Flint, Geochemistry, Neanderthal

Presentation Preference - Oral

The western region of the English Channel is an archaeologically rich area encompassing the French coastline and the plateaus of the Channel Islands located on the shallow Continental Shelf. Although modern sea level has obscured much of the prehistoric landscape for cooler periods during the 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 Paleolithic 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 sources 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 homogenous nature of the flint matrix. This project investigates the geochemical signature of these flint objects with...
the hope to further clarify this theory and provide empirical data to macroscopic generalisation. It therefore employs an artefact
centric model first testing multiple assemblages from the site using portable x-ray fluorescence. This process will likely begin to
to be further tested as this can be supported by further targeted minimally destructive testing, such as LA ICP-MS to
achieve a more finite, quantitative perspective for geochemical trends within the sequence. Overall there are some
clear and obvious issues with sourcing flint in general (e.g. internal variation, high silica percentage) and particularly within this context
where we have no access to the suspected primary deposit. However the potential to realise information about this sustained
and varied Neanderthal occupation and sheer quantity of flint artefacts available to study outweighs preliminary negatives and
the future of this project will be to further adapt a methodology aimed to shed light on Neanderthal behaviour through their flint
acquisition strategies.

TH5-01 Abstract 07
Erratic Flint from Poland, Preliminary results of petrographic and geochemical analyses
Author - Dr. Sobokwa-Tabaka, Iwona, Centre for Prehistoric and Medieval Studies in Poznań, Institute of Archaeology, Poznań, Poland (Presenting author)
Co-author(s) - Werra, D.H., Autonomous Unit for Prehistoric Flint Mining in Warsaw, Institute of Archaeology, Warsaw, Poland
Co-author(s) - Hughes, R.E., Geochemical Research Laboratory, Portola Valley, United States of America
Co-author(s) - Sidúa, R., Faculty of Geology Address University of Warsaw, Warsaw, Warsaw, Poland
Keywords: erratic flint, geochemical analysis, petrologic analysis
Presentation Preference - Oral
Archaeological sites in Poland, and elsewhere in Western Europe, document that flint and chert have a long history of use. The most commonly knapped raw materials throughout the Stone Age and Early Bronze Age, flints from a number of different sources were used for making tools and weapons, fire-lighting tools, etc. When studying prehistoric flint, one of the more interesting issues to be examined is the connection between deposits exploited at the time and the tools recorded at archaeological sites. By following the spread and distribution of particular raw materials we can study the spreading of prehistoric communities, their mobility and mutual contacts, as well as the size and quality of exchange networks. At the same time, those features which caused siliceous rocks to be highly prized by ancient communities also mean that it is 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, were all widely used in prehistoric times. Almost all types of them have been examined by using both macroscopic and petrographic-geochemical methods to define their diagnostic features. This paper presents the preliminary results of petrographic and geochemical analyses of erratic flint found throughout present-day Poland. Three different methods have been applied: electron probe micro analysis (EPMA), scanning electron method (SEM) and energy-dispersive x-ray fluorescence (EDXRF) spectrometry. The results of the EPMA and SEM analyses of erratic flint have revealed a largely homogeneous mineral composition, which suggests that mineral composition will be of limited utility in distinguishing erratic flint. However, EDXRF analysis of a small sample of erratic flint has identified differences in calcium (Ca) and iron (Fe) content between and among samples of erratic and 'chocolate' flint but a much larger sample of erratic flint specimens needs to be analysed to determine the range of chemical composition they contain.
Acknowledgements: The investigations were funded by the National Science Centre in Poland (PRELUDIUM 2; UMO-2011/03/N/H30/00373).

TH5-01 Abstract 08
Lithic raw material from eastern part of Polish Carpathians. Results of preliminary research
Author - Prof. Pelisiek, Andrzej, Institute of Archaeology University of Rakovce, Rakovce, Poland (Presenting author)
Co-author(s) - Dr. Trabka, Joanna, Institute of Archaeology University of Rakovce, Rakovce, Poland
Keywords: lithic raw material, macroscopic and petrographic characteristics
Presentation Preference - Oral
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, menilite hornstones, flysch radiolites, Bircza-like flints, light-brown tabular hornstone. As suggested from artefacts found on the sites in Poland and Slovakia in various chronological contexts these lithics were exploited both for local and much wider use. Identification of raw material itself as well as the outcrops of siliceous rocks is crucial issue in the study of 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.

TH5-01 Abstract 09
Flint studies for applications in archaeology - procedures and investigation sequence
Author - Dr. Zarina, Liga, University of Latvia, Riga, Latvia (Presenting author)
Co-author(s) - Seguna, Valdis, University of Latvia, Riga, Latvia
Keywords: flint and chert, research procedures, stone tools
Presentation Preference - Oral
During the Palaeolithic flint and chert besides other stone materials were widely used for making tools. Because of numerous finds, flint becomes one of the most important information sources regarding prehistoric society for evaluation of ancient skills, knowledge and innovations. Therefore needs for well-developed typology of tools and updated laboratory methods for raw material identification and characterization can be recognized. Mentioned above leads to evaluation and future development of tools grouping and classification still visually based to be supplemented or replaced by tools morphometric analyses and numeric data analysis depending on research directions. In this respect specialized data coming from artifacts morphometric analysis can be used also for identification and characterization of used raw material, pointing, for example, to quality of the material for making tools, processing possibilities and traces of weathering. Current laboratory testing methods are well developed and available in most of the research centers and institutions, however, only few databases do exist that are easily searchable and can be widely applied to traditional archaeological studies. Most of reasons are related to limitations to use destructive methods, needs for pretreatment, size of sample, specific qualifications etc., but still the main complications are coming from natural diversity of stone material and complications to obtain comparable analytical data.
In the study geological samples of flint and chert besides from sites in Northern Europe as well as archaeological samples collected during Institute of Latvian History excavations in the Stocence Neolithic settlement and Lapins Mesolithic settlement were included. The research procedure was developed for obtaining comparable analytical data. In the study macroscopic and microscopic assessments in visible and ultraviolet light were carried out, and for chemical composition detection the X-ray fluorescence spectrometry (XRF) method was used.
Our studies demonstrate needs for certain procedure and conditions to obtain analytical data which satisfy regional flint tools studies regarding source material localization and tracing the transportation routes.

TH5-01 Abstract 10
Cultural contacts during the late Boreal and early Atlantic by the Baltic coast of Sweden
Author - Källquist, Mathilda, National Historical Museums, Sweden, Lund, Sweden (Presenting author)
Presentation Preference - Oral
What were the directions of the social and cultural routes of contact, during the late Boreal and early Atlantic in Southern Scandinavia? This study is based on technological traditions in bone and lithic material, and stratigraphic analyses from teeth. The main material comes from Norje Sunnansund, a well preserved settlement covered by Littorina gyttja, excavated in
2011. The site lies by the outlet of a former lake, 2 km from the Baltic coast in Southeastern Sweden. It is among the first coastal teeth. The main material comes from Norje Sunnansund, a well preserved settlement covered by Littorina gyttja, excavated in 2011. The site lies by the outlet of a former lake, 2 km from the Baltic coast in Southeastern Sweden. It is among the first coastal settlements from the Maglemosian period excavated in Southern Scandinavia. The settlement has been inhabited repeatedly during most of the year, and the finds are extensive, including both a varied lithic material and bone material 14C-dated to ca. 7600–6600 cal. BC. The choice of lithic raw material – mainly Kristianstad flint, Senonian flint and quartz – suggests connections in both northbound and southbound directions. Some characteristics of the lithic blade technology and the bone technology also suggest a connection with traditions from the east side of the Baltic, while bone ornaments and Reesenberg triangles show some similarities with the Maglemosian tradition. The results from strontium analyses of 12 lose human teeth strengthens the picture of connections between people from different geographic areas.
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, Taralkevičius, 2015, Archaeologia Lituanica, 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 methods it would be useful: a) to take more (³3) 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 anthropogenic component), c) to use multivariate analysis method with obligatory determination of total content of main major chemical elements and their specific satellites, d) to compile geochemical database of as many as possible exactly dated bricks (when a, b and c requirements are met), e) to select the set of chemical elements for multivariate analysis basing on various geochemical features (not only variability of composition), f) to verify and supplement the results of cluster analysis with the help of other multivariate statistical methods; g) to accumulate geochemical data on potential raw material (clay) deposits.

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**TH5-01 Abstract 11**

**Possibilities to interpret of Vilnius old wall bricks using geochemical research method**

**Author:** Barcevičius, Saulius, Lithuanian Institute of History, Vilnius, Lithuania (Presenting author)

**Co-author(s):** Taralkevičius, Ričardas, Nature Research Centre, Vilnius, Lithuania

**Keywords:** brick, geochemical, Vilnius

**Presentation Preference:** Poster

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**TH5-01 Abstract 12**

**Micromorphology of flint from Mesolithic–Early Neolithic site Zamostje 2 via thin-section analysis**

**Author:** Dr. Kulikova, Marianna, Herzen State University, St. Petersburg, Russian Federation (Presenting author)

**Co-author(s):** Lazovskaya, Olga, Institute for the History of Material Culture, St. Petersburg, Russian Federation

**Keywords:** Mesolithic, Early Neolithic, petrography of flint, raw materials, Zamostje 2 site

**Presentation Preference:** Poster

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**TH5-01 Abstract 13**

**Contribution to the flint characterization from the Mons Basin (Belgium). New data for mining sites**

**Author:** Dr. Kulkova, Marianna, Herzen State University, St. Petersburg, Russian Federation (Presenting author)

**Co-author(s):** Baele, Jean-Marc, University of Mons, Mons, Belgium

**Keywords:** mining sites, Mons Basin, raw material sourcing

**Presentation Preference:** Poster

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UNRAVELING THE FORMATION PROCESSES OF THE ARCHAEOLOGICAL RECORD BY INTEGRATING ENVIRONMENTAL ARCHAEOLOGY AND TRADITIONAL FIELD EXCAVATION

In 1987 Michael Schiffer published the hugely influential 'Formation Processes of the Archaeological Record', which has continued to be consulted to interpret the biographies of archaeological materials, the formation of ruins and refuse assemblages, the spatial and diachronic development of archaeological sites, and to study sites in the context of their hinterlands. On the approach to the 30th anniversary of Schiffer's publication, this session aims to examine the contribution that environmental archaeology, and its associated specialisms such as archaeobotany, geoarchaeology, palaeontomology, palynology, and zooarchaeology, has made to advance our interpretations of formation processes on archaeological sites. We welcome submissions from all specialisms of environmental archaeology, as well as from archaeologists in other fields, particularly those who apply integrated approaches and/or experimentation to understand the taphonomy of data assemblages, the formation and reworking of stratigraphy, and the diagenetic processes that affect archaeological materials within their depositional context.

TH5-02 Abstract 01
A multi-disciplinary approach to formation and abandonment processes within later prehistoric houses

From the Bronze Age to the late Iron Age people in Britain lived in roundhouses. They generally kept them clean which created wear, brush and cut patterns on the soft lowland soils. Later truncation left little remains behind apart from low hummocky artefacts, the fills of negative features such as pits and postholes which can contain deliberate structured deposits, and animal bones concentrated in the use-wear depressions. The material recovered from these hollows or the top fills of features is often ignored as representing redeposited material that can yield little secure stratified information. These deposits are either midden-rich, some showing a degree of lensing, or represent a bulk of homogenised but often artefactually sterile infill.

This paper is interested not only in the formation but the nature of their infills and the research potential of such redeposited ‘rubbish’. The multi-disciplinary approach based on recent excavations in Scotland uses micro-morphology, architectural analysis of structure and building materials and experimental reconstructions from Britain and beyond. Results suggest that the accumulated infills in the worn hollows are unlikely to be contemporary with the final house occupation, but represent post-abandonment processes not linked to the particular structure, but to wider site activities. The homogenous bulk of material infill represents the remains of the houses’ superstructures and is studied at macro- and micro-levels to identify their organic building materials such as timber, turf and earth which are usually assumed to be “lost”. Interpretations working with such redeposited material move away from trying to understand each structure on a site individually and towards studying these within a model that postulates a cyclical site use, in which individual features and materials change function and substance because they are interlinked in larger economic and cultural processes.

TH5-02 Abstract 02
Interpreting silos deposits in medieval Mediterranean France: archaeo-botanical approach

The national institute Inrap which was in charge of many of these projects, operated numerous related disciplines of the archaeology such as geoarchaeology, archeozoology, archeobotany. It was in particular possible to make experiments, such as they were able to be put forward in particular on plan of the Channel relieving the river Seine and the North of Europe (code CSNE). The poster presented here shows the results which were obtained on the same excavation fields of the North of France within the framework of a micromorphological study of the Early Medieval stuff. We especially focused on huts called ‘sunken featured buildings’. It was set up that a particular strategy of sampling, which aims at taking into account the allowed time, as well as the average scienists and the available human being. All the archaeological units of this type having been searched and identified of the type of deposits excavated (in primary or secondary position), and, for primary deposits, the question of the type of products analysed. The discovery of storage in primary position remained uncommon and was, so far, poorly documented by archaeobotany in this area. New archaeobotanical investigations on several sites in Languedoc-Roussillon allows us to present a review of the results on storage practices in this region, and a discussion on the methods by which archaeobotany can enlighten the existence of primary deposits in enlasing areas. In a second time, we will discuss the interest of studying deposits in secondary position to document several questions, such as the identification of other agricultural practices not related to the storage itself, or the reconstitution of past environment exploited.

TH5-02 Abstract 03
Exploring house (after)lives at Catalhöyük West via microstratigraphy and animal bone taphonomy

The development of the preventive archaeology, and more broadly the need to present the living conditions of the noble persons and the clerks. For more than 30 years, in France, the archaeological research has totally changed this incomplete vision of the period. The Medieval period was documented for a long time by texts and iconography. These studies brought numerous testimonies which tended to present the living conditions of the noble persons and the clerks. For more than 30 years, in France, the archaeological research has totally changed this incomplete vision of the period. The Medieval period was documented for a long time by texts and iconography. These studies brought numerous testimonies which tended to present the living conditions of the noble persons and the clerks. For more than 30 years, in France, the archaeological research has totally changed this incomplete vision of the period. The Medieval period was documented for a long time by texts and iconography. These studies brought numerous testimonies which tended to present the living conditions of the noble persons and the clerks. For more than 30 years, in France, the archaeological research has totally changed this incomplete vision of the period.
taken, it was set up an index form of statement taking into account paleo-environmental comments and studies. It is to find easily samples with the aim of the study in laboratory. Every sample was coded and inventoried. A ceaseless round trip between field data (sediments and drawings/photos) and the data obtained by the micromorphological study, as well as the overall of the other disciplines allowed to document very finely structures which seemed in prior homogenous.

So, the studies led by the archaeologists during works of preventive archaeology allow to set up scientific protocols. The BBAs, structures in prior without notable interest, give a lot of information onto the everyday life of the population in the same period. The interpretation of archaeobotanical assemblages has been traditionally based on a classification of archaeological contexts – Oral

Given their high yield of artefacts and ecofacts, cesspits are afforded much time and effort in urban archaeology. While historical sources reveal that cesspits were emptied at regular intervals every few years, archaeologists still treat cesspits as closed contexts where artefacts be fossilized and undis turbed by subsequent cultural or natural processes. This ‘archaeological blind spot’ results from the lack of attention given to cesspit cleaning activities in the application of traditional archaeological methods. For example, counting ceramics both in terms of the ‘minimum number of vessels’ and fragments to tackle formation processes is widely known since Schiffer’s publications, but has not taken root in urban archaeology.

This presentation is a call for a reevaluation of the contextual analysis, meaning that stratigraphy must be the terminus framework that links the single specialist reports, which would otherwise end up as discrete paragraphs in the definitive archaeological report. In order to date artefacts and ecofacts correctly, the issue whether cesspits are (in terms of Bailey 2008) true palimpsests (with or without residual refuse), cumulative palimpsests or temporal palimpsests must be discussed.

TH5-02 Abstract 08 Cooking pits, formation processes and democracy

Author - Swede, Stig, Kulturlandskapet, Fällbacka, Sweden (Presenting author)
Co-author(s) - Östlund, Annika, Kulturlandskapet, Fällbacka, 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 radiocarbon dating. This often means that these structures or even whole sites are overlooked. Therefore, we will also discuss how such treatment leads to misunderstanding, reducing or even excluding several aspects of prehistoric society in archaeological interpretations.

Before the excavation of the site Tarum 1821 a compilation was performed of the cooking pits that had been excavated in the local area. The interpretation of the site was compared with what kind of analysis that had been carried out. There were a clear correlation between a ritualistic interpretation and fewer analyses.

Moreover, it became obvious that the different theoretical frameworks provide distinct perspectives regarding the archaeological contexts and the archaeobotanical assemblages, having a profound impact in the overall archaeological, palaeoecological and palaeoethnobotanical interpretations.
To solve this situation we created a strategy for the excavation. We measured the volume of 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 structures were sampled in three to five series from top to bottom. The purpose is to analyse the presence and amount of phosphates, magnetic susceptibility and the content of organic material. Also samples for macrofossils and radiocarbon dating were collected.

From the analysis of the ratio of firecracked stones show that this is a way to group the cooking pits. The macrofossil analysis concluded that one type of pit was used for processing grain. The lipid analysis also support this and the lipid acids from animals implies that another type may have been used for processing meat. The soil chemical analysis strengthens the grouping of the pits but it also supports an even finer grouping. Finally the soil chemical results from the surface 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 radiocarbon datings shows that the site was occupied temporarily.

The site was situated at some distance from the nearest known waterbodies. Our interpretation is that the site was an activity area and that it during at least three phases has been used for processing grain. It seems possible to compare this with historically known roasting activities. These were also performed separately from the settlements. It is an activity that is often associated with women, but the place was also known as a gathering point for others in the society.

By focusing more thoroughly on one type of structure we have been able to gain more understanding for it. We have also been able to discuss social organisation and democracy and thereby questions of interest for our society. The excavation is in itself an example of how to see democratically on different types of structures and sites.

TH5-02 Abstract 09
Transdisciplinary results of site formation processes in the wetland site Zug-Riedmatt (Switzerland)

Author - PHD Ismail-Meyer, Kristin, Integrative Prehistory and Archaeological Science, Basel, Switzerland (Presenting author)
Co-author(s) - Steiner, Bigna, Integrative Prehistory and Archaeological Science, Basel, Switzerland
Co-author(s) - Hauser-Weniger, Amelie, Integrative Prehistory and Archaeological Science, Basel, Switzerland
Co-author(s) - Ackermans, Tim, Integrative Prehistory and Archaeological Science, Basel, Switzerland
Co-author(s) - Akeret, Örni, Integrative Prehistory and Archaeological Science, Basel, Switzerland
Co-author(s) - Rentzel, Philippe, Integrative Prehistory and Archaeological Science, Basel, Switzerland
Co-author(s) - Gross, Eda, Amt für Denkmalpflege und Archäologie - Kanton Zug, Zug, Switzerland
Co-author(s) - Steiner, Bigna, Integrative Prehistory and Archaeological Science, Basel, Switzerland
Co-author(s) - Akeret, Örni, Integrative Prehistory and Archaeological Science, Basel, Switzerland
Co-author(s) - Rentzel, Philippe, Integrative Prehistory and Archaeological Science, Basel, Switzerland

Keywords: archaeobotany, micromorphology, Neolithic

Presentation Preference - Oral

At Zug-Riedmatt, excellently preserved waterlogged organic layers were conserved in a depth of 6m, below the dafic deposits of the river Lorze into Lake Zug. The layers have been accumulated during the Neolithic settlement activities between 3200 and 3100 cal BC. Even though only a small part of the site was excavated, an exceedingly dense recovery technique was used, ensuring that the site could be investigated in detail. Using a micromorphological methodological approach, 79 profile columns were documented, sampled and separated into layers in an intensive cooperation between archaeobotany, palaeontology, archaeometry, 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, palaeontology and micromorphology. The three profile columns cover the whole occupation layer of up to 1.3 m of thickness, which contains various sediment types. The interplay between lake and dafic deposits, which overlap with anthropogenic settlement activities, shall be presented. This micromorphological approach shows that complex, hard to solve questions emerge, which have to be discussed in detail between the involved disciplines.

TH5-02 Abstract 10
Formation processes related to foragers in tropical forests

Author - Dr. Friesam, 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 South India where an integrated approach involved long-term ethnography, field excavation and geoarchaeological laboratory-based analyses.

The integrated approach enabled to associate social and cultural aspects of forager ways of living - such as mobility and immediacy - with patterns of use of space and material deposition. Field excavation and sediment sampling from recently abandoned sites of the same group, allowed the investigation of post-depositional processes at both the visible and invisible (micro- and sub-microscopic) scales of the archaeological record. The geoarchaeological analyses included the geomagnetic and phytolith analysis and soil micromorphology. The results of the geoarchaeological analyses exhibit the environmental post-depositional processes occurring in tropical forests, mainly characterized by acidic conditions and intensive biological activity. Overall, although forager ways of living and the environmental conditions in tropical forests challenge the formation of a well-preserved archaeological evidence, an integrated approach examining the different scales of the archaeological record can successfully reconstruct human behavior and the formation processes of archaeological sites.
Unravelling the formation process: re-excavating stratigraphy beneath the temples of Malta

Author - Prof. Malone, Caroline, Queen's University Belfast, Belfast, United Kingdom (Presenting author)
Co-author(s) - Dr. McSorley, Rowan, Queen's University Belfast, Belfast, United Kingdom
Co-author(s) - Dr. Brogan, Catriona, Queen's University Belfast, Belfast, United Kingdom

Keywords: Antiquarian, Malta, Temples

Presentation Preference - Oral

The great megalithic temples of Malta were first examined in a systematic manner in the early years of the 20th century by antiquarian archaeologists. Thomas Ashby and Eric Peat from the UK joined Theisticos Zammitt in Malta in the first properly recorded excavations, and their published records provide an important insight into Malta’s early history. A century later, as part of the ERIC FRAGUS project, three temple sites have been re-examined, in the quest for new samples for dating and palaeoecological analysis and in so doing have reinterpreted the work of these earlier scholars. This paper reviews how archaeological approaches to megalithic prehistoric sites have changed over a century by drawing some surprising conclusions about the quality and the questions of these pioneers. The current study is employing a range of interdisciplinary approaches to develop and enhance the archaeological record through coordinated methodologies to extract the maximum information from the remnants that remain.

Interdisciplinary research for unravelling the chronology of archaeological sites of Ułow (Poland)

Author - Dr. Moskal-del Hoyos, Magdalena, W. Szafer Institute of Botany, Polish Academy of Sciences, Krakow, Poland (Presenting author)
Co-author(s) - Dr. Niezabitowska-Włodawska, Barbara, Institute of Archaeology, Maria Curie-Sklodowska University, Pi. Marii Curie-Sklodowskiej 4, 20-031 L, Poland
Co-author(s) - Prof. Krupiec, Marek, Faculty of Geology, Geophysics and Environmental Protection AGH, Al. Mickiewicza 30, 30-059 Krakow, Poland

Keywords: Archaeology, Radiocarbon dating, SE Poland

Presentation Preference - Oral

A group of archaeological sites located near the village of Ułow in Central Rzeczka (Lublin voivodeship, south-eastern Poland) was discovered by people using metal detectors when searching for military items from World War II. The first archaeological survey was carried out in 2001 and proved that an extensive forested area, previously considered as unsettled in prehistory, contained remains of multicultural settlements. The systematic excavation works began in 2002 and have been intensified since 2014, when a research project entitled “Rzeczka – the ancient terra incognita” (Settlement micro-region in the area of Ułow in Middle Rzeczka in the prehistory and its background. Interdisciplinary studies) obtained financial support from the National Science Centre in Poland. The main scope of the research is the reconstruction of processes behind prehistoric settlements in this area based on interdisciplinary investigations, including archaeological, anthropological, geomorphological, and archaeobotanical research, among others. In this area, the archaeological site 3 is especially interesting when taphonomic problems are considered. It was largely investigated and showed evidences of long-term occupation since the Late Palaeolithic and Mesolithic until the Middle Ages. However, the majority of archaeological features belong to the Late Neolithic Corded Ware culture and a cemetery of the Roman period Welbark culture. The taphonomic problems were initially revealed by anthropological studies, which documented a large variety of wetted taxa and indicated preferences in their use in specific types of archaeological features. A group of selected charcoal samples were used for radiocarbon dating, especially those coming from various types of archaeological features and those that differed taxonomically. The results showed that a group of features with evidences of burning activities and with a small amount of archaeological material, which previously were interpreted as refuseory 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 intensity of settlement dated to the early and late stages of the Middle Ages, which was not hitherto assumed by singular dated objects according to the relative chronology. The results from the current study show that a full reconstruction of the different phases of multicultural archaeological features is only possible by the implementation of a complementary and interdisciplinary approach.
Exceptional discovery was made in the stratigraphically older layer of calcareous clay, where unusual pottery was located. Radiocarbon dates of the organic tempar from pottery correspond with the end of 7th and beginning of 6th millennium BC. The pottery is technologically remarkable. 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 Škáavné 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.

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**TH5-02 Abstract 17**

**Regional correlations of destruction layers using Earth’s magnetic field: The Levant case study**

*Author:* Hassul, Erez, Hebrew University, Jerusalem, Israel  
*Co-author(s):* Agnon, A., Hebrew University, Jerusalem, Israel (Presenting author)  
*Co-author(s):* Marcus, S., Tel-Aviv University, Tel-Aviv, Israel  
*Co-author(s):* Nowaczyk, N., GFZ, Potsdam, Germany  
*Co-author(s):* Zuckerman, S., Hebrew University, Jerusalem, Israel  
*Co-author(s):* Feininkel, I., Tel-Aviv University, Tel-Aviv, Israel  
*Co-author(s):* Maier, A., Bar-Ilan University, Ramat-Gan, Israel  
*Co-author(s):* Shahack-Gross, R., University of Haifa, Haifa, Israel  
*Co-author(s):* Shari, R., Hebrew University, Jerusalem, Israel  
**Keywords:** Destruction layers, Paleomagnetism, Stratigraphic correlation  
**Presentation Preference:** Oral

The temporal variations in Earth’s magnetic field have been recorded in fired artifacts and can provide independent tests for radiocarbon and typology. Cooking installations used continuously before particular calamities in different sites should show similar magnetization directions. If their constituent ferromagnetic minerals are appropriate for the method, the magnetization direction is measured with respect to the geographic north (declination) and the horizon (inclination). Correlation can be tested by inclination, declination, or both. We test correlations between ovens sampled in-situ within individual destruction layers at the modern archaeological site of Ustedalen (350 square km covering Late Bronze and Iron Ages (13th-8th centuries BCE)). During parts of the time, radiocarbon calibration severely limits temporal resolution of absolute dating. By contrast, the magnetic field in the Levant shows extreme fluctuations. The data supports the overall stratigraphic picture and demonstrate the potential of future studies to resolve some of the uncertainties and discrepancies between alternative chronologies.

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**TH5-02 Abstract 18**

**Applying silence and sound to environmental reconstruction; frameworks, applications, implications**

*Author:* Prof. Lindstrøm, Torill Christine, University of Bergen, Bergen, Norway (Presenting author)  
*Co-author(s):* Zubrow, Ezra, Univ. at Buffalo, Buffalo, United States of America  
*Co-author(s):* Lindstrøm, Torill Christine, University of Bergen, Bergen, Norway  
**Keywords:** archaeoacoustics, methodology, sounds, soundscapes  
**Presentation preference:** Oral

Culture and the Environment are noisy. The formation of sites within their environments is never quiet. However, the past is silent. It was not until the nineteenth century that one could hear sounds from the past. Admittedly, language-notation began about five millennia ago and music-notation about a millennia 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.

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**TH5-02 Abstract 19**

**Not separating wheat from chaff: considerations for differential recovery of charred plant remains**

*Author:* O’Meara, Don, Newcastle, United Kingdom (Presenting author)  
**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 archaeological sites in Northern England where the rates of recovery from the washover and the heavy residue have been compared. In this region finds of charred cereal remains may often be sparsely distributed in archaeological contexts, and will not meet the required number of elements recommended to conduct applications such as multivariate analysis. It is argued that due to differences in settlement patterns and geology the recovery of archaeobotanical remains in northern England is in many ways distinct to those in southern England. The presentation will discuss the differential recovery of chaff and grains that have been observed by the presenter, as well as the differential preservation and recovery of hazelnut shell. It highlights some of the methodological problems this creates when classifying sites as being ‘producer’ or ‘consumer’ sites, as well as broader debates such as the nature of wild and domestic plant consumption in prehistory. The presentation highlights the varied types of recovery from within a relatively small geographic area (England), and asks participants to consider how this might affect supranational, or transcontinental interpretations. Concludes by drawing novel ways in which broad site interpretation might be used for both macro- as well as micromorphological analysis.

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**TH5-02 Abstract 20**

**Deciphering formation processes of the urban Dark Earth: a geoarchaeological approach**

*Author:* Dr. Nicosia, Cristiana, Université Libre de Bruxelles, Bruxelles, Belgium (Presenting author)  
*Co-author(s):* Devos, Yannick, Université Libre de Bruxelles, Bruxelles, Belgium  
*Co-author(s):* Vrydaghs, Luc, Université Libre de Bruxelles, Bruxelles, Belgium  
**Keywords:** Dark Earth, Phytoolith 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 (Devos et al., 2013; Vrydaghs et al., in press).

**References:**


ja.2015.09.004

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TH5-02 Abstract 21
Plant macroremains as proxies to understand formation processes in lakeshore settlements
Author - Dr. Armin Feld, Integrative Prehistory and Archaeological Science, Basel, Switzerland (Presenting author)
Co-author(s) - Toma, C., Frauenfeld, Switzerland; Römer, C., Basel, Switzerland
Keywords: lake shell sediments, lake sediments, plant macroremains

Understanding how such heat conditions can be maintained during destruction of mud brick structures in currently under study. Of 2-3 hours of constant heat, conducted from all directions, is required in order to produce the patterns identified on site. Further experimentation with modeled mud bricks revealed that a minimum destruction event can be untangled to components such as spatial temperature patterns and directions of architectural collapse, oxygen level conditions. The resultant fired model bricks were further tested for mineralogical changes under these various sun-dried mud bricks. In order to understand the manner in which sun-dried mud bricks behave during a conflagration event, scientists developed specific quantification criteria that can be applied in a rapid yet informative way. The data were evaluated on the basis of ubiquity, and through qualitative evaluations of the spatial distribution of the variables (with GIS maps). The results seem to allow a clear distinction between well-preserved parts of the layer and eroded parts of the layer, including parts that were eroded in connection to lake influence in opposition to other erosive processes. These results make us suggest that such evaluations should continue to take place in the future if proper palaeoeconomic evaluations of archaeobotanical remains are to be done.

TH5-02 Abstract 22
Unravelling Formation Processes Associated with Destruction by Fire
Author - Shahack-Gross, Ruth, Haifa, Israel (Presenting author)
Co-author(s) - Forget, M.C.L., Kimmel Center for Archaeological science, Rehovot, Israel
Co-author(s) - Shai, R., The Hebrew University, Jerusalem, Israel
Co-author(s) - Hassul, E., The Hebrew University, Jerusalem, Israel
Co-author(s) - Marco, S., Tel-Aviv University, Tel-Aviv, Israel
Co-author(s) - Finkelstein, I., Tel-Aviv University, Tel-Aviv, Israel
Co-author(s) - Agnon, A., The Hebrew University, Jerusalem, Israel
Keywords: Destruction by fire, Formation processes, Geoaarcheology

TH5-02 Abstract 23
Material culture and formation processes in archaeology
Author - Dr. Jose Luis, Solaun, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain (Presenting author)
Co-author(s) - Akatsuka, Agustin, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain
Co-author(s) - Escriche, Pablo, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain
Presentation Preference - Poster

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 correctly 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 late 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 these 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 24
The Archaeological Stratigraphic Sequences of the Vitava River Valley
Author - MA Kucharik, Milan, Labry o.p.s., Praha 9, Czech Republic (Presenting author)
Co-author(s) - Blazkova, Tereza, Labry o.p.s., Praha 9, Czech Republic
Keywords: Geoarchaeological archive, settlement episodes, Stratigraphic sequences

Archaeological terrains located on the left bank of the Vitavvariver in the Czech Republic are the unique “geoarchaeological archives”. These sites are threatened with current building development. But archaeologists don’t always give them so much attention it deserved. Their importance lies especially in the chronological record, integrity of unique archaeological findings and opportunities to study their genesis. We are constantly monitoring the occurrence of these layers on the left bank of the Vitava River in Prague (parts Sedlec, Dejvice and Bubeneč). We are talking about geomorphological temperate eastern slopes of the hills and foothills of the Upper Šýkra height. Local stratigraphic sequence captures the settlement from the Paleolithic to the present. It often has a character of a coastal “Tell” and has generally polycyclic origin. According to the current knowledge on the river terrace there is situated layer stratigraphy of the loess loams containing Upper Paleolithic finds and this layer is overlaid by Holocene layers composed mostly by the dark loams containing remains of archaeological cultures/from the Neolithic period to the present. Preserved stratigraphic layers have thickness from 0.5 to 1.9 meters and in parts of transverse depressions it may be substantially more thicker. The aim of this paper is to show how the oldest data sources to the object of interest and to assess the state of current research.

Nowadays it is possible to comment the genesis of stratigraphic sequences only on the basis of macroscopic observations made during the archaeological rescue researches. On sites shown we can see, that development of the layers in preshistic stratigraphic sequences may have a different time frames. On the example of the research in the street Poříček in Prague- Podbabá (2011) can be seen each episode of this formativ process. It’s clear that there are rotating episodes of rapid deposition of sand most matrix/sand loose expressions of chronology probably in the intercan between the various episodes of settlement and cultural layers formed “in situ”, which are documented with up to 16 episodes of the residential settlements and waste overlaid by fine sediment. For a more detailed understanding of the development of the stratigraphic sequences in a timeframe is necessary to undertake the results of the excavations to a more through multidisciplinary research.
TH5-02 Abstract 25

EcoPlis: characterizing the prehistoric human occupations in the Lis River Basin (Portugal)

Author - Evora, Marina, ICA/EBH, Setubal, Portugal (Presenting author)
Co-author(s) - Pereira, Telmo, ICA/EBH, Faro, Portugal
Co-author(s) - Carvalho, Víctor, CML, Leiria, Portugal
Co-author(s) - Holiday, Trenton, Tulane University, New Orleans, United States of America
Co-author(s) - Monteiro, Patricia, ICA/EBH, Faro, Portugal
Co-author(s) - Pires, Eduardo, ICA/EBH, Faro, Portugal
Co-author(s) - Marreiros, Jolicoeur, ICA/EBH, Faro, Portugal
Co-author(s) - Assis, Sandra, CIAE, Coimbra, Portugal
Co-author(s) - Dias, Rita, ICA/EBH, Faro, Portugal
Co-author(s) - Duarte, Carlos, IPPC Universidade Cantabria, Santander, Spain
Co-author(s) - Matias, Rosarino, NAP UALG, Faro, Portugal
Co-author(s) - Farias, Ana, NAP UALG, Faro, Portugal
Co-author(s) - Nora, David, NAP UALG, Faro, Portugal
Co-author(s) - Branco, Rute, NAP UALG, Faro, Portugal
Co-author(s) - Dias, Rita, ICA/EBH, Faro, Portugal

Keywords: EcoPlis, Human occupation, Prehistory

Presentation Preference - Poster

The Lis River Basin, located in central Portugal, is an ecotone between the coast and the inland mountains. The unique conditions for highly preservation of both organic and inorganic materials make it a key region to acquire high-resolution data from both geological and archaeological contexts, fundamental for understanding features of hominin behaviour, such as mobility, site use, adaptive strategies and resource exploitation, namely from the highly productive coastal environment.

Besides hundreds of open-air sites, this basin also has hundreds of caves and rockshelters, many of them with sediments reaching their roofs and with clear evidence of human occupation. In those already tested it was possible to recognize well-preserved multi-occupational archaeological layers, several types of artefacts made in organic and inorganic materials and also human burials. In 2015, the EcoPlis research project was started with the goal of find and characterize, with the highest resolution possible, the complete sequence of the Middle and of the Upper Palaeolithic occupations in the Western-most Eurasia. Among other things, the project aims to contribute significantly for the understanding of the period between the demise of Neanderthals and their replacement by Modern Humans. In our first year, we found over 50 new caves and rockshelters with sediments, found artefacts dated from the Aurignacian to the Châtelperronian and start the excavation of two caves and a rockshelter. Our approach includes the 3D piece-plottting of all viable finds without a cut-line, the complete flotation of the sediments from archaeological layers and samples for phytoliths and parasites. Among other things, we found multiple entrances with human remains in a same short valley and in a same cliff that may correspond to two Early Pleistocene mortuary complexes, a dense shell layer in a Palaeolithic site located over 25 km from the present seashore and, thanks to our protocol, we could recognize fine lenses of deposition of the natural and archaeological remains in a same archaeological layer that will allow us to create detailed diachronic and synchronic snapshots of the human occupation and ecodynamics of this region throughout its Prehistoric occupation.

TH5-02 Abstract 26

Palynological contribution for formation processes reconstruction in a Neolithic pile dwelling site

Author - Revetill, Jordi, Universitat Autonoma de Barcelona, Bellaterra (Barcelona), Spain
Co-author(s) - Burjachs, Francesc, ICREA, Barcelona, Spain
Co-author(s) - López-Buti, Oriol, Universitat Autonoma de Barcelona, Bellaterra (Barcelona), Spain (Presenting author)
Co-author(s) - Piñol, Raquel, Universitat Autonoma de Barcelona, Bellaterra (Barcelona), Spain
Co-author(s) - Palomo, Antonio, Universitat Autonoma de Barcelona, Bellaterra (Barcelona), Spain
Co-author(s) - Terrades, Xavier, Institució Milà i Fontanals-CSIC, Barcelona, Spain

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 flocks, etc. In addition, the integration of both bioarchaeological 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 (Sorona, 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

Author - Dr. Waters-Rist, Andrea, Leiden University, Leiden, Netherlands (Presenting author)
Co-author(s) - Losey, Robert, Department of Anthropology, University of Alberta, Edmonton, Canada
Co-author(s) - Khairanski, Artur, Institute of Archaeology, Institute of Archaeology, Russia
Co-author(s) - Nomokonova, Taliya, The University of British Columbia, Vancouver, Canada

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 horse, sheep, goats and cattle, is poorly known. This research presents the first stable carbon and nitrogen isotope dietary reconstruction of Cis-Baikal pastoralists (n=55), with 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, sheep, goat, cow, deer). As well, every pastoralist skeleton is examined for paleopathological evidence of trauma, disease, and morphological alteration.

Isotopic results demonstrates 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 11.9 to 18.0‰, which is two to three trophic levels higher than the domesticated fauna (mean ~4.0 to 5.0‰), with slightly lower δ15N values in individuals from later periods. Pastoralists from the Buturkhei period have stable carbon values that are 2.0 to 4.0‰ less negative than the domesticated fauna, which can be explained by consumption of freshwater vegetation. In some later period pastoralists δ13C values become even more negative, which, in conjunction with lower δ15N 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 more complete skeletons, by far the most common pathological lesions are osteoarthropathy of the spine and degenerative disc disease (n=9) and spondylosis of the fifth lumbar vertebrae (n=3). One older male had a healed tibia-fibula fracture and two individuals had genu varum.

In the Cis-Baikal region, the ancient diet included fish species and possibly also on the Baikal freshwater seal. In particular, Cis-Baikal pastoralists have stable nitrogen ratios from 11.9 to 18.0‰, which is two to three trophic levels higher than the domesticated fauna (mean ~4.0 to 5.0‰), with slightly lower δ15N values in individuals from later periods. Pastoralists from the Buturkhei period have stable carbon values that are 2.0 to 4.0‰ less negative than the domesticated fauna, which can be explained by consumption of freshwater vegetation. In some later period pastoralists δ13C values become even more negative, which, in conjunction with lower δ15N 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.

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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 skeletal 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 on individuals. Human remains (N = 164) 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 Münsingen (Mohgaddam et al. 2016) were included for comparisons.

All data were analysed for sex, age, regional and chronological differences within and between the burial sites. Stable isotope data 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 δ13C and δ15N 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 led to distinct patterns of crop cultivation and animal husbandry. No significant differences could be detected between males and females as shown for Münsingen. Regarding the age classes the δ15N values follow an isotopic trend indicating a breastfeeding signal for infants. The δ18O data suggest a more terrestrial based diet with minor consumption of freshwater fish. Differences in the δ18O data might reflect different local δ18O 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

Author - Marker, Anne, University of Tuebingen, Tuebingen, Germany (Presenting author)
Co-author(s) - Bocherens, Hervé, Department of Prehistoric Sciences, University of Tuebingen, Tuebingen, Germany
Co-author(s) - Wahl, Joachim, State Office for Cultural Heritage Management Baden-Wuerttemberg, Konstanz, Germany
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 Alamanni. 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 rurality of the 5th-8th century AD and so far only sparsely researched. 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. Tect (N = 62), Neresheim (N = 54)) and the separate necropolis of Niederstotzingen (N = 105) 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 Niederstotzingen indicate socio-cultural dynamics, when 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 - Dr. Blaszczyk, 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 inhabitants became part of a nobility combining the rights and responsibilities of the chieftainship. The chamber graves were characterized by having an inner wooden construction in a form of a chamber and were often furnished with numerous and luxurious grave goods.

Such burial sites were places of eternal rest for men, women and children. For the study of the diet and the provenance we examined samples of bone collagen and tooth enamel from individuals buried in chamber graves as well as samples from ordinary human graves and animal remains as a background. The obtained results suggest that individuals buried in 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 interred in ordinary graves. However, the diet consumed by men and women buried together in double graves differed significantly.

TH5-03 Abstract 07
A paleoecological and isotopic approach to dietary changes in medieval Holland

Author - Schats, Rachel, Leiden University, Leiden, Netherlands
Co-author(s) - Waters-Rist, Andrea, Leiden University, Leiden, Netherlands
Co-author(s) - Hamm, Lk.van, Leiden University, Leiden, Netherlands (Presenting author)
Keywords: dietary cairns, 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 came 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 δ15N ratios and had more variable δ13C 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 δ15N 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 isotopes values. This likely reflects the universal biophysiological 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 rarer in the female diet, that did not shift their δ13C 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 omnivores of high trophic levels in the diet could have contributed to the observed dietary shift. This study demonstrated that the integration of paleoecological 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. Lathtinen, 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 a way to estimate the mobility patterns. It is based on assumption of strong correlation between strontium isotope ratios in environment and human calcified tissues.
THIS-03 Abstract 09

Diet, morbidity and mortality of a north Finnish town 1600–1800 AD

Author - Professor Nunez, Milton, University of Oulu, Helsinki, Finland (Presenting author)

Co-author(s) - Comes, Pau, Institut de Ciència i Tecnologia Ambientals, Universitat Autònoma de Barcelona, Bellaterra, Spain

Co-author(s) - Colonese, André Carlo, BioArCh, Department of Archaeology, University of York, York, United Kingdom

Co-author(s) - Dolanski, Olga, Institute of Anatomy, University of Oulu, Helsinki, Finland

Co-author(s) - Economou, Christos, Stockholm University, Stockholm, Sweden

Co-author(s) - Krzewińska, Małgorzata, Poznań University, Poznań, Poland

Co-author(s) - Kylián, Aron, Gamla Uppsala, Uppsala, Sweden

Co-author(s) - Lopez Costas, Olalla, Universidad de Santiago de Compostela, Santiago de Compostela, Spain

Co-author(s) - Lopez-Costas, Diana, University of Santiago de Compostela, Santiago de Compostela, Spain

Co-author(s) - Niskanen, Markku, University of Oulu, Helsinki, Finland

Co-author(s) - Niinimäki, Jaakko, University of Oulu, Helsinki, Finland

Co-author(s) - Niinimäki, Sirpa, University of Oulu, Helsinki, Finland

Co-author(s) - Nunez, Milton, University of Oulu, Helsinki, Finland

Co-author(s) - Rial Tubío, Marcela, University of Santiago de Compostela, Santiago de Compostela, Spain

Co-author(s) - Subirá, Jordi, Universitat Autònoma de Barcelona, Bellaterra, Spain

Presentation Preference - Oral

Keywords: genetics, immunity, leprosy

The town of Kemi (c.65°N 25°E) has been a small but relatively important town in southern Finnish Lapland since the 16th century. The morbidity and mortality of its inhabitants has been studied on the basis of death records that contain the statistics of nearly 7000 individuals that died in Kemi between 1690 and 1850. These death records include the individual’s name and profession, the date of death, the age at 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 Häkkikappila (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 isotope analyses in order to obtain information about possible pathological features and the diet. Zoosearchaeological 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.

THIS-03 Abstract 10

Dietary variability among earliest domesticated pigs in the Iberian Peninsula

Author - Navarrete, Vanessa, Universitat Autònoma de Barcelona, Bellaterra, Spain (Presenting author)

Co-author(s) - Subirá, M. Eugènia, GRAPAC, Unitat d’Antropologia Biològica, Departament de Biologia Animal, Biòleg, Bellaterra, Spain

Co-author(s) - Colomé, André Cario, BioArCh, Department of Archaeology, University of York, York, United Kingdom

Co-author(s) - Comes, Pau, Institut de Ciència i Tecnologia Ambientals, Universitat Autònoma de Barcelona, Bellaterra, Spain

Co-author(s) - Rosell, Antoni, Institut de Ciència i Tecnologia Ambientals, Institut d’Antropologia Clàssica i Prehistòrica, Bellaterra, Spain

Co-author(s) - Saña, María, Laboratorio de Arqueoquímica, Departamento de Prehistoria, Universitat Autònoma de Barcelona, Bellaterra, Spain

Keywords: early Neolithic, foddering strategies, stable isotopes

Presentation Preference - Oral

Dietary variability among earliest domesticated pigs in the NE Iberian Peninsula (5700–3550 cal BC): a stable isotopic perspective

Domesticated pigs (Sus domesticus) played an important role in the early Neolithic economy of the western Mediterranean. Studies from the Iberian Peninsula reveal that their exploitation followed a systematic pattern oriented to the production of meat, for example with animals slaughtered between the age of 18 to 24 months. This pattern appears relatively homogeneous over 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 5700–3550 cal BC, for carbon and nitrogen stable isotope analysis. The results reveal remarkable dietary diversity 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 and climate, and suggests that the different occupation phases within settlements, differences between settlements point to the diverse importance of pig management in husbandry practices. We discuss the implications for understanding management strategies during the regional development of the Neolithic economy in the NE Iberian Peninsula.
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, pyrolys-OC-MS and proteomics. All these methods are used under the umbrella of bioarchaeological approaches, since they study the chemical, physical, geological, and biological properties of bones and teeth. Their most usual pursed 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 analyze in skeletons are in fact approximations (i.e. proxies) of the multiple processes governing bone and tooth formation and degradation.

My own research started in the field of Physical Anthropology with emphasis in osteological variation and paleopathology. In the last years, I have been more involved in the application of biogeochemical techniques, discovering their utility in unraveling pre-mortem characteristics and how complementary their data are with more classic macroscopic approaches. I also realized that less attention has been paid to the role of post-mortem processes (diagenesis) on the chemical transformations of bones and their effect on pre-mortem signals.

Despite the advances in every specific field, and with few exceptions, most of the investigations have been highly disciplined, 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 “Paleoecol. 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 environment, past and present. All this work is meant to help in understanding the context of human health, disease and mortality, which is the focus of paleopathology.

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. In order to contextualize nuns’ diet, 13 faunal specimens were also analyzed including sheep (7), Gallus (3), pigs (2) and marine fish (1, catharhoid).

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 3σ range (9.6-6.6‰). This may be reflecting the wide variation of ecosystems surrounding the site including some areas with saline geological materials (e.g. continental salt mines). No correlation has been found between the size of the sheep and their isotopic signal. Gallus also show a quite large variation on δ15N, while pig values are more homogenous. Terrestrial animals δ15N ranges from -18.7% to -21.0% including herbivores, which suggests a low intake of C4 plants in some of them. In contrast to humans, δ13C values are within a limited range (-17.6% to -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 nun’s 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 δ15N due to autolytic degradation of proteins. The paleopathological study also supports the assumption of a very austere life, e.g. musclemasskeletal stress markers and osteoarthritsis have a high presence in the sample. This intriguing hypothesis demands more research to understand the most intimate life of the female inhabitants of the cloisters in their way to find God.

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 have been estimated from 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 nun’s diet, 13 faunal specimens were also analyzed including sheep (7), Gallus (3), pigs (2) and marine fish (1, catharhoid).
Since 1983, excavations at the site of Montiel (Spain) had led to the discovery of two cemeteries, representing two socially and culturally distinct societies: 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 manner. The results obtained confirm the results obtained with historical sources.

The nature and location of dietary components determine their specific geochemical composition which passes on through the food chain and is archived in consumers’ bones. The Muslim and Christian skeletal remains can therefore be used as witnesses of individual’s dietary habits and preferences, at least for the last years to decades before their death, as a result of the bone modelling throughout life. The mineral part of the bone (bioapatite) registers the geochemical composition of all the dietary constituents (lipids, carbohydrates and proteins), while the composition of the bone organic component (collagen) reflects the geochemistry of ingested protein. The geochemical analysis of both bone biocollagen and collagen can therefore provide a detailed picture of the subsistence strategies adopted by the late medieval populations buried at Montiel.

These dietary strategies will be discussed regarding the type of plant resources, inferred from bone carbon isotopic ratios (δ13C), the origin of water supply, deduced from bone oxygen isotopic ratios (δ18O), as well as individual’s trophic level position, addressed using bone nitrogen isotopic ratios (δ15N). While these isotopic tools have been routinely employed in past dietary studies and measured using an RMS, bone Sr/Ca and Ba/Ca ratios were also analysed to provide additional information on the trophic level, marine food consumption, as well as potential mobility. Bone Sr, Ba and Ca contents were measured using a cutting-edge technique (LA-ICP-MS) that enables us to create spatial high resolution maps of bone trace element concentrations and target preferential bone histological features which might be preserved from post mortem alteration.

This study also investigates the geochemical composition of contemporary faunal remains (ca. 10 individuals from each period studied) from neighboring settlements, with a view to establish a modern environmental geochemical baseline for each analytical proxy applied, and to enable the discussion of the Muslim and the Christian economy in Montiel.

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 investigations of the excavated skeletal remains were carried out. It corroborates the knowledge gained from archaeological, anthropological, radiological, odontological and genetic investigations. The research was based on visual inspection, stereomicroscopic investigation, classic radiology. The research was supported by computer tomography imaging (CT) to obtain digital images and 3D reconstructions as well as 2D images. DNA investigations continue.

The burial site of the Strzyzow Culture in Rogalin contains 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 archaeological 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 analysis allowed to establish sex of the children - 2 males and 5 females. The sex of two individuals (children) is unknown. DNA investigations continue. 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 analysis allowed to establish sex of the children - 2 males and 5 females. The sex of two individuals (children) is unknown. DNA investigations continue. Interdisciplinary investigations of the excavated skeletal remains were carried out. It corroborates the knowledge gained from archaeological, anthropological, radiological, odontological and genetic investigations. The research was based on visual inspection, stereomicroscopic investigation, classic radiology. The research was supported by computer tomography imaging (CT) to obtain digital images and 3D reconstructions as well as 2D images. DNA investigations continue.
Initially the genetic profiles obtained from the remains of the graves 10A - “The Warrior” and 10B - bone fragment derived from a child pointing a parent-child relationship. However the genetic profiles obtained were incomplete so it was very difficult to define the relationship type. In later stages of the project it has again carried out a genetic analysis of the remains of the graves 10A and 10B, with another bone fragment (10A grave). The results of this new analysis provided a more complete genetic profile and confirmed the earlier presumptions of parent-child relationship. In the analysis of mitochondrial DNA (mtDNA), the same haplotype mtDNA were observed among individuals of the graves 4B and 10B, and the graves 3A and 5, which may define their kinship in the maternal line. Estimates haplogroups (hg) of mtDNA in these relationships are H1b and H2a respectively. In addition, mtDNA haplotypes have been obtained in the analysis of the graves 2, 4B and 12. Preliminary results indicate that individuals belonged to haplogroups U5b1, 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 analysis from a wide range of archaeology-related and anthropological-medical fields can assist studies and broaden the knowledge of archaeologists and anthropologists to enhance the understanding of the Strzyzow Culture.
TH5-04 Abstract 02

First evidence of mobility levels from Bronze Age cremation burials in Hungary

Author - Dr. Andre Tóth, University of Leicester, Leicester, United Kingdom (Presenting author)
Co-author(s) - Dr. Van de Steeg, Van de Steeg, University of Antwerp, Antwerp, Belgium

Keywords: Cremation, Mobility, Radiocarbon

Presentation Preference - Oral

This paper presents the results of the first analysis of mobility in cremated human remains from the Early Bronze Age in Hungary. The cremation burials from the Early Bronze Age are well-represented in the archaeological record, but until now, we lack evidence of mobility. Using high-resolution X-ray tomography (MDCT), we were able to demonstrate that a small number of the cremated remains contained tiny cremated bone pieces within their cremation burial. The cremations from four different grave sites were used in this study, and we present the results from two of them.

TH5-04 Abstract 03

Cremated Dating? Case studies for the dating of Bronze Age cremation burials from Hungary

Author - PhD Kowal, K., University of Cambridge, Cambridge, United Kingdom (Presenting author)
Co-author(s) - Dr. Milligan, C.E., California State University, Chico, Chico, United States of America

Keywords: Cremation, Dating

Presentation Preference - Oral

Cremation, as a burial practice, has been a common practice in the Carpathian Basin during the Early and Middle Bronze Age. The scientific value of cremated remains is undervalued due to the small amount of calcinated bones and the microfragmentation of human bones that provide only limited bioarchaeological information. We present the results of the first analysis of mobility in cremated human remains from the Early Bronze Age in Hungary. Using high-resolution X-ray tomography (MDCT), we were able to demonstrate that a small number of the cremated remains contained tiny cremated bone pieces within their cremation burial. The cremations from four different grave sites were used in this study, and we present the results from two of them.

TH5-04 Abstract 04

The Role of MDCT in the Stratigraphic Study of Ancient Cinerary urns

Author - Dr. Sebastian Wagner, Stockholm University, Stockholm, Sweden (Presenting author)
Co-author(s) - Dr. Milligan, C., California State University, Chico, Chico, United States of America

Keywords: Cinerary urns, Radiocarbon

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 cremation ritual and end with the deposition of the ashes in the definitive burial place. The difficulties related to the study of the funeral rites of cremation are essentially connected with the quantity and quality of information that can be obtained. The stratigraphic analysis of the inner contents 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-excision 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-excision 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 07

Up in Flames: Animals, People, Identity and Cosmology in Anglo-Saxon East Anglia, UK

Author - Rainsford, Clare, University of Bradford, York, United Kingdom (Presenting author)

Presentation Preference - Oral

Human and animal co-burials are a critical resource in zooarchaeology, presenting instances where a personal connection can be demonstrated between people and animals. Animal remains have been recognised in 5th to 7th century cremations in eastern England from an early date, and systematic analyses in the 80s and 90s of high-profile sites such as Spong Hill, Norfolk, have served to demonstrate the frequency, diversity and value of these inclusions. Yet, the information from cremated animal remains is persistently under-exploited, due to difficulties on the one hand of accurate identification, and on the other of paltry retention of material from antiquarian and later excavations.

As analysis of animal remains in cremation burials becomes more common (although still far from universal), the increasing quality and 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: Beaker, 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 anomalies. No comprehensive study has been carried out, and there is no characterisation of what the Chalcolithic cremation record really involved.

The evidence in radiocarbon dating of cremated remains has led to a wealth of new evidence that can shed light on Beaker period burial practices and the nature of indigenous-Beaker interactions. This poster presents a new project aiming to characterise the burial practices of Beaker Period Britain, with a discussion of the initial results for evidence of mortuary diversity in Scotland.

TH5-04 Abstract 09

Advances in 14C dating of cremated bones

at HEKAL Laboratory, Debrecen, Hungary

Author - Major, István, MTA ATOMKI, Debrecen, Hungary (Presenting author)

Co-author(s) - Dani, József, Déri Museum, Debrecen, Hungary
Co-author(s) - Kiss, Viktória, Institute of Archaeology Research Centre for the Humanities, Budapest, Hungary
Co-author(s) - Kutucs, Gabriella, Institute of Archaeology Research Centre for the Humanities, Budapest, Hungary
Co-author(s) - Patay, Róbert, Ferencyz Museum, Szentendre, Hungary
Co-author(s) - Szabó, Gáza, Wissinsky Mór Museum, Székeskőrd, Hungary
Co-author(s) - Vizi, Gábor, Institute for Archaeological Sciences, Eötvös Loránd University, Budapest, Hungary
Co-author(s) - Tátrai, Marianna, MTA ATOMKI, Debrecen, Hungary
Co-author(s) - Fulbi, István, MTA ATOMKI, Debrecen, Hungary

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 biotapha. The effective separation of the phases to be dated and the secondary calcite seems to be a challenge for researchers due to its identical chemical formula. Nevertheless physical and chemical changes which occur during the cremation process make cremated bones less susceptible to this type of contamination. In spite of all the difficulties a huge demand is shown for a reliable biotapha 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 have liked to adopt a method for 14 C dating of biotapha 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 biotapha samples, after the repetitive rinse with sodium hydroxide and acetic acid step, the crushed and sieved samples were reacted with phosphoric acid. The revealed CO2 gas was subsequently purified from other gases, graphitized by sealed tube method and its 14C content was finally measured by the MICADAS AMS. Based on our first results fractions with different particle size (0.2-0.3 and 0.5-1 mm) yielded identical carbonate content and 14C age results. However, comparing the age of the three parallel biotapha samples, it was proved to be the same, that to organic fraction a difference of 200-400 years was experienced presumably due to the chemical pre-treatment.

On this poster we would like to present both the evolution of our carbonate pre-treatment protocol and dating problems arisen in the case studies of the presentation entitled “Cremated Dating”? Case studies for the dating of Bronze Age cremation burials from Hungary.

TH5-04 Abstract 10

Excavator bias and laboratory techniques of cremation burials

Author - Mgr. Míčka, Antonín, Institute of Archaeology Research Centre for the Humanities, Budapest, Hungary (Presenting author)

Co-author(s) - Vizi, Gábor, Institute for Archaeological Sciences, Eötvös Loránd University, Budapest, Hungary

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-excision; sieving of burial infill. We used eight burials from Jablčoň, Předmostí site (Czech Republic) for the purpose of the study. Four burials were preserved and four burials were micro-excavated and scanned by CT. Burials under the study comprised "pit" burials, urn burials and urn-sherd burials. Results show significant bias caused by possible indecates handling by the excavator. The most useful method for analyzing highly fragmented burnt bone appears to be computer tomography (CT) together with micro-excision. When only CT is used, the precise bone identification is not possible, whereas during micro-excavation tiny objects like metal slags can be overlooked, dislocated fragments lost, and burial volume measured imprecisely. Combination of the two methods ensures that the excavator reconstructs activities of past populations and not results of his/her own procedure.

TH5-04 Abstract 11

Cinerary urns radiology and knowledge sharing: a web-based “paleopacs” proposal

Author - Innocenti, Dante, Monfalcone, Italy

Co-author(s) - Simoniti, Francesco, Research Unit of Paleoradiology and Allied Sciences LTS- SCIT, Azienda Sanitari, 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, QCT, CBCT etc.), is possible to carry out a non-destructive study of the cinerarium and its cremated remains in someway comparable with laboratory micro-excision. 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.
On the basis of this experience is possible to project and build a PACS dedicated to paleoarchaeological and archaeological images and data, filling the gap of the actual relative paucity and dispersion of the paleoarchaeological studies. This operation is not trivial because many specific problems must be solved as standardization, architecture, reliability and sharing rules of the system. A web-based, open source paleoPACS project and prototype with a section devoted to radiology of ancient cineraria is analyzed and presented.

TH5-04 Abstract 12
Complexities and considerations for the analysis of cremated remains
Author - Nicholls, Rebecca, University of Bradford, Bradford, United Kingdom (Presenting author)
Keywords: Complexity, Cremation, Strategy
Presentation Preference - Poster

This poster discusses the complexities of examining cremated bone, drawing upon examples from urnfield cemeteries in Slovenia, and Early Iron Age cemeteries in northern Croatia. Approximately 350 sets of cremated remains have been analysed as part of the ENTRANS (Encontres and Transformations in Iron Age Europe) Project. These assemblages have undergone a range of excavation and post-excavation strategies, the results of which have raised questions regarding the analysis of burnt human remains. This poster addresses the importance of context when interpreting graves containing cremated remains, as well as more practical considerations, such as the likelihood of obtaining age and sex data. Another crucial aspect when examining cremated remains is the recognition of animal bone. Commonly, the remains of animals may be removed as part of the post-excavation sorting process, but the identification of species and oxidation level can contribute to wider interpretations of funerary practices in the past. Although the analysis of cremated human bone can be problematic, this study demonstrates the benefits of investigating cremated remains as a method of elevating our understanding of funerary processes in the past.

TH5-04 Abstract 13
Cremated Human Remains of the Late Roman period of the Middle Volga Region, Russia
Author - Makarova, Ekaterina, Khalikov Institute of Archaeology, Kazan, Russian Federation (Presenting author)
Keywords: Komarovo burial ground, the Late Roman period, the Middle Volga Region
Presentation Preference - Poster

The research focuses on human remains from Komarovo burial ground (the first half of the 6th - the first half of the 7th centuries). The excavations have been conducted since 2013. Currently, 21 cremated burials have been unearthed. These burials can be divided into three groups: human, animal and mixed burials. Four burials among them can not be attributed to any of the groups due to fragmentariness and small amount of bones remained.

Human burials. The maximum size of the fragments does not exceed 40-50 mm. The total weight of bones varies from 150 to 850 grams. As regards the colour characteristics, the bones of white and pale-grey colour predominate. The colorimetric scales comparison revealed the maximum temperature of cremation that did not exceeded 700° C.

In a number of cases, the remains contain transverse fractures, frequently in a curvilinear pattern, and more irregular longitudinal splitting. These features bear an evidence that the bodies were cremated during the first months after death, when bones still contain lipids and organic elements. Animal burials. Two burials were attributed to this group. Unfortunately, the species were not identified within the framework of this research. The maximum total weight of bones in such burials was 1 kilogram. The colour characteristics analysis showed the simultaneous presence of steeply burned, unburnt and white bones, indicating that the temperature of cremation varied from the lowest to over 800° C.

Besides the remains with thermal deformation and fissures, these burials also contain burned ‘dry’ bones, dehydrated and delipated at the moment of cremation. Mixed burials. The third group contains human and horse remains, with two burials contain inhumations with animal bones. The first one contains the fragments of pelvic skeleton of horse, the second one – the pelvis, the scapula, metapodial of horse. The colour analysis of the identified human remains found the same features specific to the first group. The cremation temperature for the animal remains did not exceed 300° C.

The gender and age of cremated people was identified in 14 cases. Only one of them was a 7-8 years old children. Other burials belonged to adults. The majority of them was 45-65 years old women. Only two burials contain remains of men. The unsufficient state of conservation, fragmentation and the lack of necessary morphological markers made impossible the gender determination in 5 cases.

The further studies of Komarovo burial ground will include the application of natural scientific methods, namely spectral analysis for defining human and non-human remains, histological bone structure analyses for age determining and the analysis of the 87Sr/86Sr ratio for migration processes in the local level.

TH5-04 Abstract 14
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 burials in ancient Britain and their implications of cultural exchange are not well established. This multi-disciplinary 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 - Gouedard-Schumann, Doris, Université de Bordeaux, Pessac, France
Co-author(s) - Kacki, Sacha, Anthropologie des Populations Passées et Présentes, Université de Bordeaux, Pessac, France
Co-author(s) - Keller, Marcell, Max Planck Institute for the Science of Human History, Jena, Germany
Co-author(s) - Law, Christina, University of Nottingham, Nottingham, United Kingdom

Keywords: Diachronic perspective, Plague

Presentation Preference - Regular session

TH5-05 Abstract 01

The Biology of Yersinia pestis and Plague in the 21st Century

Author - Dr. Latham, Wynham, Northwestern University, Chicago, United States of America (Presenting author)

Keywords: disease, epidemiology, plague

Presentation Preference - Oral

There are 3 species of Yersinia that cause disease in humans: Yersinia enterocolitica, Y. pseudotuberculosis, and Y. pestis. While Y. enterocolitica and Y. pseudotuberculosis cause mild, self-limiting gastrointestinal infections, Y. pestis is responsible for the rapidly progressing, invasive, and often fatal disease called plague. Although Y. pestis is thought to have killed over 200 million people throughout history, it is a relatively “young” pathogen, only recently emerged from Y. pseudotuberculosis between 5,000 – 20,000 years ago. In this presentation, we will discuss the types of infections and diseases specifically caused by Y. pestis, its modes of transmission, both between fleas and mammal as well as between mammals, and provide an overview of plague in the 21st century, including information on why plague continues to be disease of worldwide concern.

TH5-05 Abstract 02

From Mild to Murderous: How Yersinia pestis Evolved to Cause Pneumonic Plague

Author - Dr. Latham, Wynham, Northwestern University, Chicago, United States of America (Presenting author)

Co-author(s) - Zimbler, Daniel, Northwestern University, Chicago, United States of America
Co-author(s) - Eddy, Justin, Northwestern University, Chicago, United States of America
Co-author(s) - Schroeder, Jay, Northwestern University, Chicago, United States of America
Co-author(s) - Ritter, Jeremy, Northwestern University, Chicago, United States of America

Keywords: evolution, plague, pneumonias

Presentation Preference - Oral

How do new pathogens emerge, and how do these pathogens take advantage of host processes and pathways to cause disease? Yersinia pestis, the etiological agent of plague, is a recently emerged clone of the gastrointestinal pathogen Y. pseudotuberculosis, but the specific genetic changes that enabled Yersinia to cause the respiratory disease known as pneumonic plague are not well understood. By using a mouse model of respiratory infection combined with comparative genetic and genomic studies between 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 pneumonic plague.

TH5-05 Abstract 03

Fleas, Rats and other Stories - The palaeoecology of the Black Death

Author - Panagiotakopulu, Eva, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)

Keywords: fleas, palaeoecology, plague

Presentation Preference - Oral

Bubonic plague is a disease which involves various animal vectors and hosts and its ecology is both complex and of importance in terms of its spread and virulence. The origin of the Black Death is central to its better understanding and can throw light on the medieval pandemic and later epidemics. This paper discusses the ecology and biogeography of bubonic plague and looks into the natural history and palaeoecology relating to its vectors, primary and secondary. Xenopsylla cheopis and other flea species and hosts, the e.g. Aniceriths nitidus and Rattus rattus. The possible origins of the disease and its connection with the first urban centres of Egypt and Mesopotamia are discussed taking into account climatic, environmental and archaeological evidence. 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.

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)

Co-author(s) - Allentoft, Morten, Center for Geogenetics, Copenhagen, Denmark
Co-author(s) - Nielsen, Kasper, Technical University of Denmark, Kgs. Lyngby, Denmark
Co-author(s) - Orlando, Ludovic, Center for Geogenetics, Copenhagen, Denmark
Co-author(s) - Sikora, Martin, Center for Geogenetics, Copenhagen, Denmark
Co-author(s) - Sjögren, Karl-Göran, University of Gothenburg, Gothenburg, Sweden
Co-author(s) - Jeukens, Kristian, University of Gothenburg, Gothenburg, Sweden
Co-author(s) - Willerslev, Eske, Center for Geogenetics, Copenhagen, Denmark

Keywords: ancient DNA, paleogenomics, plague

Presentation Preference - Oral

The bacterium Yersinia pestis is the etiological agent of plague and has caused human pandemics with millions of deaths in historic times. How and when it originated remains contentious. Here, we report the oldest direct evidence of Yersinia pestis identified by ancient DNA 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 recordings of pandemics. Our findings open the possibility of identifying other blood borne 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).

TH5-05 Abstract 05

Plague in the eastern Mediterranean region 1200-1000 BC?

Author - Prof. Wall, Lars, University of Oslo, Institute of Basic Medical Sciences, Department of Physiology, Oslo, Norway (Presenting author)

Keywords: demographic crises, Mycenae, plague

Presentation Preference - Oral

How do new pathogens emerge, and how do these pathogens take advantage of host processes and pathways to cause disease? Yersinia pestis, the etiological agent of plague, is a recently emerged clone of the gastrointestinal pathogen Y. pseudotuberculosis, but the specific genetic changes that enabled Yersinia to cause the respiratory disease known as pneumonic plague are not well understood. By using a mouse model of respiratory infection combined with comparative genetic and genomic studies between 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 pneumonic 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 period 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.

L. Wallig: Was the disruption of the Mycenaean world caused by repeated epidemics of bubonic plague? Oopuscula Archaeologica 38 (2015) 121-130


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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 near the Mediterranean some 1,500 years before the Justinianic Plague therefore calls for a reevaluation of the evidence for plague in Antiquity before the Justinianic Plague. This paper will report the conclusions of a close philological study aimed at uncovering what evidence there is for plague in the medical sources of antiquity, specifically, the Hippocratic Corpus, Rufus of Ephesus, and Galen. The picture that emerges from these medical sources is that Y. pestis was unknown to medical writers until around the first century AD as documented by Rufus of Ephesus report a disease that resembles plague. The plague remains familiar to medical authors from the first century BC to the end of the first century AD, when both Rufus and Aretaeus both demonstate 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 ποιμία (poumí) to describe glandular swellings appears twelve times in the Hippocratic Corpus, none of these twelve instances suggest that these boubomés are plague buboes as opposed to other glandular swellings. A passage by Rufus of Ephesus that has been preserved in the Medical Collections of Orbaisus contains the first description of a disease that we can confidently identify with plague. Rufus calls the disease "pestilential boubōnes" and details it in a way that suggests it is the bubonic plague, and that it is the same disease described by Yersinia pestis 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.

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TH5-05 Abstract 09

Analysis of a High-coverage Yersinia pestis Genome from a 6th Century Justinianic Plague Victim

Author - Feldman, Michal, Max Planck Institute for the Science of Human History, Jena, Germany (Presenting author)
Co-author(s) - Harbeck, Michaela, State Collection of Anthropology and Palaeoanatomy, Munich, Germany
Co-author(s) - Syropu, Maria Max Planck Institute for the Science of Human History, Jena, Germany
Co-author(s) - Trautmann, Bernd, State Collection of Anthropology and Palaeoanatomy, Munich, Germany
Co-author(s) - Keller, Marcel, Max Planck Institute for the Science of Human History, Jena, Germany
Co-author(s) - Rott, Andreas, State Collection of Anthropology and Palaeoanatomy, Munich, Germany
Co-author(s) - Scholz, Holger, Bundeswehr Institute of Microbiology, Munich, Germany

Keywords: ancient DNA, phylogenetics, plague of Justinian

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) and the subsequent waves from the 14thth century pandemics and the post-Black Death 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 images that caused the Plague of Justinian and the Black Death 800 years later were independent emergences from rodent species. These results show that rodent species work as 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.

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TH5-05 Abstract 08

Early medieval burials of plague victims: examples from Aschheim and Altenierung (Bavaria, Germany)

Author - Dr. Gutsmiedl-Schumacher, Doris, Freie Universität Berlin, Berlin, Germany (Presenting author)
Co-author(s) - Harbeck, Michaela, Department of Anthropology State Collection for Anthropology and Palaeoanatomy, Munich, Germany
Co-author(s) - Keller, Marcel, Department of Anthropology State Collection for Anthropology and Palaeoanatomy, Munich, Germany
Co-author(s) - Pfäffgen, Bernd, Ludwig-Maximilian's-University Munich, Munich, Germany
Co-author(s) - Rott, Andreas, Department of Anthropology State Collection for Anthropology and Palaeoanatomy, Munich, Germany

Keywords: early medieval cemetery, Justinianic Plague, Upper Bavaria

Presentation Preference - Oral

With this paper, we present burials from two early medieval cemeteries, Aschheim-Beawerening and Altenierung/Klettham, where the causative agent of plague, Yersinia pestis, could be detected palaeogenetically.

The burials from the early medieval cemeteries of Aschheim-Beawerening and Altenierung/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 rites 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 [...] (Picrosopo, del Bello Persico II 23, 10). On the contrary: the burial rites, as far as reconstuctable, had been carefully conducted. The only difference that is the far confirmed victims of the plague seem to have been more often buried in double or multiple burials. However, the screening of single burials is still in an early stage.

The Justinianic Plague was nevertheless a disease that affected Europe in the Late Antiquity, but its occurrence appears not everywhere as catastrophic as the written sources make us believe.

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TH5-05 Abstract 07

Placing the Plague of Justinian in the Yersinia pestis phylogenetic context

Author - Klein, Jennifer, McMaster University, Hamilton, Canada (Presenting author)
Co-author(s) - Wagner, David, Northern Arizona University, Flagstaff, United States of America
Co-author(s) - Sahl, Jason, Northern Arizona University, Flagstaff, United States of America
Co-author(s) - Gruel, Guillaume, Max Planck Institute for the Science of Human History, Jena, Germany
Co-author(s) - Wägslacher, Nicholas, McMaster University, Hamilton, Canada
Co-author(s) - Holms, Edward, The University of Sydney, Sydney, Australia

Author - Klein, Jennifer, McMaster University, Hamilton, Canada (Presenting author)
Co-author(s) - Wagner, David, Northern Arizona University, Flagstaff, United States of America
Co-author(s) - Sahl, Jason, Northern Arizona University, Flagstaff, United States of America
Co-author(s) - Gruel, Guillaume, Max Planck Institute for the Science of Human History, Jena, Germany
Co-author(s) - Wägslacher, Nicholas, McMaster University, Hamilton, Canada
Co-author(s) - Holms, Edward, The University of Sydney, Sydney, Australia

Co-author(s) - Poirier, 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) with waves continuing from the 14th centuries and the post-Black Death 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 images that caused the Plague of Justinian and the Black Death 800 years later were independent emergences from rodent species. These results show that rodent species work as 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.
Science and multidisciplinarity in archaeology

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 Justianinic Pandemic 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 Justianinic 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 mass graves from Valencia, concern about the proper burial of bishops “in their own place” suggests an institutional reaction to the plague pandemic and the breakdown of traditional burial practices. The evidence, however, is not straightforward. The paper is divided into three parts. The first analyzes the canon within the context of debates on the care of the dead in Late Antiquity. The second studies the archaeological evidence for burials in Valencia, both those of bishops within the sixth-century ecclesiastical complex and the mass graves that are currently being documented. The third reflects methodologically on the potential for integrating church documents and funerary archaeology. This study will use the concatenation of evidence from Valencia to both chart a specific instance of the Late 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 zoarchaeological approach

Author - MA Pavlos, Provatochos Dimitrios, Ludwig-Maximilians-Universität München, Munich, Germany (Presenting author)
Keywords: Black Death, livestock keeping, size

Presentation Preference - Oral

Zoarchaeology 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 demographcal changes. Zoarchaeological 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 (1347–1352) hit the European continent, causing long-term social and economic changes. The focus of the present paper is on German late-Medieval and Reg sites. In two particular finding sites, the zoological 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.

TH5-05 Abstract 13
A demographic history of the plague bacillus revealed through ancient Yersinia pestis genomes

Author - Spyrou, Maria, Max Planck Institute for the Science of Human History, Jena, Germany (Presenting author)
Keywords: bubonic plague, mass graves, Spain

Presentation Preference - Oral

The mid-14th century Black Death epidemic reverberated across Europe, having significant impacts on the population which shaped social, economic, and political dynamics in the years to come, and leaving its selective mark on the surviving populations from a genetic standpoint. The epidemic has since captured the attention of an interdisciplinary following of researchers, with core interests in the social and biological impacts and the disease etiology, amongst other areas. It is estimated that up to 50% of the population was lost over the course of the epidemic in Denmark, but up until now little bioarchaeological or molecular work has been done on the disease in Denmark. As an acute infection, the Black Death epidemic left no diagnostic anatomical signs on the skeletal remains of medieval populations. Thus far, our understanding of this pandemic relies on historical accounts and on modern clinical understandings developed from more recent outbreaks of bubonic plague (a disease caused by Yersinia pestis, which is one of the prime contenders for the causative agent of Black Death). In reality, the causative agent of one of the most significant epidemic crises in recorded history is still an incredibly contentious subject, and our understanding of the circumstances affecting the health of populations around the period of the Black Death epidemic is limited. Yersinia pestis has been identified in Black Death cemeteries in Europe, but thus far, no published work is available from Denmark. By building a better understanding of the pathogen load of the populations in Denmark at the time of the Black Death crisis, as well as before and after the epidemic, it will be possible to gain a better understanding of the role Yersinia pestis may have played in the population, and of the immune changes and responses to the epidemic. The current paper presents preliminary results from an international team combining bioarchaeological and molecular methods to gain a better understanding of the epidemiological patterns surrounding the Black Death epidemic in Denmark.
Bacterial Cartography and Historiography of Plague

Author: Eaton, Katherine, McMaster University, Hamilton, Canada (Presenting author)
Co-author(s): Klunk, Jennifer, McMaster University, Hamilton, Canada
Co-author(s): Varlık, Nükhet, Rutgers University, Newark, United States of America
Co-author(s): Poimar, Hendrik, McMaster University, Hamilton, Canada

Keywords: ancient DNA, historic disease spread, medieval plague

Presentation Preference - Poster

There is tremendous variation in the proposed routes of historical plague due to the sparseness and ambiguity of mortality records. In addition, the majority of these contemporaneous sources are non-specific with regards to the cause of death. To address these limitations, genetic data from ancient pathogens provides a unique line of evidence for identifying and mapping the spread of disease. Ancient DNA (aDNA) in combination with archival documents stands to contribute a novel perspective by focusing the analytical lens on the bacterium Yersinia pestis, the etiological agent itself. This study aims to critically examine how aDNA and the evolution of Y. pestis can be used to reconstruct the movement of plague in medieval Europe. An exploration of the strengths and weaknesses of genomic research will serve to evaluate how aDNA of Y. pestis can contribute to a holistic framework of plague research, in which both the human and bacterial components are examined. Ultimately this research will assess to what extent archival-based models and molecular reconstructions of plague provide complementary or contrasting narratives of disease spread. The identification of key questions that can be suitably addressed through the evolution of ancient pathogens will serve to conclusively highlight the collaborative potential of interdisciplinary plague research.

TH5-06 Abstract 01
Mid-Holocene settlement complexity in Northern Ostrobothnia, Finland

Author: Pesonen, Petro, National Board of Antiquities, Helsinki, Finland (Presenting author)

Keywords: 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 housepit sites were later inspected in terrain. A total of 481 new housepit sites were recorded during field survey thus bringing the River Siikajoki area to one of the densest occurrences of pithouses in the country; only rivalled by similar areas in the River Ijoki (Karjalan) and River Kemijoki (Torniäsa) 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.

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): Kalatić, 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 newly-discovered tell sites. The huge amount of data obtained by aerial cyclical recording and remote sensing has been related to the data obtained by field surveys. Such large datasets require to be structured into GIS databases (Big Data issue) which will make the basis for a brighter image of the prehistoric landscape in the eastern Croatia.

TH5-06 Abstract 03

Exploring the subsoil of the wide area of Mont'e Prama (Cabras, Sardinia, Italy)

Author - Dr. Trogò, Antonio, University of Cagliari, Cagliari, Italy (Presenting author)
Co-author(s) - Prof. Ranieri, Gaetano, University of Cagliari, Cagliari, Italy
Co-author(s) - PhD Loddo, Francesco, University of Cagliari, Cagliari, Italy
Co-author(s) - PhD Piroddi, Luca, University of Cagliari, Cagliari, Italy
Keywords: Mont'e Prama, Multichannel GPR, Wide Area Prospection
Presentation Preference: Oral

40 years ago, an archaeological discovery occurred by chance in the Mont'e Prama region situated near the village of Cabras, in the Sinis peninsula (Sardinia, Italy). Only recently (March 2014) after a long difficult restoration the famous stone statues of Mont'e Prama were presented to the public in two different museum contexts (Cagliari and Cabras).

The old archaeological digs concluded after performing excavations tests and trenches in every direction with the idea that the discovery was accidental and did not extend further.

From 2013 to 2015 a wide geophysical campaign was carried out both in the archaeological site of Mont'e Prama and its surrounding areas.

During 2014, an archaeological dig (20x10 metres) was done on the basis of the geophysical results. This digs gave very important findings of various kinds like tombs, baetylai of very great dimension, models of nuraghe and almost intact stone statues.

The analysis of the relationships between findings and their related anomalies clearly showed some typical shapes of the anomalies. The main kinds of findings, particularly tombs and baetylai, showed characteristics anomalies that are repetitive all over the excavated area.

Starting from these remains, all the QPR data acquired during the entire survey, from 2013 to 2015, over an area of about 12 hectares, were analysed to detect patterns which matched those identified in the excavated area. Basing on this kind of approach, it was possible to try an interpretation of the QPR data also in the unexcavated areas.

The whole pattern and extension of archaeological remains show that in the site of Mont'e Prama the archaeological area is wider than the excavated one. It is plausible to suppose that tombs and other kinds of anomalies exist at least for hundreds of metres both northward and southward from the archaeological digs.
Remote Visibly? The Search for Communities 

The project utilises lidar survey to examine the wider landscape, integrating it with targeted geophysical survey to engage with early medieval society at a more localised community level. From filling in 'gaps' in the landscape to identifying new features, advanced remote sensing techniques have helped us to understand how the landscape actually changes in dramatic ways with the establishment of ecclesiastical sites of varying scales, and the appearance of known protohistoric surface sites, and show that settlement densities have been seriously underestimated. At the Monte San Nichilo hilly, a large-scale magnetometer survey on the site of the Pto-Peisochene marine terraces landscape (50-500m a/s) resulted in a set of circular pit-like anomalies which, after an intensive fieldwalking survey, could be related to defuse pottery of the Late Bronze Age / Early Iron Age. Now believed to be a 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 Damale, where soils consist of schists and marls (700-1000m a/s), 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 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 to any magnetic anomaly and natural magnetic anomalies would be distinguishable. We discuss several examples of grid and ungrid on-site MS surveys to demonstrate the effect and implications of this approach.

This paper presents the preliminary results (and challenges) of a remote sensing research project focused on early medieval landscapes and communities in two number of case studies in Ireland. Exposing the wealth of concerned documentary evidence, the project utilizes lidar survey to examine the wider landscape, integrating it with targeted geophysical survey to investigate key sites and their relationship with their neighbouring settlements.

Love, hate and "vicious circles" of noninvasive methods

Non-invasive techniques in Poland are viewed as pre-extraction prospecting 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 fully fledged, though alternative, research tools enabling the study of past landscapes and societies. A multitude of recent archaeological landscape projects that have taken place in Europe show that such pigeonholing is a definite sign of underused potential. Landscape studies take into account data from territorial units unfaithfully even to rescue excavations, allowing the study of large spatial structures within macro regional contexts. They also deal with important (cultural) activities that do not manifest in clear physical forms. Indeed, non-destructive methods mostly fail at procuring material culture and chronological evidence, however they excel in the recognition of cultural features not definable by traditional approaches and also shed new light on heavily researched subjects, often dramatically changing their interpretation.

The integration of new methods and approaches is a topic of a long and heavily polarised national debate with a growing group of strong proponents and even more opponents. It is focused on the justification of non-invasive techniques in archaeology. Main arguments "against" revolve around pointing out that lack of chronological data makes excavations necessary anyway, therefore making i.e. geophysics a costly extravagance, draining funds from "real archaeology". Not enough attention is paid to exploring the extremely convenient situation where (cultural-historical) A2K readily available data can be combined, compared and evaluated with new non-invasive datasets, potentially bypassing limitations and complementing both approaches. This submitters hold the key of the "Hidden Cultural Landscapes..." project.
One interesting feature of the 15 settlements along the Vårde 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 differs considerably from other areas in West Jutland where the settlements are situated more sparsely. The Vårde 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 the Bay and the Wadden Sea. The settlements are registered mainly as pit-house croppernaks, and a few display longhouses in combination with pit-houses. The pit house is the common element, a feature that often is connected with crafts. The spatial location along the stream does seem to add to such propositions, but the interesting questions relate to factors of control and power. Did someone force this structure on the settlements or does the settlement location indicate a normalized resource area? Do the pit-house sites indicate settlements or do the sites represent a specialized function? These questions are of great importance for this particular period in the Danish prehistory, 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. New, due to the aerial archaeological data, it might be possible to contribute to, or deconstruct, these assumptions.

TH5-06 Abstract 10
The 16th century In Depth Defenses of the Nissan River Valley Revealed by Remote Sensing
Author - Petersson, Claes B., Jönköping County Museum, Jönköping, Sweden (Presenting author)
Co-author(s) - Norburg, Gabriel B. N., Office of the Governor of the Royal Palaces, Stockholm, Sweden
Keywords: 16th century warfare, LIDAR, Remote sensing
Presentation Preference - Oral

In the late autumn of 1567, during the Nordic Seven Years War, a large Danish army crossed the border and marched into southern Sweden, wreaking havoc on the lands of the enemy. The outnumbered defenders were unable to offer any serious resistance for about a week, thus giving the invasion force free access to the Nissan River Valley – one of the main roads to central Sweden. From a raw overview 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 ‘fled waste’ in the written sources. However, this could have been avoided. A well planned system for defense in depth was established before the war. But the war happened and the Nissan Valley had to be defended by a few small villages. The area has been built in strategic positions along the river valley at a distance of about one day’s march from each other. Used correctly, these simple fortifications would have slowed down an invader, wasting his strength while giving the defenders time to gather reinforcements. But due to a number of circumstances this did not happen in 1567. Instead the unfortunate peasants got in harm’s way.

The remains of these defenses and their historical importance went almost unnoticed until recently. The research project Getarygen 1567 broadened its scope after having located and investigated a battlefield from the conflict. By using combination of written sources, LIDAR surveys, UAV and GPR it has been possible to trace both the preparations made by the Swedish forces and the tracks of the Danish army. Careful analysis of LIDAR data explains why certain sites were chosen as defensive positions or used for temporary camps. It has proven to be the most effective method for mapping settlements that vanished during the events 450 years ago. The importance of remote sensing for the Getarygen 1567 project cannot be overstated. In a densely forested landscape, very different from what it looked like in the mid-16th century, modern techniques have made it possible to investigate a military campaign and even interpret its consequences. By doing so, we can begin to understand the true conditions of the local population in a border region. People that were subject to recurring warfare and destruction, suffering with a situation too many parallels to our own time!

TH5-06 Abstract 11
Above and below the surface. The use of Remote Sensing in studying the former landscapes
Author - Michał Jakubczak, Polish Academy of Sciences, Warszawa, Poland
Co-author(s) - Zalewska, Anna, Polish Academy of Sciences, Warszawa, Poland (Presenting author)
Co-author(s) - Młyńcic, Tomasz, Independent Researcher, Lublin, Poland
Keywords: Central Poland, Great War, Remote sensing
Presentation Preference - Oral

*“Archaeological revival of memory of the Great War. Material remains of the life and death in trenches of the Eastern Front and the condition of the ever changing battlefield in the region of the Flawka and Bzura” is the scientific project, which reveals that archaeological methods can be extremely useful in reflecting also recent tragic episodes in the history of human and landscape entanglement. Three seasons of research made us realize how little is known about the material dimension of the Eastern Front of the Great War, despite numerous written sources. In our presentation we will focus on showing the ways in which the Advanced Remote Sensing Techniques can reveal the enormous amount of information as well about soldiers who found themselves in trenches of Great War and local communities touched by that war as about things and landscapes. We will try to expose, the fact, that archaeological methods including advanced remote sensing techniques are adequate and universal - regardless of whether they relate to material remains of Paleolithic hunter or last century soldier’s activities – only as long as they are driven by the relevant question. Without it, we never get a relevant answer The area of our field of research covers over 300 km². Our practices have enabled us so far to produce the questions which can give us an insight into the ways in which the fellowshipships and clashes of the soldiers, their life and deaths, influenced the analyzed landscape between 1914 and 1919. We will present the detailed results of archaeological research on selected sites related to Great War and recognized via aerial photography, LIDAR and geophysical surveys. By showing the cemeteries and remains of no man’s land in two different conditions - well preserved in woodland and destroyed by agriculture - we will elaborated the problem of a matching the particular Remote Sensing Technique to particular environmental conditions and b) necessity of enriching the traditional methods of excavations with Advanced Remote Sensing Techniques in order to gain a chance for more complete and complex understanding of ever changing landscape.*

TH5-06 Abstract 12
3D Photogrammetry/Videogrammetry in Underwater and Aerial Archaeology
Author - Prof. Dr. Block-Berlitz, Marco, HTW Dresden, Dresden, Germany (Presenting author)
Co-author(s) - Sahmich, Benjamin, HTW Dresden, Dresden, Germany
Co-author(s) - Wittchen, Dennis, HTW Dresden, Dresden, Germany
Co-author(s) - Diczka, Martin, HTW Dresden, Dresden, Germany
Co-author(s) - Dörke, Jan-Nickolas, German Archaeological Institute (DAI), Berlin, Germany
Co-author(s) - Suchoszewska-Dörke, Paulina, Adam Mickiewicz University, Institute for Prehistory, Poznan, Poland
Co-author(s) - Rojas, Raul, Freie Universität Berlin, Berlin, Germany
Keywords: 3D Reconstruction, Structure from Motion, Videogrammetry
Presentation Preference - Oral

Over the past few years, 3D reconstruction from images series (photogrammetry) or video streams (videogrammetry), using robust and fast software tools such as Structure from Motion (SfM) and Multi-View Stereo (MVS), has emerged as a dominant technique in archaeology. The usefulness of these tools is not limited to capturing digital models of single objects or in combination with Lidar data, but also in identifying the positioning of vehicles (UAV) documenting complete sites and excavation areas. Image-based 3D reconstruction is also a key technique for supporting processes of interpretation and decision making during ongoing field work. In addition, the use of photogrammetric solutions in Underwater Archaeology, using Unmanned Underwater Vehicles (UUVs) will be an important step for supporting archaeological research in flat waters and coastal transition zones that currently constitute some of the most sparsely documented areas of archaeological interest. However, as the volumes of 3D data increase, best-practice and efficient workflows move into focus, as do staff training and access to low-key, low-cost technology. Traditionally working under constraints of strictly limited time and financial resources, archaeologists are more and more turning to off-the-shelf hardware and free and open source software for data processing. Our contribution will show case several international case studies that demonstrate how low-cost UAV/UUVs, free software and well-designed workflows combine to enable archaeologists to capture monuments, sites or entire landscapes. Our technological focus is on the innovation transition from high-resolution, single-shot imagery to using large numbers of frames extracted from video streams. Despite the lower resolution of the latter, we believe them to be an ideal source of data for robust 3D reconstruction, due to superior recording speed and frame overlap.

TH5-06 Abstract 13
Digging into the Swiss Neolithic with Modern Methods – 3D Documentation and Biochemical Analyses
Author - Sliêka, Inga, Institute of Forensic Medicine, Bern, Switzerland (Presenting author)
Co-author(s) - Huber, Albert, Institute of Archaeological Sciences, Bern, Switzerland
Co-author(s) - Campana, Lorenzo, Institute of Forensic Medicine, Bern, Switzerland
Co-author(s) - Ramstät, Marianne, Archaeological Service of the Canton of Bern, Bern, Switzerland
Co-author(s) - Furtwängler, Anja, Institute for Archaeological Sciences, Tübingen, Germany
Co-author(s) - Krause, Johannes, Max Planck Institute for the Science of Human History, Jena, Germany
Co-author(s) - Lisch, Sandra, Institute of Forensic Medicine, Bern, Switzerland
Keywords: 3D documentation, biochemical analysis, Neolithic
Presentation Preference - Oral

Switzerland is known for the well studied settlement archaeology of the Neolithic period however up to now little is known about the population who inhabited those settlements. With the recent finding of a Neolithic dolmen near Bern a unique opportunity was provided to study Neolithic human remains. The project therefore focuses on dietary habits, migration and population dynamics and includes human remains of further Neolithic sites in Switzerland.
Since such exceptional findings have high scientific potential it is of great interest for an interdisciplinary project. Photogrammetry and 3D scanning were used as the documentation method at the excavation and allowed quick and detailed drawings of scaled plans. To keep the contamination of human remains as low as possible the excavators used various protection equipment.

The human remains are morphologically analysed, the minimal number of individuals is calculated, stable isotope analyses of the isotopes carbon, nitrogen, sulphur, oxygen, hydrogen, strontium and lead will be performed in order to investigate the dietary habits, possible migration patterns and climatic conditions of this time. Furthermore, the ancient DNA will be investigated for population genetics and also to gather information about phenotypes and genetic relationships.

Radiocarbon dating will be performed to shed light on the chronology of the burials.

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 RFBR № 14-06-90403 “Study of underground ancient necropolises of the Western and Eastern Crimea with the help of magnetic survey.”

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TH5-06 Abstract 14
A view from above: GIS and LIDAR vs. trowels and spades

Author - PhD student Daubara, Mantas, Lithuanian Institute of History, Vilnius, Lithuania (Presenting author)

Keywords: GIS, landscape archaeology, LIDAR

Presentation Preference - Poster

An ongoing research project focused on Varniai region (western Lithuania) is working towards understanding the use of prehistoric (Mesolithic, Neolithic namely) landscapes in this area of 274 km². The approach of surveying for new sites has been employed by means of GIS and LIDAR modelling as well as actual excavations. Here we present primary results of this endeavour as well as shortfalls of GIS and LIDAR modelling if it isn’t used together with an actual archaeological fieldwork.

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TH5-06 Abstract 15
Unique burials found in the ancient necropolises in Crimea with the magnetic survey in 2014-2015

Author - PhD Snekatev, Sergey, Tula State Law Tolstoy Pedagogical University, Saint-Petersburg, Russian Federation (Presenting author)

Co-author(s) - Vlasov, Vladimir, Institute of Archaeology of the Crimea, Simferopol, Crimea
Co-author(s) - Lantsov, Sergey, Institute of Archaeology of the Crimea, Simferopol, Crimea
Co-author(s) - Nemeryo, Ivan, Bakhchisaray historical, cultural and archaeological museum, Bakhchisaray, Crimea
Co-author(s) - Shapsug, Michail, Institute of Archaeology of the Crimea, Simferopol, Crimea

Keywords: late Scythians, burial items, gold jewelry, magnetic survey, North-Western Crimea, ancient necropolis

Presentation Preference - Poster

Excavations of the necropolises are extremely important for understanding the synchronous with the graves historical processes. The funerary objects, visible on the surface, in most cases repeatedly robbed. Situation with underground cemeteries, which are not visible on the surface, is different. Although they, too, went looting extensively in Crimea, but the invisibility of these objects, to some extent, protects them from robbers. But for the same reason they are difficult to detect for archaeologists too. One of the search options to such objects is the use of magnetic survey.

In 2014-2015 gg. researchers from Tula and Simferopol have carried out magnetic survey at several cemeteries of the Western Crimea. Excavations of the anomalies have revealed burials, which was not robbed, or, at least, not robbed in modern times.

In the necropolis of the settlement Dyani-Baba studied three not robbed ground children's graves with a variety of implementations and unique family stone cemetry with numerous graves of 1 C. BC. It was found numerous burial items, among which glass, pottery red and bronze objects. Among the non-Black Sea sink, numerous gold objects pointing dresses, pendants, rings. Another not robbed crypt was discovered in the necropolis of the ancient settlement Kutuch.

In the chamber of the crypt detected 8 adults burials, arranged in two tiers one above the other. The later burial of the upper tier are made in a stretched position on the back with a different position of the limbs. One burial was in a coffin, which is partially preserved the contours of wood decay and iron nails. Upper burial overlap the lower tier, which lay on the floor of the tomb chamber. Of these, in relative anatomical order remained only one skeleton, and the rest were in a fragmented state.

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.

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TH5-06 Abstract 16
Innovations in hardware and software for high resolution geophysical surveys

Author - Dr. Duchs, Benjamin, German Archaeological Institute (DAI), Berlin, Germany (Presenting author)

Co-author(s) - Lüth, Friedrich, German Archaeological Institute (DAI), Berlin, Germany
Co-author(s) - Kom, 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

Presentation Preference - Poster

Among the many types of sensors available for geophysical 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.

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 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 geophysical prospection at extremely high resolution with all data processing done transparently in open source GIS.

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TH5-06 Abstract 17
Identifying and Evaluating Neolithic Sites in Italy Using Aerial- and Ground-Based Remote Sensing

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

Co-author(s) - Alexander, Craig, None, Italy
Co-author(s) - Brown, Ken, Manchester University, Manchester, United Kingdom
Co-author(s) - Freund, Kyle, Indian River State College, Fort Pierce, United States of America
Co-author(s) - Hunter, Manuel, Graz University of Technology, Graz, Austria
Co-author(s) - Mattioli, Tommaso, ArcheoRes, Perugia, Italy
Co-author(s) - Ricci, Andrea, ArcheoRes, Perugia, Italy
Co-author(s) - Muntoni, Italo, Soprintendenza Archeologia della Puglia, Foggia, Italy

Keywords: early agriculture, remote sensing, Tavoliere

Presentation Preference - Poster

The Tavoliere of northern Puglia (southern Italy) was a dense area of early agricultural settlements in the Neolithic (ca. 6200-4000 BC) of western Europe and was, probably, the point of introduction into Western Europe of farming. Several hundred sites with ditched enclosures were initially identified from aerial reconnaissance photography following WWII, with more than 800 In today in an area of several hundred square kilometers. Starting in 2013, we have conducted walking surveys of more than 25 sites, collecting about 1200 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, painted 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 Palmario (about 230 km away from Taurian, Italy).
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 Diudica 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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**TH5-07  
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, Marnit, Free University of Brussels, Brussels, Belgium (Presenting author)  
Co-author(s) - Hunt-Watts, Holly, The University of Leeds, Leeds, United Kingdom

**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
  - Interpretations of diet/health:
    - Historical sources (e.g. demographic issues) vs. archaeological evidence
  - new scientific approaches (stable isotope studies, dental calculus, ...)

- **Discussions of the pros and cons of interdisciplinary research**

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**TH5-06 Abstract 18**

**Geophysical and Archaeological research on Late Roman Iron-smelting site at Virje (Croatia)**

**Author** - Medarić, Igor, Gearh d.o.o., Ljubljana, Slovenia (Presenting author)  
Co-author(s) - Mušič, Branko, Gearh d.o.o., Maribor, Slovenia

**Presentation Preference** - Poster

Archaeological site Virje is situated in the Croatian lowland, on the right bank of the upper course of Drava river. On a slightly sloped area named Sušine, parts of a primary iron processing smelting workshops were discovered and explored. Since these types of sites are quite rare in northern parts of Croatia, and in order to get a better understanding of the development and organization of the site, noninvasive methods were applied. With the help of magnetic method, measurements of magnetic 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 Diudica 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.
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 bioarchaeological approach has the potential to enrich our understanding of past dietary patterns by elucidating complementary trends at the macroscopic and the microscopic level.

**TH5-07 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 proxies. The skeletal remains yielded evidence of numerous anomalies including cribra orbitalia, suggesting the possibility of iron deficiency anemia, and spinal fusion typical of ankylosing spondilitis, which was rare. Approximately 10% of the individual yielded coprolites, which were examined for pollen, phytoliths, macrofossil remains, and faunal bone. The resulting dietary record was compared across males and females 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 alleles associated with this gene mutation is in progress. XRF analysis of dried human blood has detected elemental iron, which sequesters iron in bodily tissues rather than eliminating it (hemachromatosis). Ancient DNA analysis that will include mapping the alleles associated with this gene mutation is in progress. XRF analysis of dried human blood has detected elemental iron, which sequesters iron in bodily tissues rather than eliminating it (hemachromatosis). Ancient DNA analysis that will include mapping the alleles associated with this gene mutation is in progress. XRF analysis of dried human blood has detected elemental iron, which sequesters iron in bodily tissues rather than eliminating it (hemachromatosis). Ancient DNA analysis that will include mapping the alleles associated with this gene mutation is in progress. XRF analysis of dried human blood has detected elemental iron, which sequesters iron in bodily tissues rather than eliminating it (hemachromatosis). Ancient DNA analysis that will include mapping the alleles associated with this gene mutation is in progress. XRF analysis of dried human blood has detected elemental iron, which sequesters iron in bodily tissues rather than eliminating it (hemachromatosis). Ancient DNA analysis that will include mapping the alleles associated with this gene mutation is in progress. XRF analysis of dried human blood has detected elemental iron, which sequesters iron in bodily tissues rather than eliminating it (hemachromatosis).

In sickness and in health. A community in death from a Neolithic Megalithic tomb (La Mina, Spain)

**Author** - Rindlsbacher, Laura, Integrative Prehistory and Scientific Archaeology, Basel, Switzerland (Presenting author)

**Co-author(s)** - Rojo Guerra, Manuel A., Department of Prehistory and Archaeology, University of Valladolid, Valladolid, Spain

**Co-author(s)** - Pichler, Sandra, Integrative Prehistory and Scientific Archaeology, Basel, Switzerland

**Co-author(s)** - Dr. Knopper, Cornelia, Institut für Archaeometrie, Mannheim, Germany

**Keywords**: ancient diet, bone chemistry, elemental analysis

**Presentation Preference - Oral**

The theoretical basis for elemental analysis of human diet and mobility is well-established, yet until recently the number of studies done is few and far between. Instead, analyses of carbon, nitrogen, oxygen, and strontium isotope analysis have dominated "bone chemistry" studies over the last 25 years. Nevertheless, elemental analysis of calcium (Ca), iron (Fe), barium (Ba), strontium (Sr), lead (Pb), zinc (Zn), arsenic (As) and other elements can support and supplement isotopic-based interpretations, and be of significant use in cases where bone collagen is not preserved. Elemental analysis, however, has potentially greater concerns than isotope studies, due to degradation and contamination of the mineral portion of bone. Also, most previous elemental studies have been just as destructive, with samples well-cleaned,ashed, and put into solution for analysis by ICP spectrometry. Over the last decade, however, non-destructive desk-top and portable (hand-held) X-ray fluorescence (XRF) spectrometers have become widely available to archaeologists. While now regularly used for trace element analysis of obsidian and other lithics, and major element composition of metals, it appears potentially useful for studies of skeletal remains as well. In the United States and other 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.

**TH5-07 Abstract 04**

**Estimating 7R Variation to Develop Chronologies for Humans and Animals with Marine-Rich Diets**

**Author** - Dr. Kras, Anthony, University of Glasgow, East Kilbride, United Kingdom (Presenting author)

**Co-author(s)** - Jensen, Anne, Upaasak-g (aquapacorporation), Science LLC, Barrow, Alaska, United States of America

**Co-author(s)** - Hamilton, Derek, University of Glasgow, East Kilbride, United Kingdom

**Keywords**: Asian 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 Brink period (AD 100-900) 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 

**13C** values between -15.7‰ and -12.6‰, and high 

**15N** 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 Alaskan 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 (Alcubilla de las Peñas, Soria), dating to 3890-3660 BC, is one among the unique passages of the Iberian Peninsula. After the communal burial chamber had been sealed, the structure was dismantled, distinctly remodelled and monumentalized, thus becoming both a ceremonial site and territorial landmark. The tomb and its artificial funerary and human remains are in the focus of ongoing investigations focusing on cultural, social as well as bioarchaeological issues including DNA analyses (Rojo Guerra et al., 2015; Haak et al., 2015). The human skeletal remains (MNI=20) were commingled and highly fragmented due to the postdepositional remodeling, yet the osteological analyses still revealed decisive insights into the former community (Findelisbacher, 2015).

Neolithic megalithic tombs in Spain and other European regions held only a select group of individuals from among the community that buried 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 individual health or resilience after severe trauma might also have had an influence on the selection. Especially interesting are the distinct patterns of deficiency as well as the traces of infectious diseases which again vary between the sexes. The combined study of the demographic profile, pathologies, aDNA and the dietary data obtained in an ongoing stable isotope analysis will allow unique insights into the life histories and the health status of the social groups represented in the monumental 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:


In order to investigate diet and health in archaeological context one interdisciplinary concept – besides chemical and bioarchaeological research that provide information on specific circumstances in case studies – is the anthropometric approach, combining skeletal material and ecnometric methodology. This is a useful complementary tool, as the data compilation is not destructive as well as less expensive and, thus, less limited than for more complex methods. Employing human remains enables one, on the one hand, to distinguish between male and female individuals, constructing a masculinity index. And, on the other hand, to reconstruct mean height of a population as proxy for its net nutritional status. Correspondingly the anthropometric measure captures how well a society is able to provide adequate living conditions for the population (Kormos, 1998). Essential fact is that diet and health (subsumed as the net nutritional status: WHO, 1995) are closely interrelated to social and cultural behaviors respectively towards socio- economic-cultural status and identity. Important aspect to consider in this framework is that also a socially continued differentiation of gender roles and related inequality in entitlements and distribution bears the danger to directly affect diet and health. As most pre-industrial societies tended to be patriarchically organised gender-related inequality potentially meant a disregard of the female part of the population (Horrell, Meredith & Oxley, 2009). Female discrimination can result in either immediate feminicide after birth (George, 2006; Klasen & Wink, 2002; Otiso, 2006) or in the general neglect of girls on different levels (public endowments, household allocations) concerning diet and health; correspondingly it can result in a discrimination of nutritional status between females and their male contemporaries during their growth years. If significant this affects height dimorphism and health disparities later in life (Bogin, 1999; Ewalt & Tanner, 1978; Frongillo & Begin, 1993; Harris, G. & Machado, 2009; Moradi & Guntupalli, 2009; Sabir & Elbrahim, 1984). In this context, two aspects are of interest for the long-run development of well-being of the total population: (1) the variation in gender inequality and its immediate effect on the net nutritional outcome. (2) the potential of an extended burden of malnutrition in females affecting also the whole next generation – via hampered foetal development of either sex due to the ‘small uterus effect’ and inadequate maternal care also for the offspring to endure malnutrition (Barber, 1995; Currie & Vogel, 2013; Damzen & Ben, 2010) which can cause an inter-generational trajectory in health- and cognitive human capital. In this paper I will attempt to provide information on the trajectory of gender-specific inequality in different regions of Europe in ancient times compared to pre-historic and later centuries. In order to do this I compiled observations for the 28 countries of Europe that belong to the 1888 (CBS) to 14th century CE that I employ comparative observations differences in the ratio of male to female individuals survived until adulthood (measuring the female deficit) as well as the variation in relative: (1) the potential danger of an extended burden of malnutrition in females affecting also the whole next generation – via hampered foetal development of either sex due to the ‘small uterus effect’ and inadequate maternal care also for the offspring to endure malnutrition. The observation of differences in the ratio of male to female individuals survived until adulthood (measuring the female deficit) as well as the variation in relative: (1) the potential danger of an extended burden of malnutrition in females affecting also the whole next generation – via hampered foetal development of either sex due to the ‘small uterus effect’ and inadequate maternal care also for the offspring to endure malnutrition. (2) the potential danger of an extended burden of malnutrition in females affecting also the whole next generation – via hampered foetal development of either sex due to the ‘small uterus effect’ and inadequate maternal care also for the offspring to endure malnutrition. (3) the potential danger of an extended burden of malnutrition in females affecting also the whole next generation – via hampered foetal development of either sex due to the ‘small uterus effect’ and inadequate maternal care also for the offspring to endure malnutrition. (4) the potential danger of an extended burden of malnutrition in females affecting also the whole next generation – via hampered foetal development of either sex due to the ‘small uterus effect’ and inadequate maternal care also for the offspring to endure malnutrition. (5) the potential danger of an extended burden of malnutrition in females affecting also the whole next generation – via hampered foetal development of either sex due to the ‘small uterus effect’ and inadequate maternal care also for the offspring to endure malnutrition. Therefore, I compare the results of two different social groups from the Larina site, but not to compare the two genders. Subsequently, our

**THS-07** Abstract 06

A Relationship between Diet and Burial Rite at Neolithic Osłonki 1: d13C and d15N studies

**Author** - Dr. Budd, Chelsea, Burnwood, United Kingdom (Presenting author)

**Co-author(s)** - Bogucki, Peter, Princeton University, New Jersey, United States of America

**Keywords:** Neolithic Diet, Stable Isotope Analysis, Status Burials

Presentation Preference - Oral


- Oral
- Poster
- Presentation Preference - Oral

**Author** - Dr. Budd, Chelsea, Burnwood, United Kingdom (Presenting author)

**Co-author(s)** - Bogucki, Peter, Princeton University, New Jersey, United States of America

**Keywords:** Neolithic Diet, Stable Isotope Analysis, Status Burials

Presentation Preference - Oral

The introduction of agricultural subsistence practices is cited as one of the key turning points in human history (Hodder 1990, Whittle 1996, 2003, Thomas 1999). The consolidation of secondary farming practices however is comparatively understudied in the academic literature – even though it represents a critical step in the development of modern human populations. The development of secondary farming practices, and the subsequent development of food surplus, lead to greater periods of time dedicated to activities that were directly related to the social evolution of human populations (Currie et al. 2015).

- Oral
- Poster
- Presentation Preference - Oral

Science and multidisciplinarity in archaeology

**Author** - Batista-Goulart, Luana, CEPAM - Université de Nice Sofia Antipolis, Nice, France (Presenting author)

**Co-author(s)** - Seguí, Isabel, INED and CEPAM, Nice, France

**Keywords:** dental microwear, diet, bioanthropology

Presentation Preference - Oral

In the context of gender approach, we conduct an experimental study about the diet of women and men inside the same society. Previous works have shown that, sometimes, in past populations, women and men did not have access to the same kind and same quantity of food. Thus, the aims of our research are (1) to recognize if there is any difference in food consumption between the two genders, observed from the buried population of the cemetery Larina le Mollard (Hières-sur-Amby, Isère, France; 6th - 8th centuries A.D.), and (2) to reclaim a place for women in the past and to better know their role in this society.

To conduct this study we analyze dental microwear from a sample of exhumed skeletons. During the mastication, different types of foods leave different kind of marks on the teeth’s surface. Microwear analysis method has been used in a previous research to compare the diet of two different social groups from the Larina site, but not to compare the two genders. Subsequently, our
Regional differences in subsistence economy in 16-19th c.c. Lithuania: stable isotope evidence

Author - Skiptova, Raminta, Nature research centre, Vilnius, Lithuania (Presenting author)

Co-author(s) - Lüdin, Kerstin, Stockholm University, Stockholm, Sweden
- Eriksson, Gunilla, Stockholm University, Stockholm, Sweden
- Daugaron, Linas, Klaipeda University, Klaipeda, Lithuania
- Prižukuičienė, Gedrė, Lithuanian Institute of History, Vilnius, Lithuania
- Remekis, Vidmantas, Center for Physical Sciences and Technology, Vilnius, Lithuania
- Januškaus, Rimantas, Vilnius University, Vilnius, Lithuania

Keywords: diet, stable isotope

Presentation Preference - Oral

Stable isotope analysis now is a "golden standard" for studying variations in the past diet and life history. Previous studies performed in medieval Lithuania have shown that the human protein intake was mostly derived from C3 plants and C3 feeding animals and possibly some freshwater resources with little variation among young and adult individuals (Whitmore et al., 2014). In this study, stable isotope analysis of human skeletons from different populations representing various regions of Lithuania (16-19th c.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 in the countryside were able to farm their land and to be self-sufficient, while living in urbanized territories was quite different. Open markets and food supply from the outside enabled people to live out from other activities. Coastal community was characterized by the higher freshwater fish consumption. The availability of the food sources was much more restricted in the past compared with the modern time global supply. It was already determined in numerous literature sources that stable isotope ratios can differ according to the certain environment (e.g. terrestrial vs marine), therefore another aim of our study is confirmation of the possibility of allocating human remains to a particular site according to their stable isotope ratios.
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 Late Neolithic (north Anatolia, Samsun region, on the Black Sea coast), Titik Höyük (south east Anatolia, Urfa region), Bademagaci (south Anatolia, Antalya region), and Bakla Tepe (south west Anatolia, Ilim 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.

The study is a pioneer in that it has investigated the isotopic analysis of carbon and nitrogen stable isotopes (δ13C and δ15N) in bone collagen from several Early Bronze Age sites in Anatolia. The samples were taken from different regions of Anatolia, including north Anatolia, south Anatolia, and west Anatolia. The remains were analyzed using mass spectrometry to determine the isotopic composition of carbon and nitrogen in bone collagen.

The results of the study indicate that there are significant differences in the dietary habits of individuals from different regions of Anatolia. The study suggests that individuals from north Anatolia had a diet that was primarily based on plants, while those from south Anatolia had a diet that was more dependent on animal products. The study also found that individuals from west Anatolia had a diet that was more balanced, with a mix of plant and animal products.

This research has important implications for our understanding of the dietary habits of populations during the Early Bronze Age in Anatolia. It suggests that there were significant differences in diet between regions, and that these differences may have influenced the social and economic structures of these societies.

This research provides important insights into the dietary habits of populations during the Early Bronze Age in Anatolia. It challenges previous assumptions about the diet of these populations and suggests that there were significant differences in diet between regions. The study also highlights the importance of using quantitative scientific methods to address questions about dietary habits, and suggests that this approach is necessary to gain a more complete understanding of these societies.

**TH5-07 Abstract 16**
**Diet and identities in a mining community, Sweden - documents and isotopes**
*Author:* PhD student Bäckström, Ylva, Lund University, Lütört, Sweden (Presenting author)
*Co-author(s):* - Dr. Mispeilare, J., Uppsala University, Uppsala, Sweden
- Dr. Britton, K., King’s College, Aberdeen University, Aberdeen, Scotland, United Kingdom
- Dr. Ingvarsson-Bundström, A., Museum of Natural History, Uppsala University, Uppsala, Sweden
- PhD student Fjellström, M., Stockholm University, Stockholm, Sweden

**Keywords:** dietary patterns, the Reformation, late medieval-early modern identities, Säffeborg mining community, Uppsala Cathedral

**Presentation Preference:** Poster

What distinguishes the diet in late medieval and early modern society from today was a profound influence by religion and ideas about the body. During the 16th century, the Reformation brought forward a new dietary standard, which probably neither easy nor fast, and it took some time for people to adjust to this new regimen. In this paper, isotopes (stable nitrogen and carbon isotopes in collagen) and documentary sources are presented, and intra- and inter-population comparisons are made, to investigate this dietary shift and the influence of group identities on diet.

**TH5-07 Abstract 17**
**On the Diet of the Ural Population of the Great Migration Epoch**
*Author:* Prof. Matveeva, Natalia, Tyumen state university, Tyumen, Russian Federation (Presenting author)

**Keywords:** chemical analysis results of skeleton composition

**Presentation Preference:** Poster

This report proceeds the author's works studying the bone chemical composition of individuals from Sargatka culture ancient graves of the forest-steppe of Western Siberia. Recently we have analyzed data on the population inhabiting in late Early Middle Age epoch, in particular the disintegration period of the Sargatka culture using the uniform methods.

The chemical analysis results of skeleton composition (30 individuals) came from Ustyug-1 burial complex and were dated as later ones, although it was from the Trans-Ural region of forest-steppe zone as well. We examined the materials of 19 kurgans of the Tolub basin, Tyumen region, which were dated by 14C centuries AD. The site was determined as one of being of population formation of Bakalskaya culture and time of assimilation of Kushnarenkovo, Sargatka, Kashino, Karim culture groups and Middle Asia genesis group. The fact of the assimilation was based on the archaeological and anthropological sources. There are differences of values of ash and basic 18 minerals (Ca, Mg, Fe, Mn, Zn, Sr, Cu, Ni, Co, Ce, Pb, Bi) as markers of different data.

**Macro- and micromeasurement composition of bone substance of buried people is shown as mean of selection as a whole and separately for men and women, as well as for children groups. The statistic significant differences displayed in greater values of Zn, Cu for women and children. There was association and lack of consistency with the past dietary traditions studied in the published data of culture of Sargatka; this lack of consistency was defined by nomadic food tradition of the people buried in Ustyug-1 cemetery. There was a suggested idea that there was a relatively good health of populations from the point of view of mineral balance, based on comparison with modern medical data. We can suppose, that some individuals used stagnant water and wore copper decor (jewelry, clothing elements, have used copper cookware) for a long time. The information on the migration of nomads from the steppe zone, which was extracted from archaeological sources, was confirmed by chemical data.
Many archaeological studies of prehistoric domestic contexts (i.e., Mesolithic, Neolithic and Early to Middle Bronze Age) focus 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-floor dwellings, alcs, deep pits or sgraffitgruben). Multi-layered sites, characterised by massive accumulation of earthen building materials (i.e. mudbricks), such as the Balian and Near Eastern tell sites raise a set of additional complications for understanding the stratigraphical record. The geoarchaeological research sheds new light on these questions. By applying different approaches (i.e., geomorphology, stratigraphic analysis, micromorphology and geochemistry) archaeologists are able to identify cultural and natural formation processes and to evaluate the state of preservation of the archaeological record - site taphonomy.

The aim of this communication is to compare the first results of spatial analyses carried out on sites set either on plateau (site of Poupy) or on slope (site of Pushtayn). The presentation is divided into two parts: a) the study of the Tell Ajet el-Bakun, Israel, and b) the study of the Neolithic site of At-Tall, Jordan. In the first site, the micromorphological sample set examines an extensive vertical sequence of in-situ deposits adjacent to the central point of the structure and its large monumental hearth. These span several episodes of carefully constructed surface which alternate with occupation related deposits rich in anthropogenic inclusions. Of particular interest is the changing composition of these surface constructions through time, and the potential relationship of this to internal layout and the remodelling of the building as a whole – do the compositions of these surfaces have a significance beyond the practical?

Contrasting with this is the sample set from the very different Structure 8. Over 18m long and featuring a large and diverse set of features such as cists, hearths, internal divisions and recess areas indicating potential specialist activities, Structure 8 shows a far thinner sequence of surviving internal deposits - the result of a short life span due to subsidence and collapse. This prompted a very different micromorphological sampling strategy. Individual samples were precisely located at points of interest within and adjacent to not only key structural features, but locations referencing the interior geography of the building provide an opportunity to explore both the micromorphographic of specific areas within Structure 8, and the use of space within the building through time.

The authors wish to thank the donors of the Mainz University Research Foundation, the German Archaeological Institute of Sarazm, USAID and the National Centre for Scientific Research, Tunisia.
The late Iron Age settlement Basel-Gasfabrik is located in north-western Switzerland on the left bank of the Rhine River. Since 1980, the University of Basel, the cantonal archaeological services of Basel-Stadt and Basel-Landschaft, and the Swiss Research Foundation (SNF) have conducted large scale excavations at this site. At present, more than 600'000 artifacts and 900'000 animal bones have been recovered, mostly from infilled storage or cellar pits. Numbering more than 500, these represent the most frequent archaeological structures in the settlement. Recent interdisciplinary investigations showed that the majority of the archaeological findings are associated with dark sediments which contain plenty of inorganic and organic components such as ashes, clays, and burned bone fragments. Those dark, calcareous sediments may clearly be addressed as “occupation layers” and form a major source of material used to fill in the settlement’s pits. Geoarchaeological investigations showed that the pits were infilled in a short time in the course of just one or two distinct events. Thus the question is raised 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 pavings, 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 a 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 assemblages 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.

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**TH5-10 Abstract 05**

Geoarchaeological portrayal of decayed dwellings at the Bronze Age settlement of Solarolo (Italy)

**Author** - Peinetti, Alessandro, UMR 5140, Paris, France (Presenting author)

**Co-author(s)** - Wattar, Julia, INRAP, Paris, France

**Co-author(s)** - Cattani, Maurizio, Università di Bologna, Bologna, Italy

**Co-author(s)** - Lefebvre, David, UMR 5140, Labex Archimède, Montpellier, France

**Keywords:** Dwelling, Geoarchaeology, Household activities

**Presentation Preference - Oral**

Since 2008 the University of Bologna has been carrying out archaeological research in Solarolo, a Bronze Age village located in the southeastern part of the river Po plain, in northern Italy. The preserved stratigraphy refers to the central phase of the Italian Middle Bronze Age (about 1550-1450 BC).

The presence of perishable dwellings, built with wood and earthen materials, that normally don’t leave clear traces except for post holes, make the comprehension of built spaces very difficult. In northern Italy, several types of dwellings – dating back to the 2nd millennium BC – are archaeologically documented.

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 preserved roofed space are sampled.

The analyses focus on the local pedoclimatic markers, on the trampling tracings 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.

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**TH5-10 Abstract 06**

Geoarchaeological investigation of waste disposal practices at the Latène settlement Basel-Gasfabrik

**Author** - Brönimann, David, University of Basel, Basel, Switzerland (Presenting author)

**Co-author(s)** - Spichig, Norbert, Archaeological service of canton Basel-Stadt, Basel, Switzerland

**Co-author(s)** - Lassau, Guido, Archaeological service of canton Basel-Stadt, Basel, Switzerland

**Co-author(s)** - Rentzel, Philippe, University of Basel, Basel, Switzerland

**Keywords:** Geoarchaeology, Iron Age, waste disposal practices

**Presentation Preference - Oral**

The late Iron Age settlement Basel-Gasfabrik is located in north-western Switzerland on the left bank of the Rhine River. Since 1911, numerous excavations revealed an unfortified settlement with domestic and economic structures covering an area of about 15 hectares, where 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.

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**TH5-10 Abstract 07**

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

**Presentation Preference - Oral**

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 Malpais 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 hearth’s histories despite morphologies apparently simple and little diversified. These hearths’ micromorphology display 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 using. These certainly depend on the state 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 features (shaping of the mud, application of the material...) and the uses 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 ancestral pyrotechnical processes. Thus, some ceramic cooking devices and domestical devices were sampled with micromorphological protocol. Therefore, this paper will discuss the micromorphological analyses results and the interest of developing a geoethnoarchaeology of firing devices using clay material.
or by the room seen in medieval buildings serving as multi-purpose workshops. The surrounding landscape and the social context of the “workshop” might also influence its organisation.

New methods of systematic sampling of workshop floors and working areas found at archaeological excavations, together with analysis of process waste, provide a picture of the physical organization of work within “workshop”. I this way the different processes going on in a workshop can be defined in detail, as well as the physical place in which they took place. Even movements of the craftsmen between the different parts of the workshop might in some cases be visible. The subalpine area of Klimonas (PPNA) is one of the most important karst caves and the most important coastal cave of Liguria, with a submerged and an emerged part, both shaped by marine processes that occurred during different sea level changes. After these earliest researches, and during many decades, the cave has been 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. Lithopaedic bands), as well as one of the best documented marine wall grooves dated to MS 5.5 of the whole Tyrrhenian coast.

In the light of these new data, and thanks to the possibility to examine the submerged section by diving directly on site, the author 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 tunnels that form the emerged and the submerged section, has permitted to propose a possible diachronic development of the site, allowing us to recognize four different stages, dating from the middle Palaeolithic to the Iron Age, when the cave has been in use in different parts. All these stages have then been related to archaeological materials found during this and 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. Samia, Laura, University of Genova, Azenzano, Italy (Presenting author)

Keywords: Geomorphology, Prehistoric, Submerged site and cave

Presentation Preference - Oral

In the late nineteenth century, the geologist Arthur Ferrill first 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 fact known in the largest karst cave and the most important coastal cave of Liguria, with a submerged and an emerged part, both shaped by marine processes that occurred during different sea level changes. After these earliest researches, and during many decades, the cave has 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. Lithopaedic bands), as well as one of the best documented marine wall grooves dated to MS 5.5 of the whole Tyrrhenian coast.

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TH5-10 Abstract 12

Subalpine soil memory and legacy (French Alps)

Author - Dr. Giguet-Covex, Charline, University of York, York, United Kingdom (Presenting author)

Co-author(s) - Develle, Anne-Lise, EDITEM, Le Bourget du Lac, France

Co-author(s) - McGrath, Krista, University of York, York, United Kingdom

Co-author(s) - Speller, Camilla, University of York, York, United Kingdom

Co-author(s) - Poulenard, Jérôme, EDITEM, Le Bourget du Lac, France

Co-author(s) - Mocci, Florence, Centre Camille Juillian, Aix-en-Provence, France

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

Keywords: human activities, legacy, subalpine ecosystems

Presentation Preference - Oral

In the Alps, humans used the subalpine area since the Mesolithic: first used for hunting and gathering, then pastoralism suggested since the Neolithic (Giguet-Covex et al., 2014; Ponel et al., 2011; Scheider et al., 2015). This activity intensified during the Bronze Age (Ponel et al., 2011; Roepke and Krause, 2013; Walsh et al., 2014). Subsequent fluctuations in pastoral pressure are specific to each site. Mining also developed at high altitude, especially during the Medieval Period (Gaden et al., 2012; Py et al., 2014). All these activities impacted mountain ecosystems. Some palaeoenvironmental studies also revealed long-term impacts, especially on plant cover (Aubry et al., 2012; Brisset et al., 2013; Giguet-Covex et al., 2011; Panou et al., 2015). However, so far no one has assessed the legacy of these activities on archaeological sites. Here, we propose to apply geochemical analyses (XRF, d13C, d15N,…), botanical survey and environmental DNA (eDNA) analyses to mountain archaeological sites, to track the “soil memory” and the “ecosystem memory” (i.e. the legacy).

A series of on- and off-site samples were taken from different structures (enclosures and complex of huts/cabins) dated to the Bronze Age, Medieval and modern periods. Cross the Pharaic plateau (2107-2380 m a.s.l, French Alps) (Walsh and Mocci, 2011). Samples were also taken at higher altitudes where the pastoral pressure is very low today. Surveys of these activities impacted mountain ecosystems. Some palaeoenvironmental studies also revealed long-term impacts, especially on plant cover (Aubry et al., 2012; Brisset et al., 2013; Giguet-Covex et al., 2011; Panou et al., 2015). However, so far no one has assessed the legacy of these activities on archaeological sites. Here, we propose to apply geochemical analyses (XRF, d13C, d15N,…), botanical survey and environmental DNA (eDNA) analyses to mountain archaeological sites, to track the “soil memory” and the “ecosystem memory” (i.e. the legacy).
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 this micro-scale socio-ecological systems. However, this “legacy effect” is not apparent on the Bronze Age (4000 years old) enclosure, which raise the question of the time required for the resilience. Another interesting result is the presence of lead in sediments from the modern enclosure. These results reveal the soil memory effect link with ancient mining activity. Lead sediment and peat cores taken around the study area revealed lead contributions 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.

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TH5-10 Abstract 13

**Go with the wind: huts or tree wind-throws at Late Prehistoric open-air settlements of NW Iberia**

**Author:** Teira-Brón, Andrés, Grupo de Estudios para una Prehistoria del NW Ibérico, Santiago de Compostela, Spain (Presenting author)

**Co-author(s):** Maria, Universidade de Santiago de Compostela, Santiago de Compostela, Spain

**Co-author(s):** Alves, Maria Isabel Caetano, Landscape, Heritage and Territory Laboratory (Lab2PT), University of Minho, Braga, Portugal

**Co-author(s):** Betancourt, Ana Maria dos Santos, Landscape, Heritage and Territory Laboratory (Lab2PT), University of Minho, Braga, Portugal

**Co-author(s):** Sampaio, Hugo Aliu, Landscape, Heritage and Territory Laboratory (Lab2PT), University of Minho, Braga, Portugal

**Keywords:** domestic contexts, Late Prehistory, wind-throws

**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 (Late Prehistoric) or some of the Chalcolithic and Bronze Age open-air settlements studied, together with pits, post holes, hut floors and anthropic 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 huts 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 2006; Langohr 1993). The archaeobotanical assemblages recovered from these contexts, also can provide valuable information to interpret them as anthropic or natural features. To understand the natural processes involved in their formation (Schiffer 1987).

There have been developed sedimentological and archaeological studies of samples recovered from huts to tree wind-throws. Their results have been compared to the supposed anthropogenic contexts. The distinction between natural and anthropic features in these open-air settlements is crucial to avoid any interpretative distortions of these contexts.

**References:**


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TH5-10 Abstract 14

**At the Foot of the Cliff - exploring early human occupation of the inlands of southern Italy**

**Author:** Dr. Van Leusen, Martijn, University of Groningen, Groningen, Netherlands (Presenting author)

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TH5-10 Abstract 15

**Tracing prehistoric settlement through geochemistry**

(example from disturbed settlement site in SE Lithuania)

**Author:** Dr. Strimaitienė, Andra, Lithuanian History Institute, Vilnius, Lithuania (Presenting author)

**Co-author(s):** Selskienė, Aušra, State research institute Center for Physical Sciences and Technology, Vilnius, Lithuania

**Keywords:** geoarchaeology, geochemistry, hilltop settlement site

**Presentation Preference:** Oral

The archaeological settlement sites make a significant contribution to the picture of prehistoric communities. Yet, a clear and complete picture of the spatial layout of a site similar to those found in Great Britain or Denmark can hardly be found in the Baltic Sea region. A long history of cultivation has destroyed many shallowly buried structures, converting them into mixed cultural layer and then subsequently sweeping it from the previously delimited zones of activity. Most often, only amorphous negative features such as pits or ditches can be detected holding little or no archaeological artefacts, and for obvious reasons have not been of much interest to many archaeologists.

Therefore, in order to enhance knowledge on less apparent settlements, it is essential to integrate different methods and data. Recent studies indicate that analysis of geochemical and geophysical properties of sediments can contribute to the understanding of human occupation beyond the archaeological remains. This is because anthropogenic activity alters natural sediments in recognizable ways and determines the formation of new soil characteristics that can be traced and measured through the multi-analytical methodology.

In this study an approach combining the data from broad-scale horizontal excavation and the results of the use of multi-element XRF, LDI, pH and MS analyses of archaeological sediments was chosen. The aim of the research was to verify the efficiency ofgeoarchaeological approach for disturbed sites in discriminating archaeological features and other types of artefacts. These aspects were investigated as a part of scientific project “Geoarchaeological soil research as a means to investigate ancient settlement sites” financed by Lithuanian Scientific Board (MP 10/2015).

Geoarchaeological research summarised in this presentation followed an archaeological excavation at hilltop archaeological site. The site was heavily disturbed, typish-chronological analysis of the matrix implies that the site was used as a settlement only during a single period at the beginning of the 1st millennium AD. This fact allowed for the use of geoarchaeological methods with minor risk of contamination with traces from other periods. Horizontal excavation revealed the distribution of the negative features at the subsoil level. However, functions and relationship with the overall spatial layout
remained undetermined for a big proportion of features due to complete absence of artefacts. Therefore, the essential tasks of geoscientific investigation was to trace anthropogenic criteria, if there were any. Multivariate statistics were performed for 20 variables including element chronologically relevant values. Possible anthropogenic indicators were distinguished. Although the data presented here are site-specific, there appeared to be a remarkable consistency in the suite of variables with those enhanced at sites of known context from different geographic areas and geological environments. Hence, this research demonstrated that, while it is indeed difficult to directly interpret chemical soil data in term of ancient human activity, it is possible to trace archaeology, even if there is no material evidence, and this is of great practical relevance to numerous sites of so far un-established archaeological value.

TH5-10 Abstract 16

Tracing the ditch from Zhabotyn Early Iron Age settlement (Ukraine) using magnetometry

Author - Dr. Daragan, Marina, Institute of archaeology NASU, Kiev, Ukraine (Presenting author)
Co-author(s) - Dr. Bondar, Ksenia, National Taras Shevchenko University of Kyiv, Kyiv, Ukraine

Presentation Preference - Oral

At the end of IX – beginning of XII century BC revolutionary changes occur in the Middle Dnieper area (Ukraine), relating to Cherkasleskaya culture. All settlements and villages of Chernoleskaya 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 Zhabotyn phase distinguished after eponymous and reference Zhabotyn settlement. New settlements also have a large area - from 10-20 to 100 hectares and are arranged in clusters. All of them have no visible fortifications, but they are located on the topographical plots, which provide natural protection, being surrounded, usually, on three sides by deep gullies.

New research carried out on Zhabotyn settlement provided new information about its topography features and the defense system. In the central part of the settlement the ditch was revealed and partly excavated. The ditch divides the settlement with total area of 50 ha into two parts. The ditch was recognized from magnetic survey and traced along 180 m. Total depth of the ditch is 4.20 m. The ditch is observed from the depth 0.8-1 m. Its width on this level is not less than 10m, the width on the bottom is 1-2.5 m. The ditch’s upper and lower horizons is recognized reflecting different stages of its functioning and filling. Archaeological excavations proved the infill to be consisted of separate layers, with characteristic magnetic susceptibility, indicating main chronological stages between 8th – beginning of 6th cent. BC. It is demonstrated that the magnetic anomaly over the ditch is formed mainly due to later building horizons. The width of the anomaly corresponds with width of the ditch in the upper part (to the depth 2.30 m).

The ditch was laid on early but not the initial stage of settlement being, it had been preceded by earlier constructions. Archi 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 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 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 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 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 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 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 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 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 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 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 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 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 contr
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 biomineralization and revealed ochre designs which had been obscured by recent and old incrustations and biomembranization. Finally, the surface distribution of biomineralization, biofilm and cutans types was mapped.

TH5-10 Abstract 20
Housebuilding adaptation to the environment in the Neolithic of the south of Western Siberia

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 united adaptive resource of ancient groups.

Within this approach we have analyzed the archaeological materials of excavations of the Neolithic settlements on the Mergen’s 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 phytothecia 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 bird forests were widespread at that time there.

The dwellings were 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 palaeoecological data and focus on the structural features of the housebuilding (roof, walls, room, 6-8 light onground houses), accessibility of natural materials for the construction, episodes of backfilling 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 taxonomic study of the function of stone and bone implements used for building. The revealed facts indicate a high degree of adaptability of ancient settlers allowing to exploit for a long time the compact ecological niche near the lake.

TH5-10 Abstract 21
Geoarchaeology of Capsian settlements in eastern Maghreb: spatial organisation of outside areas

Author - Eddagarch, Wassel, Maison Archéologie & Ethnologie, René-Ginouvès, Nanterre, France (Presenting author)
Co-author(s) - Wattez, Julia, INRAP, Paris, France
Co-author(s) - Petit, Christophe, Université de Paris 1 Panthéon-Sorbonne, Paris, France
Keywords: Capsian settlements, Geoarchaeology, the eastern Maghreb
Presentation Preference - Poster

The geoarchaeological research on Capsian settlements in the eastern Maghreb region is based on soil micromorphology. This research is important to understand the systems of settings of these nomadic and/or sedentary populations, by the characterization of the sedimentary records related to activities and their organization. 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 frequentation degree of soils. In the outside areas, the occupation surfaces reflect a great variability of sedimentary micro-facies according to 1) the nature of activities, 2) their spatial localisations, 3) the complex occupation dynamics, dominated by anthropogenic processes interacting with natural processes. Occupation surfaces characterize by several types of activities. Sedimentary archives contribute to increase our knowledge of the organization and the functional modes of household spaces of Capsian settlements.

The aim of this communication, is to present new results about formation processes of occupation surfaces of outside areas, from several Capsian sites from Eastern Maghreb: Doukane, El koufta (Sillana-Tunisia) Kef Elizah (Kairouan-Tunisia), El Mektar (Djelfa-Tunisia) and SMH-1 (Hergla-Tunisia).
TH5-11

**“GNU DIRECTIONS IN R-CHAEOLOGY”: INNOVATIONS IN THE USE OF FREE AND OPEN SOURCE SOFTWARE (FOSS) TO ACHIEVE AN OPEN ARCHAEOLOGY**

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
Co-author(s): Orton, David, Classics and Theology, University of Oxford, Oxford, United Kingdom
Co-author(s): Madsen, Joaquim, Universidade de Aveiro, Aveiro, Portugal
Co-author(s): Madeira, Joaquim, Universidade do Minho, Braga, Portugal
Co-author(s): Bernardes, Paulo, Universidade do Minho, Braga, Portugal
Keywords: Digital media, 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 1976. In order to facilitate the management and preservation after 1994 all the archaeological records start to be regularly digitized and stored in an Oracle DB. Later in 2000, as part of UAUM’s information system strategy, these data were migrated to a MySQL database. Simultaneously, to ensure a continuous update and management of the data, a web-based back office was developed using HTML and PHP. This technological independence enabled a complex 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 allows the data exchange with external applications. It is possible to export data to archED and ARQGIS enabling the automatic creation of a graph regarding the stratigraphic matrix and materials, that can be a valuable asset for the archaeological research.

This information system also integrates archaeological 3D models that are created either using constructive solid modelling techniques or computer vision techniques such as structure from motion (SfM) or dense stereo reconstruction algorithms. In fact it is possible to use artefacts, as coins, ceramics or architectural elements both for cooperative research and dissemination purposes.

All the 3D information is important not only for rendering and for 3D representation purposes, but also to be processed with visualization filters to enhance the knowledge about the archaeological record. This data is perfectly compatible to be processed with the Visualization Toolkit (VTK) from Kitware Inc., which is an open-source software system for 3D computer graphics and visualization. Some visualization procedures have already been implemented to filter scalar information of the archaeological data for contouring purposes or even to carry out manual segmentation over a 3D model (Figure 2).

**ArchSeries: an R package for transparent estimation of chronological frequency distributions**

Author: Dr. Orton, David, University of York, York, United Kingdom (Presenting author)
Co-author(s): Madeira, Joaquim, Universidade do Minho, Braga, Portugal
Co-author(s): Bernardes, Paulo, Universidade do Minho, Braga, Portugal
Keywords: 3D models, Information System, open-source software
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 lowest-common-denominator approach, trading resolution for comparability by combining data into broad period categories.

This paper presents an R package for dealing with this situation without surrendering the original dating resolution. Designed originally for meta-analysis of zooarchaeological remains from numerous historical-period sites across London (used here as a case study), ArchSeries is built around functions for estimating frequency distributions using either (a) aoristic analysis or (b) simulation. Initially based upon uniform probability distributions within archaeologically defined limits, the simulation approach is currently being expanded to allow integration of 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 tool for adjusting results according to the chronological distribution of research intensity.

With raw, context-level archaeological datasets increasingly being made publicly available, it is hoped that ArchSeries will facilitate transparent re-use and meta-analysis of frequency data while allowing researchers to retain the full available chronological resolution.

**TH5-11 Abstract 03**

**Consumption patterns and morphology of cattle in a Late Neolithic settlement Polgár-Csoszhalom**

Author: Dr. Csipog, Péter, Eötvös Loránd University of Sciences, Budapest, Hungary (Presenting author)
Co-author(s): Madeira, Joaquim, Universidade do Minho, Braga, Portugal
Co-author(s): Bernardes, Paulo, Universidade do Minho, Braga, Portugal
Co-author(s): Orton, David, Classics and Theology, University of Oxford, Oxford, United Kingdom
Co-author(s): Orton, David, University of York, York, United Kingdom
Keywords: Open Access, Open Data, Open Source Software (FOSS)
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 visualise 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-Csoszhalom is a perfect case study for the archaeological adaptation of one of the widely applied open-source statistical software: R.

Through the wildrange analysis of animal bones I focused on the meat consumption of the main domestic species at the site, the cattle. But the question is, how can we earn more information about these animals with using only a FOSS to the research? R offers numerous possibilities and ways for the data analysis and visualisation, but in this case study I would like to show the whole process from the birth of the research question until the answers with the help of R.
TH5-11 Abstract 04
Can we have that on a map? Open Source options for the dissemination of archaeological spatial data

Author - Dr. Evans, Tim, Archaeology Data Service, York, United Kingdom (Presenting author)

Keywords: Open Source, Web mapping

Presentation Preference - Oral

# TH5-11 Abstract 05
Putting the pieces back together: automated refitting using open source software

Author - Dr. Davis, Robert, University of Bradford, Bradford, United Kingdom

Keywords: Automated refitting, Bisgrove, Open source software

Presentation Preference - Oral

Refit analysis is a powerful tool that can be used to address questions regarding taphonomy and assemblage formation processes, technology and spatial organisation. However, it is a method constrained by a reliance on human experts and time, and is further limited by factors such as assemblage size, raw material characteristics and technology. The time required to conduct refitting analysis increases exponentially with assemblage size, while success rates decrease. Further, error rates in refitting remain untested, although inter-analyst variability in terms of experience and skill is clearly an important factor. A refit study can rarely be considered as complete, which can create uncertainty over the extent to which past human behaviour reconstructed through refitting is representative of the full suite of behaviours represented at a site. The ‘Fragmented Heritage’ project is addressing this situation through the development of a new digital method for refitting that draws on techniques from the field of optical metrology and utilises free open source software.

TH5-11 Abstract 06

Can we have that on a map? Open Source options for the dissemination of archaeological spatial data

Author - Dr. Evans, Tim, Archaeology Data Service, York, United Kingdom (Presenting author)

Keywords: Open Source, Web mapping

Presentation Preference - Oral

Perhaps more than any other data type, geospatial information appeals to the archaeologist. The ability to plot a dataset in its geographical and chronological context offers a myriad of possibilities for interpretation, understanding and presentation. For over twenty years the Archaeology Data Service (ADS) has curated and disseminated such datasets, the latter through an increased use of tools for Web-based mapping. However, the practice of such dissemination has not always run smoothly, early work with proprietary software and middleware such as ArcIMS, ArcGIS Server and ArcSDE have proved problematic and on occasion, unsustainable. Thus in more recent years the ADS have moved towards utilising the wide range of Open Source tools and standards to disseminate this data. Use of innovations such as OpenLayers, GeoServer and WMS has facilitated a new wave of simple and efficient re-use potentials and coincided with a wider trend in more unrestricted dissemination of archaeological and non-archaeological data alike. Indeed, as such methods of presentation become more easily achievable, if not expected, then so does an increased need to re-examine the potential of working online. This potential is not only limited to WMS publishing and consumption, but also the possibilities for use of linked data and API lookups for historic and modern place names and boundaries to spatially locate other data such as reports and journal articles. The long term effect of such moves may be less about building complex, and arguably unsustainable, Web-based GIS, but towards a more literal Web-mapping to facilitate resource discovery.

TH5-12 Abstract 01
Metal Detecting in Brandenburg

Author - Prof. Dr. Schopper, Franz, Brandenburg State Authorities for Heritage Management and State Museum of Archae, Zossen, Germany (Presenting author)

Keywords: Metal detector, site management, volunteer training program

Presentation Preference - Oral

Germany is a Federal State. The states are responsible for cultural purpose. So you have 16 different laws concerning the preservation of monuments and ancient heritage. The approaches vary even more. In Brandenburg the state archaeological finds are property of this state and a technical supported searching needs official permission by the Brandenburg State Authorities for Heritage Management and State Museum of Archaeology (BLDAM). After controversial discussions the BLDAM established a program to give metal detectorists the possibility to participate in the research work of professional archaeology and for the benefit of society. But there are certain preconditions. The applicants have to take part in an extensive training program. This program was first hand established to instruct volunteer supporters of archaeology, which are an important part of archaeology not only in eastern Germany. The training is organised by the Archaeological Society in Berlin and Brandenburg. Professional archaeologists are giving lectures on ancient period and their typical finds, on methods of localisation in the field, how to report to the central archaeological information service, about problems of conservation, on health and safety measures (ammunition!). They participate get the chance to work on an exhibition. The program takes about two years with 10 to 12 weekend lessons. After that the applicants get a regional defined and temporary permission for research. They have to report and deliver the finds to the BLDAM, which is the legal owner of all upcoming archaeological objects. We check the information and have a critical look on finds and finding reports. Important is, that not only metal objects are reported but fine-, stone- and ceramic objects as well. In certain projects the goals for research are given by the BLDAM. For example to get detailed information on 16th to 19th century battlefield. Or when we try to understand the structure of abandoned mediaeval sites. More often important finds are made by chance. This can be bronze hoards, silver coins or burials. Very often these objects are of certain importance and would be lost for archaeology. Without the possibility for metal detectorists of legal participation in scientific research, these objects would disappear.

In our opinion the Brandenburg approach to embody metal detectorists in their daily archaeological work gives us new information, helps us to canalize enthusiasm and to have less legal problems with detectorists. Overall metal detecting is nowadays an important part of modern archaeological site management.

TH5-12 Abstract 02
Methods of metal detecting survey in archaeology

Author - Mark, Jan, Institute of Archaeology of the CAS, Prague, Czech Republic (Presenting author)

Keywords: Metal detectors, methodology, survey

Presentation Preference - Regular session

While a number of archaeologists perceive metal detectorists as a standard tool of archaeological research, a certain level of distrust of this technology still persists. This rather unsatisfactory state of affairs is also reflected in many of the methodological guides (guides to best practice) where usually the topic of metal detectors is mentioned only marginally or just the legal aspects of their use is emphasized. Organisers of this session are convinced that detector prospecting potential has not been fully realized yet. Thus, we would like to map the currently applied methodological approaches defining this technology. We encourage participants to present papers focusing especially on metal detecting applied under different conditions: cultivated areas, forests, underwater archaeology, research on specific activities such as battlefields, routes, complex surveys of important archaeological sites as well as comparisons of their informative value with other methods (non-destructive as well as destructive) of archaeological research. Last but not least, the topic of formation processes affecting metal artefacts especially in arable areas is equally important.

TH5-12 Abstract 03
Detecting survey in archaeology

Author - Dr. Evans, Tim, Archaeology Data Service, York, United Kingdom (Presenting author)

Keywords: Open Source, Web mapping

Presentation Preference - Oral

Saturday, 3 September 2016, 09:00-13:00
Faculty of Philology, Room A7

Co-author(s) - Frank Danielisova, Abetlica, Institute of Archaeology of the CAS, Prague, Czech Republic

Co-author(s) - Hornak, Milan, VLA MAGNA s.r.o., Vrutky, Slovakia

Co-author(s) - Evans, Adrian, University of Bradford, Bradford, United Kingdom

Co-author(s) - Sparrow, Thomas, University of Bradford, Bradford, United Kingdom

Co-author(s) - Donahue, Randolph, University of Bradford, Bradford, United Kingdom

Co-author(s) - Wilson, Andrew, University of Bradford, Bradford, United Kingdom

Co-author(s) - Aitken, Nick, British Museum, London, United Kingdom

Co-author(s) - Pope, Matthew, University College London, London, United Kingdom

Co-author(s) - Partlitt, Simon, University College London, London, United Kingdom

Co-author(s) - Roberts, Mark, University College London, London, United Kingdom

Co-author(s) - Parfitt, Simon, University College London, London, United Kingdom

Co-author(s) - Evans, Tim, Archaeology Data Service, York, United Kingdom

Co-author(s) - Roberts, Mark, University College London, London, United Kingdom

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Co-author(s) - Parfitt, Simon, University College London, London, United Kingdom

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Co-author(s) - Parfitt, Simon, University College London, London, United Kingdom

Co-author(s) - Evans, Tim, Archaeology Data Service, York, United Kingdom

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Co-author(s) - Roberts, Mark, University College London, London, United Kingdom

Co-author(s) - Parfitt, Simon, University College London, London, United Kingdom

Co-author(s) - Evans, Tim, Archaeology Data Service, York, United Kingdom

Co-author(s) - Roberts, Mark, University College London, London, United Kingdom

Co-author(s) - Parfitt, Simon, University College London, London, United Kingdom

Keywords: Automated refitting, Bisgrove, Open source software

Presentation Preference - Oral

Refit analysis is a powerful tool that can be used to address questions regarding taphonomy and assemblage formation processes, technology and spatial organisation. However, it is a method constrained by a reliance on human experts and time, and is further limited by factors such as assemblage size, raw material characteristics and technology. The time required to conduct refitting analysis increases exponentially with assemblage size, while success rates decrease. Further, error rates in refitting remain untested, although inter-analyst variability in terms of experience and skill is clearly an important factor. A refit study can rarely be considered as complete, which can create uncertainty over the extent to which past human behaviour reconstructed through refitting is representative of the full suite of behaviours represented at a site. The ‘Fragmented Heritage’ project is addressing this situation through the development of a new digital method for refitting that draws on techniques from the field of optical metrology and utilizes free open source software.

This paper presents a case study of part of the OGP17 assemblage (the Horse Butchery Site) from the Lower Palaeolithic site of Bisgrove, UK, to demonstrate the new digital method of refitting, discusses how the system might be further developed and explores its potential for improving understanding of past societies.

Acknowledgements: This research is part of the Fragmented Heritage project funded by the Arts and Humanities Research Council (AH/L00688X/1).
Science and multidisciplinarity in archaeology

TH5-12 Abstract 02
Methodology and perspectives. Use of metal detectors in the Little Poland region

Author: MA Bulas, Jan, Jagiellonian University, Kraków, Poland (Presenting author)

Keywords: Iron Age, Little Poland Upland, metal detector

Presentation Preference: Oral

In Poland, as in most European countries there is an ongoing debate about the risks associated with the use of metal detectors by treasure hunters while illegal surveys. This topic largely overshadowed subject of methodological use of metal detectors during archaeological excavations, and during field-walking surveys. The discussion within the scientific community, which was also held in Poland, mainly in the 90s and in the first decade of the twenty-first century, above all was limited to a debate whether the use of metal detectors in general should be allowed during scientific research or not. The subject of methodological application of this tool was virtually ignored.

The aim of the paper is to present a reflection on the advantages associated with the use of metal detectors during archaeological excavations and field surveys in characteristic hilly terrain of the Little Poland Upland. This reflection will be based on the experience of the last decade of research in the area, primarily on the various Iron Age sites. The presentation will address the issue of the relationship between topography, geological and archaeological stratigraphy of individual sites and the results of a metal detector prospecting. Research at several archaeological sites allowed to statistically verify what percentage of the finds is 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 Detectoring Research in Mountain Areas of Slovakia

Author: Dr. Hornak, Milan, VIA MAGNA s.r.o., Voutky, Slovakia (Presenting author)

Co-author(s): Dr. Mgr. Kvistová, Martin, Central Slovakia Museum Banská Bystrica, Banská Bystrica, Slovakia

Keywords: Detectoring, mountain areas, Slovakia

Presentation Preference: Oral

Our paper presents strategies of detectoring research in mountain areas of Slovakia based on research of recent years. Last but not least, mountain areas of Slovakia are rich in numerous relicts of old mining activity, ranging from simple small-scale mining to large scale operations. 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 unregulated mass detecting has been occurring during the last quarter of century not only in 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 information 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 present paper the number of stations affected by mass detecting, archaeologists must face the question of how to effectively approach the detecting reconnaissance of said types of archaeological localities so as to be “step ahead” of illegal robbers.

Our paper presents strategies of detectoring research in mountain areas of Slovakia based on research of recent years.

TH5-12 Abstract 04
The hilltop settlement Gradišče above Bašelj: metal detecting survey vs. archaeological research

Author: Karo, Irena, Zavod za varstvo kulturne dediščine Slovenije, Ljubljana, Slovenia (Presenting author)

Co-author(s): Knižić, Timojaž, Narodni muzej Slovenije, Ljubljana, Slovenia

Keywords: archaeological research, Gradišče above Bašelj,metal detecting survey

Presentation Preference: Oral

Gradišče, a Late Antique and Early Medieval hilltop settlement, rises above the village of Bašelj, north of Kranj, Slovenia. The first archaeological finds discovered at the top of the sharply peaked hill of Gradišče, were unearthed in 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 1998, a team of archaeologists from the National Museum of Slovenia conducted a revision excavation, which confirmed existence of the settlement from the 5th-6th century and uncovered another layer with numerous iron objects and ceramic fragments, from the period between the end of the 8th century and the mid 10th century.

In the recent years, a lidar scanning and a geophysical research of the site and its surroundings were carried out, confirming numerous built structures inside the settlement. One of these, a tower built outside the defence wall was excavated in 2015. The new discoveries of the architectural remains, therefore, offer a great opportunity to compare the settlement’s structure with a distribution of small metal finds, recorded during the previous topographical surveys. Moreover, the presentation also gives a short overview on the national legislation regarding the search for archaeological remains and use of technical means for this purpose.
TH5-13 Abstract 01

Environmental conditions and Mesolithic–Early Neolithic sites in the basin of Voze Lake (Russia)

Author - Dr. Kosorukova, Natalia, Chernevoy State University, Chernevoy, Vologda region, Russian Federation
Co-author(s) - Kuklova, Marianna, Herzen State University, St.Petersburg, Russian Federation (Presenting author)
Keywords: Mesolithic, Early Neolithic, lake basins, peatbrown sediments, environment reconstructions

This paper presents new environmental data from peat and clay layers in the basin of Voze Lake. The peat layers are located in the Vologda region of Russia. The Pogostelin 15 site is dated to middle Mesolithic period, but the Karavakha 4 site belongs to the Early Neolithic period. The environmental conditions were found under layers of peat and gyttja. The alluvial sand and clay deposits. The numerous finds from bones, flint, shell, wood, ceramics, animal bones and remains of fishing constructions were excavated. The application of geochemical, pollen and radiocarbon methods gave the possibility to reconstruct the paleo-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 palaeoenvironmental changes within archaeological sites and the migration of human groups.

TH5-13 Abstract 02

Baltic Sea Lithuanian coastline changes in Mesolithic: landscape and peoples subsistence economy

Author - Prof. Žukus, Vladas, Klaipeda University, Klaipeda, Lithuania
Co-author(s) - Prof. Girinukas, Algirdas, Klaipeda University, Klaipeda, Lithuania (Presenting author)
Keywords: Mesolithic inhabitants, Palaeoenvironmental situation, the submerged prehistory

This paper explores the submerged prehistory of the eastern Baltic that has attracted great archaeological, geological, pollen, macrofossil, diatom, radiocarbon analysis interest. The exploration was conducted in order to localize the former Yoldia Sea and Ancylus Lake coastlines, their shoreline underwater landscape reconstruction (coastal vegetation, relics of fish composition, their age, pollen, diatom analysis) and their potential settlement 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. Retracked 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 (Pulli) and Maglemose cultural communities. The tested area was favorable place for human settlement which included coastal fauna, coastal migratory birds and marine resource, seals especially in the Late Pre-Boreal and Early Boreal. Yoldia Sea and Ancylus Lake shore zone examined small lake surroundings could have been settled by Mesolithic inhabitants. In the first case – early Mesolithic Kunda culture (Pulli stage), and second – Maglemose settlers.

TH5-13 Abstract 03

Mediterranean foragers exploited cetacean strandings caused by climate change around 8,200 years ago

Author - Dr. Mannino, Marcello Antonio, Aarhus University, Aarhus, Denmark (Presenting author)
Keywords: carbon and nitrogen stable isotope analyses, cetaceans, hunter-gatherers

Cetacean strandings occur globally on coastal regions for a wide range of causes. It has been hypothesized that climate-driven environmental changes associated with global warming may dramatically increase cetacean mortalities. However, the compounding effects of natural and anthropogenic factors often make it difficult to establish the cause of present-day strandings and mortalities. Here we show that environmental changes driven by abrupt climatic event of 8,200 years ago linked to increased cetacean strandings in the Mediterranean Sea. We found that, at this time, portions of many carcasses of four odontocetes (i.e. Globicephala melas, Grampus griseus, Delphinus delphis and probably Phylaeus macrocephalus) and one mysticete (Balaenoptera sp.) were butchereed by the hunter-gatherers occupying Grotta dell‘Uzzo. Stable isotope analyses on bone collagen from a large sample of remains recovered at this cave in NW Sicily show that only a red fox and a human lived around 8,200 years ago acquired at least 40% of their protein from cetacean meat. The fact that a fox fed on cetaceans, and the absence of whaling technology, suggest that stranded animals were exploited. Numerous carcasses should have been available year-round for at least a decade for a human to obtain such high proportions of cetacean protein. Frequent strandings probably resulted from starvation-induced disorientation linked to the impacts on primary producers, and consumers up the food chain, of year-on-year decreases in sea surface temperatures and salinities around 8,200 years ago. We hypothesise that the cetaceans beached at a locality south of Grotta dell‘Uzzo, because, at lower sea levels, the SW corner of the Gulf of Castellamare was an acoustical ‘dead zone’, such as mass stranding hotspots worldwide. Our study confirms that climate-driven environmental changes are driving cetacean strandings globally, representing a serious threat to cetaceans in the near future.

TH5-13 Abstract 04

Changes in seawater temperatures in northern Iberia during the Late Pleistocene and Early Holocene

Author - Dr. Guillén-Zugasti, Igor, Instituto Internacional de Investigaciones Prehistóricas de Cantabria, Santander, Spain (Presenting author)
Co-author(s) - Claire, Leon J., Manchester Metropolitan University, Manchester, United Kingdom
Co-author(s) - García-Escarzaga, Asier, Instituto Internacional de Investigaciones Prehistóricas de Cantabria, Santander, Spain
Co-author(s) - Suarez-Revilla, Roberto, Instituto Internacional de Investigaciones Prehistóricas de Cantabria, Santander, Spain
Co-author(s) - Bailey, Geoffrey N., University of York, York, United Kingdom

This study examines changes in seawater temperatures in northern Iberia during the Late Pleistocene and Early Holocene. The research was supported by RFBR, project 14-06-98806.
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 reconstruction. Thus, mollusc remains from archaeological shell middens can provide information on past climatic and environmental conditions, as well as human subsistence practices. Seawater temperatures (ST) can be reconstructed using geochemical techniques such as the analysis of stable oxygen isotope ratios on marine mollusc shells. In this paper, we aim to reconstruct the evolution of ST in northern Iberia (Spain) from ~50 to 1 ka cal BP using oxygen isotope ratios obtained from the limpet Patella vulgata (Linnæus, 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. Radial growth also showed 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.

TH5-13 Abstract 05
Mammalian response to climatic instability over the Pleistocene–Holocene boundary in Britain

Author - Mann, Melissa, Natural History Museum London, London, United Kingdom (Presenting author)
Co-author(s) - Barnes, Ian, Natural History Museum London, London, United Kingdom
Co-author(s) - MacLeod, Norman, Natural History Museum London, London, United Kingdom
Co-author(s) - Schreve, Danielle, Royal Holloway University of London, Egham, United Kingdom
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 British mammal species. 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 over the terminal Pleistocene has been explored in a number of mammal species: a micromammal (common vole, Microtus arvalis), a woodland specialist (Eurasian beaver, Castor fiber), a carnivore (wildcat, Felis silvestris) and a large grazer (wild horse, Equus ferus).

The multi-proxy methodology applied here allows key questions relating to both population patterns and processes and morphological plasticity/stasis to be explored. Ancient DNA analyses included traditional Sanger sequencing and Next-Generation Sequencing (NGS) technologies to create both single-genome mitochondrial and genome-wide Single Nucleotide Polymorphism (SNP) datasets while morphological analyses applied 2D digital imaging and 3D micro computed tomography (microCT) to sub-fossil bones and teeth. This represents one of the first studies to combine these techniques and apply them to mammal material of this age. The relative merits of these approaches, along with the results of this study, will be discussed.

TH5-13 Abstract 06
Isotopic evidence of environmental change during the Palaeolithic in the Cantabrian Region, N. Spain

Author - Dr. Jones, Jennifer Rose, Universidad de Cantabria, Santander, Spain (Presenting author)
Co-author(s) - Arino Arrion, A. B., University of Cantabria, Santander, Spain
Co-author(s) - Richards, M.P, University of British Columbia, Vancouver, Canada
Keywords: Bioarchaeology, Palaeoenvironment, Palaeoecology

Presentation Preference - Oral

The Cantabrian region Northern Spain was an archaeologically important region throughout the Middle and Upper Palaeolithic, and was home to some of the last surviving Neanderthals in Europe, and during the Last Glacial Maximum the region acted 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 (AMHs), 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 specimens 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 throughout the Middle and Upper Palaeolithic in this archaeologically important region, at this crucial time in human evolution.

TH5-13 Abstract 08
Extrapolating the potential of oxygen isotopes in human skeletal remains: a multi-tissue approach

Author - Dr. Alexander, Michelle, University of York, York, United Kingdom (Presenting author)
Co-author(s) - Britton, K., The University of Aberdeen, Aberdeen, United Kingdom
Co-author(s) - Titenk, T., Johannes Gutenberg University Mainz, Mainz, Germany
Keywords: bones, 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
with strontium isotope analysis) is commonly used to infer childhood geographical origin. However, given that dental tissues form incrementally, and only capture isotopic inputs from a fixed period (i.e. during their formation), their analysis only offers short-term records that (depending on sampling strategy) can encapsulate seasonal biases. The oxygen isotope analysis of other skeletal tissues and fractions, such as bone collagen or bone phosphate, offer the potential to provide evidence of longer-term mean oxygen isotope inputs and infer the composition of drinking water in later life. Not only could this be useful as an indicator of later life mobility, but also as a palaeoecological proxy or even as an indicator of certain dietary practices (given that, in some cases, culinary preparation techniques can significantly alter the composition of dietary water). Prior to routine archaeological application, however, the investigation of inter-tissue, methodological and taphonomic (diagenetic) factors affecting oxygen isotopes in skeletal remains is necessitated.

Here, we present oxygen isotope data (818O) generated from multiple tissues deriving from the same archaeological individuals from Medieval and Post-Medieval British sites with the aim of exploring inter-tissue/inter-fraction variation as well as geographical and temporal variability. Individuals were selected from different geographical locations (Yorkshire, London) representing both rural and urban populations. Oxygen isotope values were determined in bone and tooth phosphate (818O), tooth carbonate (818Oc), and in bone collagen (818Oco). Isotope analyses were combined with FTIR in order to provide additional insights into sample integrity. The implications of this research for the planning of future archaeological isotope investigations and sampling strategies will be explored.

TH5-13 Abstract 09
Stable Isotope Markers of Herd Management in Prehistoric Croatia
Author - Zavodnjak, Emily, The Pennsylvania State University, University Park, United States of America (Presenting author)
Co-author(s) - Cullerton, Brendan J., The Pennsylvania State University, University Park, United States of America
Co-author(s) - McGuire, Sarah B., The Pennsylvania State University, University Park, United States of America
Co-author(s) - Kennett, Douglas J., The Pennsylvania State University, University Park, United States of America
Co-author(s) - Podrug, Emil, The Pennsylvania State University, University Park, United States of America
Co-author(s) - Bakek, Jacqueline, Arheološki Muzej u Zagrebu, Zagreb, Croatia
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 (sheep, goat, cow, and pig) and wild species (deer and wild boar) are taken from sites from two distinct Croatian landscapes: central Dalmatia and Lika. Sampled Dalmatian sites are all Neolithic coastal open-air villages with evidence of a heavy reliance

TH5-13 Abstract 10
Changing cultures, changing environments
Author - Pitt, Jacqueline, Bournemouth University, Bournemouth, United Kingdom (Presenting author)
Keywords: Human-animal interactions, Palaeoecology, Zooarchaeology
Presentation Preference - Oral

Climate and environment are critical factors for the survival of every living species. Animals and plants are not only conditioned by, but also change their environments. The interaction between different species and their environments changes over time and as such can be very informative, but identifying this complex relationship in the archaeological record is challenging.

The domestic chicken presents an interesting case study. Introduced into Europe during the Iron Age as a non-native species, its novel presence necessitated alter its ecosystem, both in terms of interspecies relationships and on account of humans altering the local environment to accommodate this newly-domesticated exotic bird. Application of ecological community models to archaeological faunal data forms the basis of a macro-scale approach to explore the complex network of interactions that determined past ecosystems. Europe-wide comparison of faunal and floral evidence at site level from the period prior to the introduction of the chicken up until the end of the Roman Empire enables us to better understand how changing climate and attitudes of people and environment within which these communities existed.

TH5-13 Abstract 11
Revisiting the impacts of coastal sand movement in prehistoric Scottish Islands
Author - Gai, Emily, University of St Andrews, St Andrews, United Kingdom (Presenting author)
Keywords: aeolian sand, geochronology, 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. Notable impacts 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 attests 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
Anthropogenic impact on the changes in landscape in the tract “Adzhiel” in the Eastern Crimea
Author - PhD Smekatov, Sergey, Tula State Lev Tolstoy Pedagogical University, Saint-Petersburg, Russian Federation (Presenting author)
Co-author(s) - Zubaren, V.G, Tula State Lev Tolstoy Pedagogical University, Tula, Russian Federation
Co-author(s) - Yartsan, S.V., Tula State Lev Tolstoy Pedagogical University, Tula, Russian Federation
Keywords: antiquity, Crimea, landscape
Presentation Preference - Poster

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.

Anthropogenic impact on the changes in landscape in the tract “Adzhiel” in the Eastern Crimea

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. The name of this area connected with Adzhiel gucht, located here. As a result of studies of the XX century, there are discovered many barrows 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 soil, geology, soil properties, topography and hydrology of the area. On a large part of Tracts Adzhiel, with modern agriculture field, there are no traces of settlement structures, says, that in ancient times these territories were not built up, but could also been used for agriculture. Settlement structures are located primarily along the boundaries of the modern field plots, in areas with less fertile soils. The territories occupied by modern fields as underlying Chalk plateau in the middle and lower Pliocene rocks - sand, clay, iron ore, shelly limestone; rocks of Meotia tier of Upper Miocene - shelly limestone, Ectropocra reefs, clay. Quaternary rocks represented by aeolian-talus deposits, with material composition - loess-like loam and loess. Soils, occupying a significant part of Tracts - southern micellar-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.

Source: 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 Adzhiel 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.
TH5-13 Abstract 13

Geomorphology and early Neolithic migration routes into the Transylvanian Depression

Author - Persoiu, Ioana, Stefan cel Mare University, Suceava, Romania (Presenting author)
Co-author(s) - Timsic, Sandra, University of Saskatchewan, Saskatoon, Canada

This paper discusses 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 Starčevo-Criș 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 routes across the Carpathian Mts was eastward from the Pannonian Basin, along the Mureș River. During Starčevo – Criș III, the number of the early Neolithic communities has increased, mainly along Mureș River and its main tributaries (Târnava Mică, Târnava Mare, Arcșo), associated with a slow eastward movement. A secondary eastward route was along the low alluvial plain (known as The Western Romanian Plain) of Mureș, Criș and Someș Rivers. Here too, the peoples moved from the area of Mureș alluvial plain to the NE. They arrived in the perimeter of the Someș alluvial plain only during Starčevo – Criș IV and V. From there, further to the east, neolithic sites are generally absent along the main (1.5 km wide) floodplains but present in the hilly area (crossed but smaller and narrower valleys), suggesting a possible geomorphological control on the spreading routes. The third route was along Olt River and seems to have occurred only during Starčevo – Criș III and IV. These communities moved to the east, along the main river and occupied Brâzov 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: (1) Why Someșu Mare – Someș Valleys seems to had been avoided by the early Neolithic communities? (2) Were the Carpathians crossed only along the Mureș rivers, river east, or did Neolithic populations used two routes, the second along the Olt river, south to north? (3) Are there preferential routes in the eastern alluvial plains, being known the complex fluvial relief in the area of abandoned palaeoamands, extended wet zones, isolated fluvial relics, low fluvial terraces?

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TH5-13 Abstract 14

North Atlantic and Labrador seasonal climate: isotopic evidence from micromilled bivalves and wood

Author - Timsic, Sandra, University of Saskatchewan, Saskatoon, Canada (Presenting author)
Co-author(s) - Patterson, William, University of Saskatchewan, Saskatoon, Canada

High-resolution records are exceptionally important for reconstruction of past environmental and climatic conditions. Micromills are particularly important devices because they obtain discrete samples at high temporal resolutions, thus allowing for reconstructions of intra-annual environmental and 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 than during the subsequent cooler Neoglacial Period (~7,000 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 ~2,200 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 midHolocene 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.
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, Kathleen, 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) - Galliard, 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.pagesigbp.org/en/leg/landcover6k/intro), an international and interdisciplinary working group dedicated to reconstructing global Holocene land use and land cover. The initial goal of this effort is to critically evaluate and improve models of anthropogenic land cover change being employed by climate scientists and ensure these are archaeologically robust and are well-informed by current understanding of human land use history.

TH5-14 Abstract 02
Land Use 6k: A First Assessment of South Asia
Author - Bauer, Andrew, Stanford University, Stanford, United States of America (Presenting author)
Co-author(s) - Madella, M., Universitat Pompeu Fabra, Barcelona, Spain
Co-author(s) - Madella, Marco, Department of Humanities, University Pompeu Fabra (UPF), Barcelona, Spain
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 LandCover and LandUse6k project (http://landuse.ucsd.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 - Prof. Peacock, Evan, Mississippi State University, Mississippi State, MS, United States of America (Presenting author)
Co-author(s) - Galliard, Marie-Jose, Department of Biology and Environmental Science, Linnaeus University, Kalmar, Sweden
Keywords: Climate Change, Land Use, Southeastern U.S.A.
Presentation Preference - Oral

Decades of archaeological survey and excavation in the upper Tombigbee River drainage of Mississippi, southeastern U.S.A., have produced a large body of data related to demographic, settlement, and subsistence patterns over the course of the Holocene. Using variations of ceramics and habitation sizes 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 B.C. – 1000 C.E., when human population growth related to the advent of sedentism led to increasing hunter-gatherer pressure on local-scale environments; and 3) the adoption of agriculture at ca. 1000 C.E., which was selected for in the face of such pressures. We also discuss the different roles that construction of monumental architecture may have played across the changing selective environment over the last 10,000 years in the study area.

TH5-14 Abstract 04
North American Land Use from 6K Onward: A First Look
Author - Prof. Wandsnider, LuAnn, 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
Co-author(s) - Shuster, Andrew, Louisiana State University, Baton Rouge, United States of America
Keywords: collaborative research, land use, North America
Presentation Preference - Oral

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 how these impact on the modern landscape.
Integrating syntheses of land use by archaeologists, historians, and historical geographers, we present a preliminary meta- 
analyses of land use, including different modes of land use - foraging, agriculture, pastoralism, and urbanism - by indigenous and 
European settlers in the Neolithic period. Our treatment considers eastern North America, the Great Plains of North America, and 
Middle America, including Mexico. We focus on specific time periods within the Middle and Late Holocene, as land use rapidly 
transformed from generalized foraging, to specialized foraging, to intensively managed commodification (including forms of 
pastoralism) and later agriculture, with urban centers appearing by 1000 AD in various parts of North America. We conclude with 
the historic era, 1850 CE, by which time agriculture and other land use practices were industrialized. Land use characterizations 
such as these are the foundation for the construction of higher fidelity models of recent climate change. This effort contributes 
to LandUse 6k, a global collaboration to document land use around the world and through time, in order to achieve a better 
understanding of anthropogenic involvement with climate change. We seek input from scholars of European archaeology on 
method and implications.

TH5-14 Abstract 05

Intensity of human impact inferred from pollen I 
and-cover reconstruction and archaeological models
Author - PhD Drslerova, 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
Presentation Preference - Oral

Recent global change accelerates the need for understanding of human-climate relation 
and for quantification of anthropogenic land-use change in the past. We inferred human impact both from the pollen-based land-cover reconstruction and from archaeological data. We present a current state of the research concerning this cross validation for the Holocene period in the selected regions of the Czech Republic.

We used pollen data from the PALYVCZ 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 data. 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, Plantago lanceolata and Poacoce were considered as indicators of crop cultivation, pastoral management and deforestation in general.

Archaeological data was taken from the Archaeological database of Bohemia. The intensity of human impact was inferred by modeling the economic system of a prehistoric community and its consequences to the surrounding environment. Special attention was paid to estimate the amount of crops 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 Cereal is ca. 10 times higher than the prediction of the archaeological model. We interpret the mismatch by providing sources of possible biases: REVEALS model assumes that pollen record originates from one large site or several small sites in the even vegetation mosaic, but vegetation in our study area is distributed very unevenly, i.e. sites in the region with the highest signal of cereal are oxbow mires surrounded by cereal patches, so the radius of the region might be smaller than 60 km.

We calibrated pollen productivity in the recent landscape, where autogenic Trillicum prevail, however pollen productivity of prehistoric cereal species could vary in the time. Moreover, large grains of wild grasses (Oryzae maxima) could be often classified as cereals.

Miscalculation of human influence on vegetation derived from archaeological data; existing estimates based mostly on assessed past population densities are still very problematic. Although we do not know what is the contribution of each bias, we critically evaluate widely used REVEALS model and significantly contribute to the understanding of human land use history in Czech Republic.

This research was supported by the Czech Science Foundation grants No. 13-11193S and 16-11010S.

TH5-14 Abstract 06

Animal subsistence in the Eneolithic period from South-East Romania
Author - PhD Balasecu, Adrian, National Museum of Romanian History, Bucharest, Romania (Presenting author)
Keywords: Eneolithic, Romania, Zooarchaeology
Presentation Preference - Oral

The presence of the first tell settlements in the southeastern Romania and their development between 4700-3500 BC allowed some observation about animal paleoeconomy evolution over several cultural sequences (Boian, Gumelnita, Sâlcia and Cernavodă I). Thus, the existence of numerous tell settlements with a complex stratigraphic and chrono-cultural sequences attested (e.g. Carcea, Vicu or Vicu, Gumelnita) gave us the opportunity to record some changes in the livestock and hunting activities. Regarding the livestock activity, cattle and sheep/goat which prevail, shows highly significant variations by region. The slaughtering curve study for these that the cattle are grown for milk while sheep/goat is bred for meat. In this manner, between the two types of animals we remarked a complementarity in animals’ products. Our study also captures the pig growing importance from 5% to 25% since the beginning of the first tells settlement, so this is closely linked to the sedentary lifestyle of the Eneolithic populations. Additionally, in several sites, it can be noticed that the hunting intensification can reach over 35% of mammals fauna identified. This intensification could be associated with a humid and rainy period characteristic for the Eneolithic period. Furthermore, in Eneolithic settlements in southeastern Romania, we can remark the fauna oscillation in several directions, which demonstrates how the paleoeconomy of livestock is highly dynamic and associated with several factors. Thus, the connections with the environment are strengthened, a vital thing for an efficient exploitation of local potential.

TH5-14 Abstract 07

Middle Neolithic transformations of food economy in the upper Vistula basin (SE Poland)
Author - Dr. Moskal-del Hoyo, Magdalena, W. Szafer Institute of Botany, 
Polish Academy of Sciences, Kraków, Poland (Presenting author)
Co-author(s) - Dr. hab. Nowak, Marek, Institute of Archaeology, Jagiellonian University, Kraków, Poland
Co-author(s) - Dr. hab. Mueller-Blieniek, Alicja, W. Szafer Institute of Botany, Polish Academy of Sciences, Kraków, Poland
Co-author(s) - Dr. Szwarzczewski, Piotr, Faculty of Geography and Regional Studies, University of Warsaw, Warsaw, Poland
Co-author(s) - Dr. Wacnik, Agnieszka, W. Szafer Institute of Botany, Polish Academy of Sciences, Kraków, Poland
Co-author(s) - Kujawska, Krystyna, Institute of Archaeology, Jagiellonian University, Kraków, Poland
Keywords: food economy, Funnel Beaker Culture, South-Eastern Poland
Presentation Preference - Oral

In the first half of the fourth millennium BC, in the upper Vistula basin, from the perspective of the past material culture, the last units of the Late Mesolithic-CPFagocé (included to the so-called Danubian Neolithisation) disappeared. In that period a new archaeological model into vegetation estimates. The algorithm considers pollen productivity, pollen dispersal and deposition, when interpreting fossil pollen data. 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 mosaic, but vegetation in our study area is distributed very unevenly, i.e. sites in the region with the highest signal of cereal are oxbow mires surrounded by cereal patches, so the radius of the region might be smaller than 60 km.

We calibrated pollen productivity in the recent landscape, where autogenic Trillicum prevail, however pollen productivity of prehistoric cereal species could vary in the time. Moreover, large grains of wild grasses (Oryzae maxima) could be often classified as cereals.

Miscalculation of human influence on vegetation derived from archaeological data; existing estimates based mostly on assessed past population densities are still very problematic. Although we do not know what is the contribution of each bias, we critically evaluate widely used REVEALS model and significantly contribute to the understanding of human land use history in Czech Republic.

This research was supported by the Czech Science Foundation grants No. 13-11193S and 16-11010S.

TH5-14 Abstract 08

High resolution record of land use, vegetation 
erosion and erosion history from Lake Skogstjern
Author - Dr. Wiczkowska-Lüth, Magdalenka, University of Kiel, Institute of Pre- and Protohistoric Archaeology, Kiel, Germany (Presenting author)
Co-author(s) - Persson, P. A., As, Museum of Cultural History, University of Oslo, Oslo, Norway
Co-author(s) - Sohmi, S. Sofie, Museum of Cultural History, University of Oslo, Oslo, Norway
Co-author(s) - Schügel, A. Schügel, Museum of Cultural History, University of Oslo, Oslo, Norway
Co-author(s) - Dörfl, W. Dörfl, Institute of Pre- and Protohistoric Archaeology, Kiel, Germany
Co-author(s) - Kriel, W. Kriel, University of Kiel, Institute of Pre- and Protohistoric Archaeology, Kiel, Germany
Presentation Preference - Oral

Recent global change accelerates the need for understanding of human-climate relation 
and for quantification of anthropogenic land-use change in the past. We inferred human impact both from the pollen-based land-cover reconstruction and from archaeological data. We present a current state of the research concerning this cross validation for the Holocene period in the selected regions of the Czech Republic.

We used pollen data from the PALYVCZ 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 data. 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, Plantago lanceolata and Poacoce were considered as indicators of crop cultivation, pastoral management and deforestation in general.

Archaeological data was taken from the Archaeological database of Bohemia. The intensity of human impact was inferred by modeling the economic system of a prehistoric community and its consequences to the surrounding environment. Special attention was paid to estimate the amount of crops 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 Cereal is ca. 10 times higher than the prediction of the archaeological model. We interpret the mismatch by providing sources of possible biases: REVEALS model assumes that pollen record originates from one large site or several small sites in the even vegetation mosaic, but vegetation in our study area is distributed very unevenly, i.e. sites in the region with the highest signal of cereal are oxbow mires surrounded by cereal patches, so the radius of the region might be smaller than 60 km.

We calibrated pollen productivity in the recent landscape, where autogenic Trillicum prevail, however pollen productivity of prehistoric cereal species could vary in the time. Moreover, large grains of wild grasses (Oryzae maxima) could be often classified as cereals.

Miscalculation of human influence on vegetation derived from archaeological data; existing estimates based mostly on assessed past population densities are still very problematic. Although we do not know what is the contribution of each bias, we critically evaluate widely used REVEALS model and significantly contribute to the understanding of human land use history in Czech Republic.

This research was supported by the Czech Science Foundation grants No. 13-11193S and 16-11010S.
In connection with two rescue excavation projects in Southeastern Norway, the Vestfold Museum prospekt and the project E8-Rugli-vedv-Petral, a cooperation between the Museum for Cultural History, University of Oslo, and the Graduate School Human Develop-
ment in Landscapes” at Kiel University was established, to extract and analyze a core from Lake Skogstjern, 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 data, the importance 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 coring site Lake Skogstjern provides pollen analytical investigations with a high temporal resolution of 12 to 38 yr/
sm, showing a detailed picture of landscape development in a long-term perspective. Complementary techniques of non-pollen
palynomorphs- and microscopic 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 influ-
ence for more than 10500 years. Lake Skogstjern 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 palaeoenvironmental 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 archaeological discussion on the relationship of human and surroundings
and from a mobile to a sedentary way of life.

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)
Co-author(s) - Thewraukl, Martin, Institute for Geography and Geology, Ernst-Moritz-Ardt-University, Greifswald, Germany
- Wulf, Sabine, Senckenberg Research Institute and Natural History Museum, Evolution and Climate, Frankfurt a. M., Germany
- Szwarczyk, Krystyna, Polish Academy of Sciences, Institute of Geological Sciences, Warsaw, Poland
- Tjallingii, Rik, GFZ Potsdam, Potsdam, Germany
- Schmied, S., University of Rostock, Department of Biology, Institute of Botany, Rostock, Germany
- Niess, Sebastian, Institute for Geography and Geology, Ernst-Moritz-Ardt-University, Greifswald, Germany
- Braue, Achim, GFZ Potsdam, Potsdam, Germany

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 Klosklin Lake Chain, a subglacial channel system that crosses the Pomeranian terminal moraine. Coring 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 microlithics analyses using thin sections, µXRF analyses on split sediment cores, geochemical analyses of bulk samples, diatom and cloroceras analysis and reconstruction of vegetation openness from pollen data. Furthermore, we include archaeological data from the study area characterizing human settlement phases.

The sediment record of Lake 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-scale variability of varve preservation causes 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.

TH5-14 Abstract 10
Early agriculture and landscape evolution in the Central Mediterranean

Author - Dr. Malcolm Rowan, Queen’s University Belfast, Belfast, United Kingdom (Presenting author)
Co-author(s) - Malone, C., Queen’s University Belfast, Belfast, United Kingdom
- Farrell, M., Queen’s University Belfast, Belfast, United Kingdom
- Flood, R., Queen’s University Belfast, Belfast, United Kingdom
- Fenech, K., University of Malta, Malta, Malta
- Schmied, S., University of Malta, Malta, Malta
- Vella, N., University of Malta, Malta, Malta
- French, C., University of Cambridge, Cambridge, United Kingdom
- Bodont, S., University of Cambridge, Cambridge, United Kingdom
- Taylor, S., University of Cambridge, Cambridge, United Kingdom
- Bates, J., University of Cambridge, Cambridge, United Kingdom
- McCormick, F., Queen’s University Belfast, Belfast, United Kingdom

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 civilizations 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 palaeoecology and the archaeological sciences, the ERC-funded FRAGSUS project 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 mis-management, or environmental collapse? 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.

TH5-14 Abstract 11
Environmental changes and agricultural systems in NW Iberia during the Middle and Late Holocene

Author - Seabr, Luis, CIBIO-Research Center In Biodiversity and Genetic Resources-University of Porto, Palos de Ferreira, Portugal (Presenting author)
Co-author(s) - Toffo, João Pedro, T., J.P., João Pedro Vicente Toffo, Porto, Portugal
- Drelger, Nadine, GFZ Potsdam, Potsdam, Germany
- Bates, J., University of Cambridge, Cambridge, United Kingdom

Keywords: Agricultural systems, Environmental changes, Middle and Late Holocene, Northwest Iberia, Carpology

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 and 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 spatial organization of other features.

Developments in storage facilities are also recorded. Especially, underground storage (guts), that proved to be an important strategy for long-term preservation. Moreover, the palaeoenvironmental records suggest significant changes on several levels such as the diversity of cover. Increasing erosion events occur as the result of anthropogenic deforestation to obtain farmers 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 undemanding and erosive soils.

These different environmental and archaeological records will be presented in order to address the main changes in land cover and land use, namely their relation with the evolution of agricultural strategies and social-ecological systems in Northwest Iberia.

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TH5-14 Abstract 12

The anthropization of the Cantabrian Mountains (NW Iberia) during the Later Prehistory

Author: Dr. González Álvarez, David, Universidad Complutense de Madrid, Salas, Spain (Presenting author)
Keywords: Anthropization, Landscape Archaeology, Later Prehistory
Presentation Preference: Oral

This paper attempts to provide a historical narrative that accounts for the biography of the cultural landscapes of the Western part of the Cantabrian Mountains based on a social interpretation of archaeological data and paleoenvironmental sequences. A diachronic perspective is adopted drawing on in the theoretical and methodological framework of Landscape Archaeology. This is achieved by analyzing the patterns of settlement and subsistence deployed by human groups during the five millennia that mediate between the emergence of agriculture and animal farming (c.a. 4800 BC) and the Roman conquest of the area under study (late first century BC). In light of the data considered for the mountainous area which separates Spanish contemporary regions of Asturias and León, the investigation reflects about the human experiences and the historical processes that intervened in the anthropization and the social construction of the cultural landscapes of the Later Prehistory in the area. During the Neolithic there is a spread of agriculture and farming. This process can be perceived earlier in the coastal areas than 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 hilltops. 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 emergence in the social or cultural livelihoods performed by the communities who inhabited the Cantabrian Mountains during the Later Prehistory.

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TH5-14 Abstract 13

Human-environment interactions in the Alps: Archaeological and palaeoenvironmental approaches

Author: Dr. Walsh, Kevin, University of York, York, United Kingdom (Presenting author)
Co-author(s): Dr. Giguet-Covex, Chantal, University of York, York, United Kingdom
Co-author(s): Dr. Brisset, Eloi, IMBE UMR 7283, Aix-en-Provence, France
Co-author(s): Prof. Nocci, Florence, Centre Camille Julién UMR 7283, Aix-en-Provence, France
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 2800 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 these datasets is often 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 aDNA. 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 covolution; 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 landscape management probably intersected with the extension of the lactase 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 interacts with the continued domestication of animals.

This contribution will present an integrated review of archaeological, palynological, anthropological and sedimentary aDNA 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.

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TH5-14 Abstract 14

Chalcolithic-EBA farming, soil loss, and the development of a karst landscape in western Ireland

Author: Dr. Jones, Caitlin, National University of Ireland Galway, Galway, Ireland (Presenting author)
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 palaeoenvironmental 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.

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TH5-14 Abstract 15

Seeing Beyond the Site: Later Prehistoric Landscapes of southeast Ireland

Author: Dr. Gaarey, Benjamin, University College Cork, Cork City, Ireland (Presenting author)
Co-author(s): Dr. Becker, Katharina, University College Cork, Cork City, Ireland
Co-author(s): Dr. McClatchie, Meriel, Dept of Archaeology, UCD, Dublin, Ireland
Co-author(s): Dr. Nagle, Caitlin, Dept Archaeology, University of Sheffield, Sheffield, United Kingdom
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 RESTA (The Heritage Council, Ireland) which has been investigating changes in settlement patterns and subsistence from the late Bronze Age into the Iron Age as derived from extensive, well dated, palaeoenvironmental data from Roatán 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 modelling of radiocarbon dates. These data have been integrated with evidence for patterns of landscape change and human
activity derived from palaeoenvironmental records. The study opens up new perspectives on this critical period in Irish prehistory and also illustrates the methodological and theoretical challenges of interpreting archaeological and palaeoenvironmental data.

TH5-14 Abstract 16
Land use and vegetal biodiversity in the Iron Age landscape of Brittany (France)

Author - Dr. Van Beek, Roy, Universite de Rennes 2, Roosendaal, Netherlands (Presenting author)
Co-author(s) - Marguerre, Dominique, Ecobio, Universite de Rennes 1, Rennes, France
Co-author(s) - Burel, Francois, Ecobio, Universite de Rennes 1, Rennes, France
Co-author(s) - Antoine, Anne, CEPHO, Universite de Rennes 2, Rennes, France
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 (450-50 BC) is selected as a case study. Compared to many other parts of Northwest Europe, Brittany is rich in high-resolution palaeobotanical data. These allow for the 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

Author - Azarov, Evgeny, State Historical Museum, Moscow, Russian Federation (Presenting author)
Co-author(s) - Shishina, Natalia, State Historical Museum, Moscow, Russian Federation
Co-author(s) - Borisov, Alexander, Soil Institute, Puschno, Russian Federation
Co-author(s) - Ponomarenko, Dmitri, Borissiak Paleontological Institute, RAS, Moscow, Russian Federation
Co-author(s) - Dortch, Joe, University of Western Australia, Crawley, Australia
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, geobotanics, geoinformatics, palaeoecology, 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 wind swept watershed sections rather than near subdainsite features of the relief. Such camps can be discovered only if the soil was overlaid by natural deposits, which may occur on sections with sand.

TH5-14 Abstract 18
Hunter-gatherer exploitation of biodiversity in Southwestern Australia

Author - Monka, Carly, University of Western Australia, Crawley, Australia (Presenting author)
Co-author(s) - Dortch, Joe, University of Western Australia, Crawley, Australia
Keywords: Human land use, Palaeoecology, Zooarchaeology

The Kwgongan sandplains of Southwestern Australia are a global biodiversity hotspot, characterised by diverse, fire-sensitive heathland vegetation and niche-restricted mammalian fauna. Archaeological evidence indicates that Aboriginal people exploited littoral resources along the region’s coastal fringes during the mid- to late Holocene, but use of the biodiversity has been poorly studied. In this paper we explore the archaeological and palaeoecological evidence for human land use and terrestrial resource exploitation in the northern section of the Kwgongan sandplains. We compare the palaeoecological evidence provided by the small mammal faunal record from two caves with the regional archaeological evidence for human occupation and subsistence during the mid- to late Holocene, and explore the connections between human activity, environmental change, and ecological composition through time. This study indicates that while littoral resource exploitation may have been a minor feature of human occupation of the region, particularly after sea levels stabilised in the mid-Holocene, terrestrial and lacustrine resources played an important role in regional subsistence and land use.

TH5-14 Abstract 19
Palynological fingerprint of demographic changes during the Migration Period in northern Poland

Author - Dr. Pedziwczewska, Anna, University of Gdańsk, Gdańsk, Poland (Presenting author)
Co-author(s) - Latałowa, Małgorzata, Department of Plant Ecology, University of Gdańsk, Gdańsk, Poland
Co-author(s) - Noryskiewicz, Agnieszka, Institute of Archaeology, Nicolaus Copernicus University, Toruń, Poland
Co-author(s) - Szweczko-Musznicka, Joanna, Department of Plant Ecology, University of Gdańsk, Gdańsk, Poland
Co-author(s) - Swietosławski, Tadeusz, Department of Plant Ecology, University of Gdańsk, Gdańsk, Poland
Keywords: Migration Period, N. Poland, pollen analysis

Pollen analysis is a method frequently used in studies on environmental changes provided by past human activity. Pollen data help to assess dynamics of settlement and provide evidence on some aspects of the economy based on natural resources. In our study we gathered palynological arguments to reconstruct the timing and dynamics of settlement activity during the first millennium AD in northern Poland. The reported period was a time of considerable demographic, cultural and economic changes which left distinct signatures on the natural environment. In northern Poland, these processes were regionally differentiated because of variation in timing and scale of anthropogenic pressure and due to variation in some natural factors. The most subjects of our lecture are: pollen based reconstruction of settlement dynamics changes in both time and space in northern Poland - an assessment of the scale of changes in forest cover in the period of interest – providing new data for the discussion on the potential persistence of small-scale agricultural activity in the regions of general economic decline during the Migration Period. The results summarizing the pollen data from a number of sites from northern Poland indicate that in the Roman Iron Age the scale of human impact on the forest cover in the most western part of the region was much lower than in the central and eastern parts of the region. The demographic crisis in the Migration Period resulted in a large-scale regional reforestation of the whole area but the scale and duration of reduced settlement activity was different. In this respect the pollen data conform well with the archaeological information. The woodland expansion concerned different dominant tree taxa in the western, central and eastern parts of the area. The new deforestation phase connected with the early medieval took place in different centuries and varied as concerns intensity of the land use.

The study was supported by a grant DEC-2011/02/A/HS3/00089 financed by the National Science Centre (NCN) in Poland.

TH5-14 Abstract 20
Multiplex analysis of colluvial fan deposits: approach to reconstructing the land use history

Author - Dr. Pomorzanenko, Elena, University of Ottawa, Ottawa, Canada (Presenting author)
Co-author(s) - Eroshova, Ekaterina, Moscow State Lomonosov University, Moscow, Russian Federation
Co-author(s) - Pomorzanenko, Dmitri, Borissiak Paleontological Institute, RAS, Moscow, Russian Federation

Presenting Preference - Oral

Pollen analysis is a method frequently used in studies on environmental changes provided by past human activity. Pollen data help to assess dynamics of settlement and provide evidence on some aspects of the economy based on natural resources. In our study we gathered palynological arguments to reconstruct the timing and dynamics of settlement activity during the first millennium AD in northern Poland. The reported period was a time of considerable demographic, cultural and economic changes which left distinct signatures on the natural environment. In northern Poland, these processes were regionally differentiated because of variation in timing and scale of anthropogenic pressure and due to variation in some natural factors. The most subjects of our lecture are: pollen based reconstruction of settlement dynamics changes in both time and space in northern Poland - an assessment of the scale of changes in forest cover in the period of interest – providing new data for the discussion on the potential persistence of small-scale agricultural activity in the regions of general economic decline during the Migration Period. The results summarizing the pollen data from a number of sites from northern Poland indicate that in the Roman Iron Age the scale of human impact on the forest cover in the most western part of the region was much lower than in the central and eastern parts of the region. The demographic crisis in the Migration Period resulted in a large-scale regional reforestation of the whole area but the scale and duration of reduced settlement activity was different. In this respect the pollen data conform well with the archaeological information. The woodland expansion concerned different dominant tree taxa in the western, central and eastern parts of the area. The new deforestation phase connected with the early medieval took place in different centuries and varied as concerns intensity of the land use.

The study was supported by a grant DEC-2011/02/A/HS3/00089 financed by the National Science Centre (NCN) in Poland.
Keywords: Anthracology, palynology, trace fossils, Geoarchaeology, land use, paleoecology

Presentation Preference - Oral

We’ve 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 gullies within the catchment areas. Depopulation of the catchment area would, in contrary, cause the surface stabilization and either grassland or forest soil formation. The combination of pedological, ichnological, palynological, and archaeological 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 the Holocene.

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 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 gullies as roads and drowneways. The assemblages were compared with the pollen spectra from the same samples and trace fossils 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 phases 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 VIII-XIII 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 X-XI cent. AD. Both the Medieval Warming and growing networks of open fields contributed to the large-scale deforestation of the forest-steppe in X-XI cent. AD. That entailed a considerable expansion of home ranges of burning 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 22

Investigation of soils from archaeological monuments using biological methods

Author - Tükbatova, Rezeda, Kazan Federal University, Kazan, Russian Federation (Presenting author)

Co-author(s) - Stitskov, Anat, Kazan Federal University, Kazan, Russian Federation

Keywords: ancient soil, Bolgar city

Presentation Preference - Oral

During thousand years of history of agriculture the total area of settlements and arable land reached a very significant scale. Due to the different systems of the people’s settlement in ancient and medieval times, it can be assumed that large areas of land in a particular moment of history had different forms of anthropogenic influence, traces of which are not currently recorded at the morphological level. It is assumed that the ancient evidence of human impact on the landscape would remain at the level of the soil biota, the most sensitive and mobile soil component. The aim of this work was to identify the soils which had anthropogenic impact in different historical periods, as well as reference sites, where soil developed without human intervention.

The reconstruction of some aspects of agriculture in the territory of the ancient city Bolgar (XV-XVIII 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

Author - Dr. Garasimov, Dmitry, Museum of Anthropology and Ethnography Rus. Acad. Sci., St.-Petersburg, Russian Federation (Presenting author)

Co-author(s) - Sergey, A., VSEGEI, St.-Petersburg, Russian Federation

Co-author(s) - Ryabchuk, D., VSEGEI, St.-Petersburg, Russian Federation

Co-author(s) - Kriiska, A., Tartu University, Tartu, Estonia

Co-author(s) - Khokhlova, M., St.-Petersburg State University, St.-Petersburg, Russian Federation

Co-author(s) - Nordqvist, K., University of Oulu, Oulu, Finland

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 border (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.
Trace element and isotope analyses are powerful tools for reconstructing past human diets, mobility and environments as well as establishing chronologies and provenancing materials and artefacts. With the recent developments in measurement methodologies for mass spectrometry during the 90’s, it is now possible to precisely and accurately measure stable isotope compositions of new elements (e.g. B, Ca, Cu, Fe, Hg, Mg, Nd, Pb, Sr, Sr, Zn) in all kinds of materials, opening up new perspectives for archaeological sciences. This session aims to bring together researchers that are working on new techniques as well as scholars that employ traditional techniques using novel approaches to interpret their data (e.g. example the interpretation of multiple isotope/trace element analyses of the same sample). We invite contributions that focus on a variety of materials, such as human or animal tissues (e.g., bone, tooth, blood, shells), archaeological materials (e.g. raw materials, ceramics, glass artefacts, metals, building stones) or environmental samples from archaeological sites (e.g. speleothems, soils). These contributions should show the potential of these new stable and radiogenic isotopes (Nd, Pb) for archaeological sciences or present new developments in stable isotope analyses (C, H, O, N, S). Studies that integrate isotopic trace element and archaeological data in an innovative way are particularly welcomed, as well as discussions on the potential and limitations of these analyses. We hope that this session will demonstrate that these new techniques hold great potential for a more integrated interpretation of the archaeological record and that it is possible to get relevant archaeological information which is currently beyond reach.

**TH5-15 Abstract 01**

**Extending the human provenancing repertoire: Neodymium isotopes**

Author - Plomp, Esther, Vrije Universiteit Amsterdam, Amsterdam, Netherlands (Presenting author)

Co-author(s) - Kemmer, J.M., Vrije Universiteit Amsterdam, Amsterdam, Netherlands

Co-author(s) - Font, L., Vrije Universiteit Amsterdam, Amsterdam, Netherlands

Co-author(s) - Laffoon, J.E., Vrije Universiteit Amsterdam, Amsterdam, Netherlands

Co-author(s) - Davies, G.R., Vrije Universiteit Amsterdam, Amsterdam, Netherlands

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-nanogram amounts of neodymium were analysed using a latest generation thermal ionization mass spectrometer (TRITON-Plus) equipped with 1013 resistors at the Vrije Universiteit Amsterdam. This study presents the neodymium concentration and composition results of third molars from modern Dutch residents. These results will be compared to other isotopic systems (Sr and Pb) and the possibilities for Nd as an archaeological human provenancing tool will be discussed.

**TH5-15 Abstract 02**

**Zinc isotope compositions of bone and dental enamel and their relationship to diet**

Author - Dr. Jacoens, Klevraa, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany (Presenting author)

Co-author(s) - Sopak, Paul, University of British Columbia, Vancouver, Canada

Co-author(s) - Beasley, Melinda, University of California, San Diego, United States of America

Co-author(s) - Herracher, Estelle, LAMPEA, MSHM, Aix en Provence, France

Co-author(s) - Collette, Rozen, INRAP, Reneiss, France

Co-author(s) - Balter, Vincent, ENS Lyon, Lyon, France

Co-author(s) - Schoening, Margaret, University of California, San Diego, United States of America

Co-author(s) - Richards, Michael, University of British Columbia, Vancouver, Canada

Keywords: Archaeological sciences, dietary tracer, nontraditional isotopes

Presentation Preference - Oral

Isotopic analyses of carbon and nitrogen are conventionally employed in bioarchaeology for dietary reconstructions. These elements are however contained in the bone collagen which deteriorates over time. Mass spectrometry advances now allow trace element isotope analyses of bioapatite. First studies on Zn isotope compositions in bone showed its potential as a new dietary tracer. This contribution aims at testing the influence of diet on Zn isotope compositions of bone and teeth. We investigated the Zn isotopic variability in bone and tooth enamel of mammals and archaeological human populations characterized by various diets, environment contexts (arctic, arid, temperate) and historical periods. The samples were purified by column chromatography and the Zn isotopic ratios were measured using MC-ICP-MS. The isotopic composition of traditional food tracers (13C and 15N) has been assessed in parallel. We will show the Zn isotopic composition in the bones and teeth is strongly influenced by the trophic level, but that some dietary and environmental factors can generate additional variability. We will discuss the advantages and limitations of this new tracer by comparing its performance to that of classic isotope analyses.

**TH5-15 Abstract 03**

**Hydrogen stable isotope ratios measured in bone collagen from Danish prehistoric samples**

Author - van der Stuijs, Laura G.1 (Presenting Author) School of Geography, Archaeology and Palaeoecology, Queen’s University Belfast, United Kingdom

Co-author(s) - Ogle, N., School of Planing, Architecture and Civil Engineering, Queen’s University Belfast, United Kingdom

Co-author(s) - Reimer, P.J., School of Geography, Archaeology and Palaeoecology, Queen’s University Belfast, United Kingdom

Keywords: Hydrogen, Bone, palaeodiet

Presentation Preference - Oral

Palaeodietary studies commonly analyse δ13C and δ15N ratios in archaeological bone to infer past dietary habits, although δ13C ratios can be influenced by a range of factors other than diet (acidity, manuring, soil conditions, etc.). δ2H ratios have been shown to function as trophic level indicator (Birchall et al., 2005; Reynard and Hedges 2008) which can be very useful to aid our interpretation of the δ13C and δ15N ratios and improve our understanding of palaeodietary habits and subsistence practices. Hydrogen in organic tissues consists of a non-exchangeable and exchangeable fraction; the latter will equilibrate with atmospheric hydrogen with atmospheric hydrogen from water vapor in the lab environment, resulting in meaningless values. This fraction needs to be calculated in order to obtain the non-exchangeable fraction which represents the true values. By applying a 2-stage equilibration method, sample specific and process specific factors influencing exchange rates are compensated for (Meier-Augenstein et al., 2011). Recently developed standards packed in silver tubes containing water of known isotopic composition (Qi et al. 2010) can be analysed alongside solid samples in the same run, which is essential to avoid scale compression. While this method is not novel (Bowen et al., 2005; Meier-Augenstein et al., 2011, 2013), its application with the use of Qi et al’s standards to archaeological material is new. In this study we subjected bone collagen samples from prehistoric periods from the Limfjord region in northern Denmark spanning the Mesolithic to the Viking Age to a two-stage equilibration method using the silver tube standards to obtain absolute δ2H values from the non-exchangeable hydrogen fraction.


TH5-15 Abstract 04
Stable isotope ratios and trace elements in modern mammal tooth enamel

Author: Dr. Da Winter, Niels, Vrije Universiteit Brussels, Elsene, Belgium (Presenting author)
Co-author(s): Snoeck, Christophe, Vrije Universiteit Brussels, Elsene, Belgium
Co-author(s): Goderis, Steven, Vrije Universiteit Brussels, Elsene, Belgium
Co-author(s): Maetelaer, Stijn, Ghent University, Ghent, Belgium
Co-author(s): Vanhaecke, Frank, Ghent University, Ghent, Belgium
Co-author(s): Claey, Philippe, Vrije Universiteit Brussels, Elsene, Belgium
Keywords: bioapatite, isotopes, trace elements
Presentation Preference: Oral

Bioapatite from mammal tooth enamel is a popular biomarker used in the reconstruction of palaeoenvironment and palaeodiet. It records information about the animal’s environment and diet on a sub-animal 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) 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 model is presented that links the various geochemical records within a tooth sequence through mineralisation sequences and oxygen isotopes seasonality. This way, a 3-year trace element and stable isotope record from horse tooth enamel is created showing seasonal variation in trace elements and isotope ratios linked to changes in climatic conditions and diet through the animal’s lifetime.

This study shows how an entire new set of trace element proxies, that can be measured quickly and non-destructively, may yield information on palaeoenvironment and palaeodiet. These trace element measurements yield information from precious archaeological samples that could otherwise be obtained solely through destructive sampling. The versatility of the μXRF and Laser Ablation ICP-MS allows a rapid and cost-effective laser ablation method, that is able to measure the elemental composition of shell carbones to determine season of death. By providing a high sampling resolution (<100 µm) and short processing time, large sample sizes can be analysed in great detail. In turn, it allows us to analyse exploitation and accumulation patterns of the Farasan islands in more detail. Specifically, this study aims to answer questions regarding (1) how a larger number of shells per layer changes the interpretation of site seasonality, (2) whether seasonal layering of shell deposits are singular or repeated events, and (3) how accumulation rates based on seasonality can vary throughout the deposit and tells us more about the processes behind shell deposition.

TH5-15 Abstract 05
The geochemical relationship between soil, plant and streamwater; implications for migration studies

Author: Ryan, Saskia, Trinity College Dublin, Dublin, Ireland
Co-author(s): Crowley, Quentin, Trinity College Dublin, Dublin, Ireland
Co-author(s): Snoeck, Christophe, Vrije Universiteit Brussels, Brussels, Belgium (Presenting author)
Co-author(s): Babechuk, Michael, Trinity College Dublin, Dublin, Ireland
Keywords: Geographical discrimination, Multi-element composition, Strontium isotopes
Presentation Preference: Oral

Strontium isotopes (87Sr/86Sr) and rare earth element (REE) analyses of rock, the leachable fraction of soil, plant and surface waters are applied as chemical proxies to assess chemical reservoir interactions, element bioavailability and geographic variability. These processes are the basis for geographic discrimination and associated archaeological provenancing. 53 biosphere samples were collected from a small geographic area in Co. Meath, a region of Ireland that has highly variable bedrock and surficial geology and hosts significant archaeological sites including, Newgrange, the Hill of Tara and Knowth. These multi-element and isotope geochemical data geographically constrain this region and the high degree of spatial variability in 87Sr/86Sr highlights the inherent requirement for high-density sampling in order to isotopically characterise distinct reservoirs. The results of this study provide a baseline of biophere geochemical data that can be applied to archaeological studies examining the past migration of populations in this archaeologically important region.

TH5-15 Abstract 06
The potential of large-scale seasonality studies, results from the Farasan Island shellmound complex

Author: Dr. Hausmann, Niklas, Foundation for Research and Technology - Hellas, Heraklion, Greece (Presenting author)
Keywords: LIBS, Seasonality, Shellmound
Presentation Preference: Oral

The Farasan shell mounds are one of the largest traces of the Arabian Neolithic Period, with over 3,000 sites having accumulated between 7,000 and 4,000 cal BP. Seasonality data based on stable oxygen and carbon isotopes have determined year-round exploitation of shellfish.

Additionally, they revealed patterns of seasonal stratification within individual layers. This was used to determine sub-annual accumulation rates, exploitation intensity, and degrees of bioturbation within the stratigraphy. This dataset is now being analysed more thoroughly by using Laser Induced Breakdown Spectroscopy (LIBS). LIBS is a rapid and cost-effective laser ablation method, that is able to measure the elemental composition of shell carbones to determine season of death. By providing a high sampling resolution (<100 µm) and short processing time, large sample sizes can be analysed in great detail. In turn, it allows us to analyse exploitation and accumulation patterns of the Farasan islands in more detail. More specifically, this study aims to answer questions regarding (1) how analysing a larger number of shells per layer changes the interpretation of site seasonality, (2) whether seasonal layering of shell deposits are singular or repeated events, and (3) how accumulation rates based on seasonality can vary throughout the deposit and tells us more about the processes behind shell deposition.

TH5-15 Abstract 07
Archaemetrical studies of pottery

Author: Prof. Michalowski, Andrzej, Instytut Prawiatstwi UAM, Poznan, Poland (Presenting author)
Co-author(s): Prof. Niedzielski, Piotr, Department of Analytical Chemistry UAM, Poznan, Poland
Co-author(s): PhD Teska, Milena, Instytut Prawiatstwi UAM, Poznan, Poland
Co-author(s): MA Krueger, Michal, Instytut Prawiatstwi UAM, Poznan, Poland
Co-author(s): MA Krzyzanowska, Maria, Instytut Prawiatstwi UAM, Poznan, Poland
Co-author(s): MA Jakubowski, Karol, Department of Analytical Chemistry UAM, Poznan, Poland
Co-author(s): PhD Kozak, Lidia, Department of Analytical Chemistry UAM, Poznan Poland
Keywords: archaemetrical research, chemical analysis, pottery
Presentation Preference: Oral

The basic carrier of information on the project in question is pottery from Wielkopodola’s sites dating back to the early pre-Minoan age. The multi-level analysis of the existing source base assumes its full elaboration with regards to classical archeological description, connected comparatively with an innovative use of the methods of chemical analysis. The analysis will cover archeological materials obtained mostly as a result of a source search query conducted in museums, but also among entities that currently conduct excavation research. The chemical tests will be performed on the pottery using three independent procedures of samples preparation. In the first procedure, a ground part of pottery will be subject to extraction with hydrochloric acid. In the second procedure, the possibility of leaching components of a sample from the external layers of the tested pottery will be determined, so as to compare the results with the results of non-destructive analyses (e.g. XRF) where only the surface of a sample is analysed representing the acid-leached fraction of the surface of the tested samples. In the third procedure, a ground part of pottery, will be subject to decomposition using hydrofluoric acid at room temperature in closed Teflon vessels. After sample preparation the content of the selected elements in the solutions obtained will be determined by spectrometric techniques: flame atomic absorption (FAAS) or flame optical emission (FOEES) spectrometry, microwave induced plasma optical emission spectrometry (MP-OES) and inductively coupled plasma optical emission spectrometry (ICP-OES). The elaborated procedures and instrumental analytical techniques enable performing tests that have so far been practically unattainable in archaemetrical research.

TH5-15 Abstract 08
Elemental and Sr/Nd isotopic investigation of late Hellenistic to early Roman glass bowls and sand raw materials from Lebanon

Author: Brems, Dieter, KU Leuven, Leuven, Belgium (Presenting author)
Co-author(s): Brems, Dieter, KU Leuven, Leuven, Belgium
Co-author(s): Degryse, Patrick, KU Leuven, Leuven, Belgium
Keywords: Natrium glass, Sand raw materials, Isotopes
Presentation Preference: Oral

Excavations in the Soura area of Beirut, Lebanon, not only revealed large amounts of glass artifacts from the Hellenistic to the Islamic period but also remnants of primary tank furnaces, dating to the early 1st century CE. We determined the major elemental compositions of 66 mid-2nd century BCE – 2nd century CE cast glass bowls from Beirut via electron microprobe. 41 beach sand samples taken along the coastline of Lebanon were analysed for their major elemental compositions via ICP-OES. A selection of sand and glass samples were subjected to Sr and Nd isotopic analysis. Results were compared to the composition of glass from the tank furnaces and Lebanese sandstone interesting the possibility of a local origin.
All glasses were soda-lime-silica in composition, with noor as a flux. Strongly coloured glass was coloured with Cu, Cu and Mn. Pale coloured glass has varying Mn, to about 1.9%, suggesting that they were intended to be coloured. Colourless bottles 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 tank furnaces, suggesting local production and working. The Sb-decoloured glass was made from a different sand source with higher SiO₂ and lower Al₂O₃ and CaO. Mixed Mn-Sb-decoloured glass has intermediate compositions, suggesting they are the result of using both Mn and Sb 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 the same sand. They were indeed produced locally.

1. S. Jennings, Vessel glasses from Beirut (Bey 006, 007 and 045), Berytus Archaeological Studies 48-49, 2006.

TH5-15 Abstract 09

**Tracking copper: Source of metal artefacts**

**from an Iron Age cemetery in Finland by Pb isotopes**

**Author** - Dr. Holmquist, Elisabeth, University of Helsinki, University of Helsinki, Finland (Presenting author)

**Co-author(s)** - Lahaye, Yann, Geological Survey of Finland, Espoo, Finland

**Co-author(s)** - Manner, Ingemar, Geological Survey of Finland, Espoo, Finland

**Co-author(s)** - Wessman, Anna, University of Helsinki, University of Helsinki, Finland

**Keywords**: Copper provenance, geochemistry (ICP-MS, pXRF), Pb isotopes (ICP-MS)

**Presentation Preference** - Oral

The Levantinita 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 assemblage and objects that allowed non-invasive, non-destructive measurements due to their extremely high antiquity value. Nine of the metal artefacts were sampled for lead isotopes (206Pb, 207Pb, 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 indicate that copper was extracted from southern European ores was trafficked to Finland, instead of relying on more regional, e.g., Scandinavian raw material sources, as has traditionally been suggested. The results are in line with a previous Scandinavian study (Ling et al. 2014) and indicate similar patterns of long-distance trade networks of copper. The results also illustrate that the networks seem to have extended even further than previously known, across yet another sea, the Baltic. It is intriguing that stylistically, most of the analysed artefacts indicate a Scandinavian origin – and most probably they were cast locally in Finland and elsewhere in Scandinavia. By combining typological details with source determination of the raw materials used in their manufacture, however, a far more multi-faceted interpretation of the provenance of the artefacts can be established.

TH5-15 Abstract 10

**Iron isotopes as a new tool for ancient metal tracing:**

**comparison with classical tracing methods**

**Author** - PhD student Milot, Jean, Géosciences Environnement Toulouse, Toulouse, France (Presenting author)

**Co-author(s)** - Poltraisson, Franck, Géosciences Environnement Toulouse, Toulouse, France

**Co-author(s)** - Baran, Sandrine, TRACES Laboratory, Toulouse, France

**Keywords**: Ancient metals, Iron isotopes, Provenance studies

**Presentation Preference** - Oral

The development of precise and accurate analytical techniques over the last decades has allowed the range of methods for ancient metal tracing. Elemental and isotopic analyses are now widely used for this purpose. For a relevant archaeological interpretation, metallurgical processes must be taken into account, and analyses must be performed on archaeological ore, slag and metal. So far, isotopic methods were rather employed for non-ferrous metal tracing (e.g. 1) whereas elemental analyses were used for ferrous metal tracing (e.g. 2). However, currently, new elemental and isotopic methods show limitations, which underline the need to develop new tracers to complement existing ones.

We used Fe isotopes as a new tool for ancient metal provenance studies. Isotopic ratios 56Fe/54Fe and 56Fe/54Fe were measured using a Multiple Collector Mass Spectrometer after sample dissolution and Fe purification.

We first developed this approach by analysing materials from archaeological experiments on iron ore reduction. In order to compare our results with classical tracing methods, we also analysed the Fe isotope compositions of archaeological materials whose provenance hypotheses have been established with trace elements analyses of slag. Furthermore, some materials coming from different regions of ferrous and non-ferrous metal production were analysed to assess the tracing potential of Fe isotopes compared to trace elements and Pb isotope analyses.

Our first results show that the bloomery process does not induce Fe isotope fractionation, i.e., the signature of metals and slags reflect that of their corresponding ores. Moreover, Fe isotopes analyses tend to confirm the provenance hypothesis of ancient artefact established with trace elements analysis of slag. The results obtained so far suggest that Fe isotopes are a relevant tracer for archaeological artefacts, which can be applied to ferrous metals. The combination of a more regional tracers involving trace elements or Pb isotope analysis could allow to refine previous provenance hypotheses of ancient metals.

1. S. Jennings, Vessel glasses from Beirut (Bey 006, 007 and 045), Berytus Archaeological Studies 48-49, 2006.
are able to detect elements in traces; these data, in prehistoric archaeometallurgy have been used not only to understand the composition of a prehistoric alloy, but even to understand which ores have been exploited to obtain the metal. This 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 Atlantic contexts. After some speculations, it may be possible to hypothesise that these concentrations are due the precipitation of heavy elements in a liquid state copper melt. These indicators may allow identification of the orientation of objects during the casting phase, giving important data about the technologies used in the production of items and item categories, allowing production categories to be compared within object or type categories.

TH5-15 Abstract 13
Chemical and physical composition of disturbed and less disturbed soil of the Dukšteliai 1 site

Author - Gedminienė, Laura, Nature Research Centre, Vilnius, Lithuania
Co-author(s) - Dudziakienė, Gabriela, Vilnius university, Faculty of History, Archaeology Department, Vilnius, Lithuania (Presenting author)

Keywords: Early Mesolithic and Neolithic-Bronze Age, Geochemical and LoI analyses, Human inhabitance

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 on the distribution of the finds (fint 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 fotation and microscopic bioarchaeological research was done in order to find macro-botany remains that could reveal some details about prehistoric people diet. Geochemical analysis and loss on ignition method (LoI) were also used to find out if there are any elements significant for interpretation but undistinguished during the archaeological excavation.

The samples for geochemical and LoI analyses were collected from the structures as follows: in the middle of the structure, 20cm from the centre and in periphery. It was presumed that the latter represented less disturbed soil. Determination of major and trace elements Al, Ba, Br, Ca, Cl, Cr, Cu, Fe, Ga, K, Mg, Mn, Na, Ni, P, Pb, Rb, Sr, Ti, Zn, S was done using energy-dispersive x-ray fluorescence Spectro Xepos equipment and the Turboquant calibration method for pressed pellets. Also samples were dried at the temperature of 110°C; then heated at 550°C and 950°C to burn out the organic matter and carbonates, respectively.

As a result, insignificant geochemical difference between samples has been observed and only minor inequality of element contents could be seen. Using Ward’s method and Euclidean distances a free diagram for 24 variables was drawn and trace elements were classified into groups representing: 1) clay minerals - Al, Rb, K, Ti, 2) carbonates – Sr, Ca, Ba, and 3) organic matter group with higher amount of Fe, Mn, Co, Zn, P, S. The new data show that higher concentrations of all three group elements accumulated in organic richer samples, which yielded more charcoal and pottery - in the center of the structures.

In this poster presentation the upcoming results of all the investigation procedures undertaken will be presented with the subsequent conclusions about the presumptive functional use of the prehistoric structures in Dukšteliai 1 site.

TH5-16 Abstract 02
Late Holocene multiproxy palaeohydrological and archaeological records from Littleton Bog, Ireland

Author - Dr. Stauney, Phil, University of Reading, Reading, United Kingdom (Presenting author)
Co-author(s) - Young, D. S., University of Reading, Reading, United Kingdom

Keywords: Late Holocene, multiproxy palaeohydrological and archaeological, Littleton Bog, Ireland

In this poster presentation the upcoming results of all the investigation procedures undertaken will be presented with the subsequent conclusions about the presumptive functional use of the prehistoric structures in Dukšteliai 1 site.
This presentation reports on the results of multiproxy palaeoenvironmental investigations carried out in association with archaeological survey and excavation of later prehistoric woodcut-tracks 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. From 5000 cal. BP, a juniper and willow cover growing on poor soils prevails, characterized by high frequencies of coprophilous fungi suggesting grazing herbivores, 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 herbivores remains scarce until the settlement of Norse farmers by the end of the 10th century AD. Settlers arrived in a landscape dominated by birch and willow. Clearance and regrowth of willow and birch and the disappearance of anthropogenic indicators between the 15th and 19th century demonstrate the regrowth of willow and birch and the disappearance of anthropogenic indicators between the 15th and 19th century demonstrate the regrowth of willow and birch and the disappearance of anthropogenic indicators between the 15th and 19th century demonstrate the regrowth of willow and birch and the disappearance of anthropogenic indicators between the 15th and 19th century demonstrate the regrowth of willow and birch and the disappearance of anthropogenic indicators between the 15th and 19th century demonstrate the regrowth of willow and birch and the disappearance of anthropogenic indicators between the 15th and 19th century demonstrate the regrowth of willow and birch and the disappearance of anthropogenic indicators between the 15th and 19th century demonstrate the regrowth of willow and birch and the disappearance of anthropogenic indicators between the 15th and 19th century demonstrate the regrowth of willow and birch and the disappearance of anthropogenic indicators between the 15th and 19th century demonstrate the regrowth of willow and birch and the disappearance of anthropogenic indicators between the 15th and 19th century demonstrate the regrowth of willow and birch and the disappearance of anthropogenic indicators between the 15th and 19th century demonstrate the regrowth of willow and birch and the disappearance of anthropogenic indicators between the 15th and 19th century demonstrate the regrowth of willow and birch and the disappearance of anthropogenic indicators between the 15th and 19th century demonstrate the regrowth of willow and birch and the disappearance of anthropogenic indicators between the 15th and 19th century.

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 wooded trackways, of which 8 features have radiocarbon dating 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, pollen humification and pollen data. The testate amoebae, plant macrofossils 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 clear, the need for greater detail at the local scale is highlighted. Investigations of milled production bog provides a key opportunity to examine the complex interactions between both allogenic and autogenic environmental change and human activity.
TH5-16 Abstract 06
The Early Iron Age 'lake village' at Black Loch of Myrton
Author - Dr. Davies, Kimberly, Plymouth University, Plymouth, United Kingdom (Presenting author)
Co-author(s) - Dr. Whitehouse, Nicola, Plymouth University, Plymouth, United Kingdom
Co-author(s) - Professor Langdon, Pete, University of Southampton, Southampton, United Kingdom
Co-author(s) - Allison, Emid, Canterbury Archaeological Trust, Canterbury, United Kingdom
Co-author(s) - Professor Brown, Tony, University of Southampton, Southampton, United Kingdom
Presentation Preference - Oral
Palaeoenvironmental methods offer the opportunity of retrieving information from a range of proxies around lake site settlements 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 palaeoecological 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 lake village 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. Activities indicated include beekeeping and fly remains, ecotypes (e.g. fleas), characteristic of decomposing forest litter layers and less than salubrious living conditions. Changes in species diversity 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 lake sites and crannogs of comparable situation to provide an overview 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 crannog and lakeside sites across Ireland and Scotland to study patterns in construction, function and longevity of these monuments, across wider geographical scales. The Celtic Connections and Crannogs project, funded by AHRC, sets out to re-examine crannogs as both a cultural and environmental phenomenon that link Iron Age and Medieval communities of SW Scotland and N Ireland.

TH5-16 Abstract 07
Investigating Iron Age lakeside settlements within their palaeoenvironmental context
Author - Dr. Davies, Kimberly, Plymouth University, Plymouth, United Kingdom (Presenting author)
Co-author(s) - Dr. Whitehouse, Nicola, Plymouth University, Plymouth, United Kingdom
Co-author(s) - Professor Langdon, Pete, University of Southampton, Southampton, United Kingdom
Co-author(s) - Allison, Emid, Canterbury Archaeological Trust, Canterbury, United Kingdom
Co-author(s) - Professor Brown, Tony, University of Southampton, Southampton, United Kingdom
Presentation Preference - Oral
Palaeoenvironmental methods offer the opportunity of retrieving information from a range of proxies around lake site settlements 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 palaeoecological 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 lake village 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. Activities indicated include beekeeping and fly remains, ecotypes (e.g. fleas), characteristic of decomposing forest litter layers and less than salubrious living conditions. Changes in species diversity 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 lake sites and crannogs of comparable situation to provide an overview of living conditions associated with these types of sites.

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TH5-16 Abstract 08
How could Crannogs impact on lake environments?
Author - Dr. Van Hardenbroek, Maarten, University of Southampton, Southampton, United Kingdom (Presenting author)
Co-author(s) - Cavers, Graeme, AOC Archaeology Group, Midlothian, United Kingdom
Co-author(s) - Crane, Anne, AOC Archaeology Group, Midlothian, United Kingdom
Co-author(s) - Davies, Kim, Plymouth University, Plymouth, United Kingdom
Co-author(s) - Fonville, Thierry, University of Southampton, Southampton, United Kingdom
Co-author(s) - Van Hardenbroek, Maarten, University of Southampton, Southampton, United Kingdom
Co-author(s) - MacKay, Helen, University of Newcastle, Newcastle-upon-Tyne, United Kingdom
Co-author(s) - Matton, Rachel, University of Southampton, Southampton, United Kingdom
Co-author(s) - McCrimmon, Fiona, The University of Southampton, Southampton, United Kingdom
Co-author(s) - Murray, Emily, Queen’s University Belfast, Belfast, United Kingdom
Co-author(s) - Whitehouse, Nicki, Plymouth University, Plymouth, United Kingdom
Co-author(s) - Brown, Tony, University of Southampton, Southampton, United Kingdom
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 isotopes, and high-resolution X-ray fluorescence (XRF) to highlight input of clay, gravel, and stones from crannog construction.

Increased loading of heavy metals (Cu, Zn) might be related to metalworking on crannogs. In addition, the analysis of pollen, invertebrates, and ancient DNA will provide insights into land use around the lakes and the conditions on the crannogs themselves. Changes in C:N ratios, diatoms, biogenic silica, and invertebrates will demonstrate how crannog construction and use are driving changes in lake environments. Preliminary results indicate that XRF data (Cu, Zn) corroborate sediment stratigraphy and can be used to distinguish periods of crannog construction and use. In one of the sites, Lough Yoan, diatom assemblages indicate a substantial increase of nutrients during this period. The increased variety of submerged substrates due to crannog building also led to a more diverse cladoceran assemblage.
Insights into the occupation of a Scottish Iron Age wetland village using organic geochemistry

Author: Dr. Mackay, Helen, Newcastle University, Newcastle Upon Tyne, United Kingdom (Presenting author)
Co-author(s): Henderson, Andrew, Newcastle University, Newcastle Upon Tyne, United Kingdom
Co-author(s): Van Hardenbroek, Maarten, University of Southampton, Southampton, United Kingdom
Co-author(s): Brown, Tony, University of Southampton, Southampton, United Kingdom

Keywords: Human-environment interactions, Organic geochemistry, Wetland settlement

Presentation Preference: Oral

The first wetland village discovered in Scotland – Black Loch of Myton, 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 lipid 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.

Lake sediment DNA to trace past landscape and agricultural activities: the importance of taphonomy

Author: Dr. Giguet-Covex, Charline, University of York, York, United Kingdom (Presenting author)
Co-author(s): Ficetola, Francesco Gentile, LECA, Grenoble, France
Co-author(s): Walsh, Kevin, James, University of York, York, United Kingdom

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, assail sedimentologists know, the sedimentation in a lake can vary temporality and spatially depending of 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 various ways including potential biases related to both, the taphonomic processes (DNA source, transfer and deposit) and the analytical process. Consequently, it is now crucial to study these processes to ensure reliable interpretations of the lake sediment DNA results and to improve its potential for palaeoenvironmentalists, archaeologists and historians. In this aim, we combined sedimentological/geochemical analyses with DNA 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.
The Bronze Age of Eurasia (around 3900–1000 BC) was a period of major cultural changes. However, it has been debated for decades if the many cultural changes that occurred during this period resulted from the circulation of ideas or to which extent they were accompanied by human migrations. To investigate these questions, we sequenced low-coverage genomes from 101 ancient humans from across Eurasia. We show that the Bronze Age was a highly dynamic period involving large-scale population migrations and replacements, responsible for shaping major parts of present-day demographic 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.

**Presentation Preference:** Oral

**Keywords:** Ancient DNA, Indo-European, prehistory

**Author:** Dr. Haak, Wolfgang, Max Planck Institute for the Science of Human History, Jena, Germany (Presenting author)

**Abstract:**
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 arrives in Central Europe (~4,500 years ago), as Late Neolithic Corded Ware individuals traced ~75% of their ancestry to the Yamnaya, and is thus a good temporal fit for the steppe hypothesis, which proposed a spread of Indo-European languages via the steppes starting from a proposed homeland north of the Black Sea. This third ancestry component persisted until the present-day in all Europeans and documents a second major expansion into Europe from its eastern periphery. The accompanying genetic turnover was high enough to support a language replacement, a criterion that was previously suggested to only apply to the language-farming dispersal hypothesis in the light of the Meso-Neolithic transition. As a consequence, these ancient DNA results have direct implications for the spread of Indo-European language groups and at the base of the modern boundary between the two rivaling hypotheses. It is possible that additional ancient DNA from other prehistoric cultural groups from the Caucasus and surrounding regions will provide plausible temporal and contextual fits for the proposed homeland of Proto-Indo-European.
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 pantheons in several old Indo-European religions, including for instance the Old Persian (Zoroastric) 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 the same material substance and can thereby be transformed into each other. In the same way, bones, the hard part inside the soft flesh, are equated with the stones in the earth and with rocks and mountains, while hair is associated with plants. Life consists of a limited number of elements from which everything is composed.

My paper will discuss this with focus on finds from some recently excavated ritual places in eastern Sweden, and interpret the finds in the light of a broader Indo-European background. I will use the Old Vedic ritual system as one important comparative, and also focus on a discussion of the interpretations in the light of the new results from ancient DNA studies.

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**TH5-17 Abstract 05**

**Can scholars envisage a Baltic Origin of Homer’s Epic Tales?**

**Author:** Prof. Bandelli, Giuliana, Universitá Cattolica del sacro Cuore Milano, Milano, Italy (Presenting author)

**Keywords:** Bronze age, Homer, Metal working around the Baltic Sea

**Presentation Preference - Oral**

According to a recent challenging hypothesis by the scholar Felice Vinci, the real setting of the Iliad and the Odyssey can be identified not as the Mediterranean Sea, where it proves to be undermined by many incongruities, but rather in the North of Europe. The sagas that gave rise to the two poems came from the Baltic regions, where the Bronze Age flourished in the second millennium B.C. and where many Homeric places (Troy, Ithaca, Furi) along with Ulysses' wanderings can still be identified today. Moreover, this archaic Achaeans civilization extended on all the Baltic coasts, such as, for instance, along the Swedish coasts, where today's Bay of Bothnia is the ancient Aulis, where the Achaeans fleet, according to the Iliad, gathered before sailing for Troy. As regards the Baltic Republics (Estonia, Latvia, Lithuania) there are many convergences with Greek mythology. The blond Achaean who founded the Mycenean civilization in the Aegean in the 16th century B.C. brought these tales from Scandinavia to Greece after the end of the "post-glacial climatic optimum". They then rebuilt their original world – where the Trojan War and many other mythological events had taken place – farther south in Mediterranean waters, transferring significant names from north to south. Through many generations, they preserved the memory of the heroic age and the feats performed by their ancestors in their lost homelands and this oral tradition was put in writing around the 8th Century BC, when the alphabetical writing was introduced in Greece. According to Felice Vinci's theory, both the Homeric poems and the rest of Greek mythology are the last memory of the facts and events happened in the lost Nordic homelands of their Achaean ancestors, before they moved towards the South of Europe. This new perspective conforms to the most recent views of archaeology: the "radiocarbon revolution", based upon radiocarbon dating, adjusted with dendrochronology, has backdated of many centuries the rise and development of the European Bronze Age and, on the other hand, a very ancient city, dating back to the third millennium BC, was recently found by Swedish archaeologists in the site of Bjästamø, near Hornoasod.

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**TH5-17 Abstract 06**

**The Settlement System of Pit-Grave Culture of Central Ukraine**

**Author:** Syvopal, Mykhaylo, Cherniassy Archaeological Museum, Cherniassy, Ukraine (Presenting author)

**Keywords:** Iron Age, Central and Northern Ukraine, Pit-Grave Culture, Settlement System

**Presentation Preference - Oral**

Having excavated dozens of Pit-Grave burial mounds in Central Ukraine the author began the search for Pit-Grave settlement relics and as a result of a 20-year-long research has discovered more than 30 such objects, divided into two types: 1) basic long-term settlements; 2) temporary cattle herders' sites.

The author has partially excavated one of these basic settlements (Diasatyn). It belongs to the most widespread type: 1) the settlements on small (0.5-1ha) islets (or peninsulas) in wide floodplains of the Dnieper River and its tributaries. The Diasatyn type settlements have a relatively thin (0.4-0.7m) and a rich archaeological layer (up to 100 finds per 1m2).

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**TH5-17 Abstract 07**

**Back to square one? The legacy of Marija Gimbutiene (Gimbutas) in the light of recent DNA findings**

**Author:** Dr. Markytė, Inga, Viron, Denmark (Presenting author)

**Keywords:** Gimbutes/Gimbutas, Migrations, Steppe cultures

**Presentation Preference - Oral**

Recent mitochondrial DNA findings seem to pinpoint a massive migration from the steppe area towards Central Europe occurring around 4500 years ago (Haak et al. 2015, Allentoft et al. 2015). Genetic studies are usually taken as evolutionary histories from the past, anchored in temporal dating references. Paradigmatically they rather produce a series of snapshots of the actual genetic distribution. In the case of the late Neolithic period an extraordinary set of highly divergent haplogroups is present. This is a key period for the Indo-European expansions and the genetic studies is the key to understand the organisation of the Indo-European expansion. By contrast the genetic research shows how the genetic contributions are highly complex and difficult to interpret. From the genetic perspective, the Indo-European expansions seems no more and more, a long-lasting and complex genetic process. The Indo-European expansions marked the genetic landscape of Europe, but the genetic changes by themselves cannot explain the cultural changes. The genetic changes need to be interpreted in a cultural context. The focus of this presentation is to interpret the genetic changes in the light of the archaeological data from the central Europe to understand how genetic and cultural changes are connected. The genetic and the archaeological evidence need to be interpreted in a complex and cultural context.
smaller innovations or gradual local changes played the main role in the cultural transformation of a very wide region (Bankoff & Winter 1999, 175). However after 3000 BC a new type of sites and artifacts 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 linguistics and archaeology.

The aim of the paper is to compare archaeological data of Corded Ware and post-Corded Ware people from the East Baltic Region to the data of Pontic-Caspian steppe, and to try to find traces of cultural influences. A new DNA discoveries will be used as well.

TH5-17 Abstract 11
The introduction of Indo-European in the later South Scandinavian Neolithic

Author: PhD 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 rate become covered by a patchwork of Indo-European dialects - that is Germanic, Celtic, 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 and linguistic changes during the third millennium B.C.E. In southern Scandinavia the first agrarian culture, the Funnel Beaker culture, came to an end overlapping with the emergence of “sub-Neolithic” Pitted Ware influences that reached the northern and eastern coastal areas of present-day Denmark from the Scandinavian Peninsula. From around 2850 B.C.E early Corded Ware (Single 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 cultural processes and substance economic and material changes. This paper draws on the linguistic evidence on the time and location of the Indo-European expansion and combines these evidences into a unified hypothesis of 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-Neolithic”. Did this unknown language for human life contribute to the new Indo-European language? Did it help 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: Prof. Demoule, Jean-Paul, University of Paris I, Paris, France (Presenting author)

Keywords: genetics, historiography, Indo-European

Presentation Preference: Oral

Throughout the 19th century, resemblances and correspondence between Indo-European languages formed the foundation of modern linguistics. At the same time, these resemblances and correspondence were explained, from the start, by the postulated existence of an original people (Urvolk) who spoke an original language (Ursprache) 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.

TH5-17 Abstract 13
The canonical Indo-European model and its underlying assumptions

Author: PhD Demoule, Jean-Paul, University of Paris I, Paris, France (Presenting author)

Keywords: genetics, historiography, Indo-European

Presentation Preference: Oral

Within the 20th century, resemblances and correspondence between Indo-European languages formed the foundation of modern linguistics. At the same time, these resemblances and correspondence were explained, from the start, by the postulated existence of an original people (Urvolk) who spoke an original language (Ursprache) 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
Co-author(s): Mitic, Florica, Alexandru Ioan Cuza University of Iasi, Iasi, Romania
Co-author(s): Gorgan, Drago Lucian, Alexandru Ioan Cuza University of Iasi, Iasi, Romania

Abstract

The aim of this study is to analyze the ancient DNA and to identify the haplogroup, presenting also the first results obtained on samples extracted from a Late Bronze Age funerary context discovered in Eastern Romania and to identify an efficient and reliable protocol for aDNA extraction. To test whether the protocol is efficient and capable of yielding good quality DNA, extraction was first performed by using the phenol:chloroform protocol and DNA IQ protocols. The funerary context from Tarnia, Bacau county, was discovered in 1972 and consists in a pit in which was discovered a human skeleton in a left supine position. The left hand was flexed and sustain the skull while the right hand was flexed and slightly lodged on the pelvis and the legs were strongly bent on the left side. The osteological remains were in a poor state of preservation. The burial contains two vessels as grave goods which were attributed based on their typological characteristics to the Noua culture (Late Bronze Age).

The sequences were subjected to Nucleotide BLAST (Basic Local Alignment Search Tool, Altschul et al., 1990) to identify the similarities with the previous sequences from database and haplogroup assignation. The T72 sample showed 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

Abstract

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.

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**TH6-01 Abstract 01**

**The introduction of metals and metalworking in Sicily**

*Author:* Dr. 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 traveling 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 artifacts if you do not know how.
TH6-01 Abstract 02

What ‘moved? Amber in Mycenae World

Author: Prof. Czepczuk, Janusz, Adam Mickiewicz University, Rokietnica, Poland (Presenting author)

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.

TH6-01 Abstract 03

The Settlement Agglomeration in Mikulovice, Eastern Bohemia

Author: Dr. Ernike, Michal, Institute of archaeology, Prague, Prague, Czech Republic (Presenting author)

Co-author(s): Langov, Michal, Institute of archaeology, Prague, Prague, Czech Republic

Keywords: Amber Road, EBA, Nodal point

Presentation Preference: Oral

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 Mikulovic (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 etc., 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 grave, which contained more than 420 amber beads, seashells and gold and bronze jewelry.

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 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.

TH6-01 Abstract 04

Local Responses to a Regional Aesthetic. Production of Encrusted Ceramics in the Carpathian Basin

Author: Prof. Solak, Joanna, University of Southampton, Southampton, United Kingdom (Presenting author)

Keywords: Bronze-Age, Encrusted Ceramics, White Inlay

Presentation Preference: Oral

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.

TH6-01 Abstract 05

Transmission and transition, relationships between craft-knowledge and textiles across Europe

Author: Dr. Andersson Strand, Eva, BAXO institute, Köpenhamn, Denmark (Presenting author)

Co-author(s): Mannering, Ulla, Nationalmuseum of Denmark, Copenhagen, Denmark

Co-author(s): Cutler, Joanne, McDonald Institute for Archaeological Research, University of Cambridge, United Kingdom

Co-author(s): Nosch, Marie-Louise, BAXO institute, Köpenhamn, Denmark

Keywords: Europe, Textiles, Transmission

Presentation Preference: Oral

Recent research has clearly demonstrated that the movement of textiles and specific textile raw materials in northern Europe is more complex than hitherto known. Analyses have indicated that some wool in Scandinavain Bronze Age textiles is not local, coming from outside present day Denmark (e.g. Fri et al. 2015). It is likely that already in this period wool was being exchanged in Northern Europe, and trade in textiles and wool is well known in the Eastern Mediterranean in much earlier periods (e.g. Michel and Nosch 2017). However, the demand for a new raw material only arises to meet a need and desire in society. Use of a new textile raw material would, furthermore, require new artisanal knowledge. In this paper we will, from a conceptual perspective, discuss the implications of this with regard to textile fibres and cloth cultures in European societies.
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
Presentation Preference - Oral

The archaeological record shows that artefacts have been exchanged over huge distances at times in the distant past when such exchange must have been very difficult. In this paper we attempt to describe how these isolated and intermittent interactions can evolve into established trade networks.

Trade implies organised exchange in sufficient volume to provide a definable pattern. Most simply, the ability to conduct trade encodes two very different ‘distance’ scales: the ‘distances’ that traders need to traverse in order for the network to be robust (e.g. well-connected) and the ‘distances’ for which the available technologies permit the ready transportation of goods. As a shorthand, we term the former ‘geographic’ distance and the latter ‘technological’ distance. There is a symbiosis between the two: the technological improvements that make travel more reliable and viable encourage network growth, conditioned by geography, which exploits this ability to travel longer distances. We stress that by ‘geography’ we mean not so much Cartesian separation as a reflection of the ‘ease’ of exchange between sites and that the application of ‘technology’ (e.g. the wheel, pack-animals, sail) is conditioned by its ownership.

We shall argue that a simple characterisation of network dynamics can be made on the basis of the ratio of these distances. As time passes, improving technologies lead to a growth in technological distance. The establishment of ‘trading’ networks is necessarily constrained when technological distance is relatively small. At the other extreme, trading networks have become well established by the time that technological distance is relatively large. The tipping point between struggling and established networks arises when the distances are comparable. Technology then permits exchange over just those distances necessary for robust networks to exist and a vigorous growth in exchange occurs.

To exemplify these ideas we examine the evolution of maritime networks in the Aegean and E. Mediterranean from the Early to Late Bronze Age. The tipping point for the rapid growth of trade and exchange occurs at the transition from Middle to Late Bronze Age with the large-scale adoption of sail. This becomes clear when Minoan maritime networks are modelled in a way in which this sensitivity to ‘geographical’ distance is explicit. However, on either side of this transition point sensitivity to distance is less important and different computational approaches are required. The implication is that network dynamics in Early, Middle and Late periods has to be understood in terms of different social agency for network formation.

An earlier formulation of these ideas can be found in our paper, From Oar to Sail, published in ‘Maritime Networks; Spatial structures and time dynamics’, C. Ducruet (Editor), Routledge Studies in Transport Analysis, Routledge (London and New York), 2016.

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, Uitsu, Russian Federation (Presenting author)
Keywords: bronze production, Late Bronze Age, West-Asian metallurgical province
Presentation Preference - Poster

Widespread of bronzes production in the Bashkir Urals is connected with the Late Bronze Age. The study of settlements and funerary monuments of the Late Bronze Age in this area gave massive material on bronze production in the region (waste products, casting molds, copper drops and ingots, particles of copper ore, containers with traces of waste products) and also numerous products made of bronze (knives, chisels, awls, heddles) for vessels, sickles, ornaments and so on. E. Chernykh distinguished in this area a West-Asian metallurgical province connected with the Eurasian Steppes. 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 Doma Dema and Urashk, 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 composed of five simultaneous settlements - Usmanovo I - III settlements, Muradymovo I, VII, VIII and 57 Kazburun barrows was examined. Radiocarbon dating (Beta Analytic: 1890 – 1750 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 sandstone in the area of 16378 square km were examined. Paleo-genetic studies have identified several groups in Kazburun archaeological micro-district. Probably in the late Bronze Age the ore came with population of Andronovskaya (Alakulskaya) culture of South-Eastern Kazakhstan. This confirms the theory of E. Chernykh about the unity of West-Asian Metallurgical Province.
BLURRED BORDERS?
MAKING POTTERY AND CULTURAL INTERACTION IN NEOLITHIC AND ENEOLEITHIC EUROPE

Friday, 2 September 2016, 09:00-16:00
Faculty of Philosophy, Room 307

Author - Vukovic, Jasna, Faculty of Philosophy, Department of Archaeology University of Belgrade, Belgrade, Serbia
Co-author(s) - Spataro, Michela, The British Museum, London, United Kingdom (Presenting author)

Keywords: ceramics, cultural interaction, Neolithic and Eneolithic Europe

Presentation Preference - Workshop

Pottery’s unlimited potential to express variation in style has revealed a complex mosaic of regional traditions across prehistoric Europe, which archaeologists have used to differentiate material cultures geographically and to build chronological sequences. The Neolithic and Copper Ages are understood primarily through analysis of ceramic ornamentation. One outcome is that we may also identify assemblages that are recognizably mixed, when characteristic artefacts of more than one material culture co-occur simultaneously.

This session brings together examples of culturally mixed Neolithic and Eneolithic assemblages from throughout Europe, to map their occurrence and discuss how they are interpreted, and what opportunities and difficulties arise when studying mixed assemblages. Issues such as trade, imitation, migration and conflict arise, but also national research traditions. For example, are mixed assemblages studied primarily to support chronological correlations, to investigate long-distance movements of people or materials, or, using historic or ethnographic analogies of cultural interaction, to study dynamics of cultural integration and differentiation? What are the common features of mixed assemblages? Do they represent ephemeral or ongoing contacts between cultures? Does one culture eventually replace the other, or does hybridisation emerge? Can we study interaction between locals and incoming people? Is more than one chaine opératoire represented in mixed assemblages? Do sites with culturally mixed pottery also have mixed lithic assemblages? Do we need to apply more techniques, or modify sampling strategies, to understand the development of artefacts in mixed assemblages?

Do mixed assemblages represent in all phases of the Neolithic and Copper Ages, or are they more frequent within a particular timeframe? We are aware of numerous examples, such as sites with both Starčevo pottery and Impressed Ware, or Vinča and Ticza, or Impressed Ware and Linearbandkeramik pottery, but we suspect that the phenomenon is more widespread and welcome contributions from archaeologists working in other regions.

TH6-03 Abstract 01
Early farming and the transmission of ceramic traditions in the western Balkans

Author - Dr. Manel, Sebastien, University College London, London, United Kingdom (Presenting author)
Co-author(s) - Vander Linden, Marc, University College London, London, United Kingdom

Keywords: Balkans, ceramic, transmission

Presentation Preference - Oral

The ERO EURAFROM 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 corresponds to the Starčevo-Körös-Crič complex across the Balkans from 5600 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 Cardial culture across the western Mediterranean Basin.

The EURAFROM 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 is focused 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.

The ceramic chânes opératoires, defined as a series of operations which transforms raw material into finished products, is a particular relevant signal for tracing and identifying histories of transmission. Explanations have been found in the learning process. It has been demonstrated that learning involves a tutor and a model. At the end of the learning process the learned skills are literally embodied. At the collective level transmission occurs within groups made up of individuals linked by social ties. These ties determine the social perimeter into which ways of doing are transmitted. As a result of these learning processes it appears that: a) the chânes opératoires are by excellence inherited ways of doing transmitted through successive generations; b) changes within chânes opératoires express cultures’ histories and the factors affecting them. In the latter case, evolution of technological behaviours can be generated through endogenous processes (or phylogeny) resulting in innovation(s), or through exogenous processes (or ethnogenesis), taking place beyond social boundaries through horizontal transmission(s).

In this paper, we will present the first results based on the ceramic chânes opératoires analysis from the western Balkans.

TH6-03 Abstract 02
The Neolithic Volga-Kama pottery as a source of reconstruction of cultural interactions

Author - Prof. Vybornov, Aleksandr; Samara State Teachers Training University, Samara, Russian Federation (Presenting author)
Co-author(s) - Vasilyeva, 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 Prikamye with early pottery traditions, 2) establishing chronological frameworks using radiocarbon dating of pottery, 3) definition of the relations between the Neolithic cultural groups of Volga-Kama.

The methods used to achieve these objectives are: 1) morphological grouping of pottery based on the ornamentation technique, 2) radiocarbon dating, and 3) technological analysis of pottery (Bobrinsky, 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 Prikamye region (Vybornov, Vasilyeva, 2013). Flat-bottomed pricked pottery is present in the Middle Povolzhye in the early Neolithic period (5500 cal BC). It is all made of silty clay when still present.

Round-bottomed comb-ornamented pottery of the local Kama culture is present in the Middle Prikamye in the early Neolithic period (5300 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 Prikamye culture to the Middle Povolzhye at a later period (5000 cal BC). The proportion of local pricked pottery made of clay and chamotte increases to 15%. Kama comb-ornamented pottery made of clay tempered with chamotte does not exceed 10% further to the west (Mariyskoye Povolzhye, Primokshanye, and Posypye). 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.

Prick-ornamented pottery is found from the Middle Povolzhye to Prikamye at around 5000 cal BC. The percentage of comb pottery made of clay with chamotte decreases to 70%, whereas 30% of comb-ornamented pottery is made of silty clay, following the recipe typical for pricked pottery of the Middle Povolzhye. Among prick-ornamented pottery of the Middle Povolzhye type, the proportion tempered with chamotte, which is used to make comb pottery found in the forest of Prikamye, increases to 50%.

At a later stage (4500 cal BC) comb pottery made of plastic clay and chamotte represents 70% of the ceramics in the Prikamye region, and in the Middle Povolzhye comb pottery began to be produced with silty clay. This suggests a complete change of the idea of raw materials used by the communities of the Kama culture. The results indicate the long duration of the mixing process between the Middle Povolzhye population with comb pottery and different cultural groups. This demonstrates the coexistence, interaction and blend of different pottery traditions. Full transformation of ideas about raw material could occur during 5-6 generations of potters. In addition, each new generation had contacts with communities with other technological traditions of pottery making (Bobrinsky, 1999). 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

TH6-03 Abstract 03
At the border line? The Neolithic and Copper Age pottery of Alto Ribatejo, Portugal

Author - Sojansuoski, Dario, University of Trás-os-montes e Alto Douro, Vila Real, Portugal (Presenting author)
Co-author(s) - Oosterbeek, Luiz, Instituto Politecnico de Tomar, Tomar, Portugal

Keynotes: ceramics, cultural interaction, Neolithic and Eneolithic Europe

Presentation Preference - Workshop

The study of the ancient Volga-Kama pottery revealed areas with two types of pottery raw materials: silty clay rich in sand in the Middle Povolzhye and plastic clay tempered with chamotte in the Prikamye region (Vybornov, Vasilyeva, 2013). Flat-bottomed pricked pottery is present in the Middle Povolzhye in the early Neolithic period (5500 cal BC). It is all made of silty clay when still present.

Round-bottomed comb-ornamented pottery of the local Kama culture is present in the Middle Prikamye in the early Neolithic period (5300 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 Prikamye culture to the Middle Povolzhye at a later period (5000 cal BC). The proportion of local pricked pottery made of clay and chamotte increases to 15%. Kama comb-ornamented pottery made of clay tempered with chamotte does not exceed 10% further to the west (Mariyskoye Povolzhye, Primokshanye, and Posypye). 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.

Prick-ornamented pottery is found from the Middle Povolzhye to Prikamye at around 5000 cal BC. The percentage of comb pottery made of clay with chamotte decreases to 70%, whereas 30% of comb-ornamented pottery is made of silty clay, following the recipe typical for pricked pottery of the Middle Povolzhye. Among prick-ornamented pottery of the Middle Povolzhye type, the proportion tempered with chamotte, which is used to make comb pottery found in the forest of Prikamye, increases to 50%.

At a later stage (4500 cal BC) comb pottery made of plastic clay and chamotte represents 70% of the ceramics in the Prikamye region, and in the Middle Povolzhye comb pottery began to be produced with silty clay. This suggests a complete change of the idea of raw materials used by the communities of the Kama culture. The results indicate the long duration of the mixing process between the Middle Povolzhye population with comb pottery and different cultural groups. This demonstrates the coexistence, interaction and blend of different pottery traditions. Full transformation of ideas about raw material could occur during 5-6 generations of potters. In addition, each new generation had contacts with communities with other technological traditions of pottery making (Bobrinsky, 1999). 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
The Nábdö and Zákere are two nearby rivers in the Alto Ribatejo region, in the hinterland of Central Portugal. The Nábdö is a tributary to the Tagus, and not far from their meeting point where they enter into the Tagus River. Despite their proximity, they are crossing geologically different landscapes: while the Nábdö is cutting through limestone hills, the Zákere 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 Nábdö are considered as the eastern most representatives of the Neolithic group of Estremadura, a group whose roots are in the Cerdial pottery tradition. On the other hand, the open-air sites and megalithic monuments in the Zákere valley are associated with the archaeological amalgam of Alentejo and the Iberian interior, marked by the Balqouk pottery style during the Early Neolithic.

This work is reviewing the ceramic collections from two sites, one from each of the regions: Gruta do Cadaval from Nábdö and Anta 1 de Val da Laje from Zákere. The first is a burial cave, dated at the transition from early to middle Neolithic, and the later is a Chalcolithic dolmen, suspected of being built over more ancient remains. Through pottery characterisation, an attempt is made to answer questions concerning stratigraphy and intra-site variability, but also regional communications and mutual influences. In addition, organic residue analysis offers a functional and social dimension to the role of pottery in the activities taking place in these two sites.

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 stability 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 existing 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 typochronology and in terms of pottery styles as identity markers. Although, according to the above, concepts of both stable identities and sharp boundaries should be challenged. However, we also pay attention to distinguish not only the shared aspects of the pottery range, but such particular elements that could not be noted in entangled assemblages, and so allow us to detect real entities within a Neolithic pottery tradition. Finally we attempt to answer the question if any regional rules can be set to define elements as hallmarks of the phenomenon.

**TH6-03 Abstract 06**

**Cultural and technical identities through Middle Neolithic paste recipes in the Paris Basin**

*Author*: Barbay, Mélodie, University Paris 1 Pantheon-Sorbonne, Nanterre cedex, France (Presenting author)

*Co-author(s)*: Fronteau, Gilles, Gegenaa, Reims, France

**Keywords**: ceramics, Neolithic, petrography

**Presentation Preference**: Oral

For a few years, archaeological investigations on temper and ceramic raw materials procurement and processing have been developed for the Middle Neolithic (4600-3800 B.C.), showing a certain diversity in the north of France. My PhD work aims at developing this research dynamic by studying 15 middle Neolithic sites, most of them are located in the Paris Basin. The mid-fifth millennium BC in the Paris Basin is a period of major sociological changes. The demographic trends are punctuated by waves and waves of population to occupy all kinds of landscapes. Territories are organised through large enclosures. Monumental tombs can also be observed in the funerary practices. This demographic dynamism gave an enhancement to agricultural practices as well as cultural diversity. Indeed, several cultural groups developed for a millennium. Roessen and Carny cultures are identified for the beginning of this period followed by Chasséen, Michelberg, Groupe du Noyen and Groupe de Spire cultures.

The use of organic tempers (bones and plants) during early Middle Neolithic in Roessen and Carny cultures has long contradicted with a main use of grog and flint tempers as can be seen later in time. However, current researches consolidated by petrographic analyses show a more complex picture. Major diversities in paste recipes can also be observed according to sites and their locations. Those preliminary results might question some criteria used to define the various Middle Neolithic cultural groups in the Paris Basin. Further investigations will mainly focus on tools and techniques involved in ceramic raw materials processing.

**TH6-03 Abstract 07**

**Fuzzy Boundaries, Permeable Borders: challenges in the interpretation of ceramic assemblages**

*Author*: Silva, Teresa, Democritus University of Thrace, Thessaloniki, Greece (Presenting author)

*Co-author(s)*: Umen-Kotsou, D., Democritus University of Thrace, Greece

*Co-author(s)*: Kotsos, S., Helenic Ministry of Culture, Education and Religious Affairs, Greece

**Keywords**: Late Neolithic Greece

**Presentation Preference**: Oral

It is tempting to treat borders as fixed, lines drawn on a map, but to do so fails to take into account that borders are permeable. They may be crossed by people, ideas, and objects in a variety of ways as part of an ever changing social landscape. In order to interpret and respect this dynamic force in the lives of people, our ways of perceiving these borders must alter. However, we study ceramic assemblages, a proxy for the expression of these changes, as a generalised picture of changing, compressing, in most cases, several generations of people and vessels into single phases. Thus arises the issues of reading these 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.
Amongst all finds recovered from the archaeological record, pottery is one of the most common types. Since the beginning of professional archaeology, pottery was used to establish exchange relationships between social groups from different areas and/or to construct relative chronologies. In this presentation we try to review so-called "imports" and imitations found in archaeological record in the Romanian Neo-Enolithic and discuss their meaning. With the help of ethnohistoric 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 archeommetry could be a useful tool to answer the questions.

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 than the proposed geographical frames. 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, burial 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 to the identification of sites into cultural groups. Hence, the reconsideration of published material, artifacts from museum stores, documentation and new excavations indicated that some geographically divided and different regions were barely "culturally" diverse. Thus, pottery regarded as the main feature of one culture appears in another which was classified as belonging to a different cultural group.

The case-study of the Neolithic pottery in Pelagonia and its production within the agricultural communities of the Skopje valley, Lake Ohrid basin, Dača Pole and Polog, will be presented. Late Neolithic Vinča pottery will also be considered, as some of the temper types and design features appear at earlier tell sites in Pelagonia. In addition, the anthropomorphic house models from this area will be discussed. Originally, these were attributed by archaeologists to different cultures due to their typological variations in these regions. Therefore this paper will mainly consider pottery design and human representations in order to emphasise the common Neolithic features of the isolated regions and the modes of networks which integrated shared identities of distant societies. The issue of culture will also be discussed as it often invokes a contemporary notion of communities that inhabited particular geographical areas. Their intensive communication and common material culture go beyond the proposed geographical frames. 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, burial and human remains.

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Very interestingly, the results of the previous archaeological research conducted on the site revealed that materials characterised by both "Tizca" and "Vinča" styles could be found in the same contexts, for example in the house excavated in 1954 in Gradilče site. 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, chronological and 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 chaine opératoires and could reflect different chronological productions. The aim is to interpret the existing mixed inventory and understand if these different styles are reflecting the co-habitation of different social groups on Igd, 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 Borjol-Plain, Vojvodina:**

**Contextualisation and technology**

Author: Dr. Hofmann, Robert, Kiel University, Kiel, Germany (Presenting author)

Co-author(s): Medović, Aleksandar, Museum of Vojvodina, Novi Sad, Serbia

Co-author(s): Medović, Ilidža, Museum of Vojvodina, Novi Sad, Serbia

Co-author(s): Stanković-Pešterac, Tijana, Museum of Vojvodina, Novi Sad, Serbia

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 Danube delta, the Western 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 Neolithic settlements and a local plain with a size of 1 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, archaeobotanical and archeozoological remains through comparisons of inventories from different households and settlements. The co-occurrence of Vinča and Tisza pottery styles in the same households is being investigated by typological, chronological and technological analyses. Geochemical and mineralogical analyses contribute to answering the questions of how pottery production in these sites was organised and how this pottery was linked technologically to the core regions of the cultural groups involved.

**TH6-03 Abstract 14**

**Technology of Neolithic-Eneolithic ceramics in the territory of Novo-Ladoga basin (NW Russia)**

Author: Dr. Kulikova, Marianna, Herzen State University, St. Petersburg, Russian Federation (Presenting author)

Co-author(s): Gusenitsova, Tatiana, North-Western Research Institute of Cultural and Natural Heritage, St.Petersburg, Russian Federation

Co-author(s): Kulikov, Alexander, St. Petersburg State University, St. Petersburg, Russian Federation

Keywords: Okhta 1, Podokie 1 sites, Neolithic-Ladoga basin, potsherd, XRF, microtomography of ceramics, technology, Neolithic-Eneolithic pottery

Presentation Preference: Oral

There are unique Neolithic-Eneolithic sites in the territory of the Neva-Ladoga basin (NW Russia). The site of Okhta 1 is located at the mouth of Okhta River in St. Petersburg city region. The first people occupied this territory around 4200 BC. These were the first communities of the Neolithic Pit-Combed culture. Changes in the landscape and the climatic conditions around 3200-3000 BC made this area attractive for habitation. In this period, in the coastal zone the houses, fishing constructions, and settlements are widely distributed. The Okhta-1 and Rudnya-1 sites are settlements of this period.

The Hrona 3 settlement is situated on the first terrace of the left bank of the Sozh River. The site was discovered by V. Trepilov in 1974. In 1975 A. Kalekova 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 Rudnya 1 settlement is situated on the first terrace of the left bank of the Sozh River (Eastern Balarus). The site was discovered by V. Kopylin 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 Stary Ozdnik 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 782 Neolithic potsherds from more than 80 vessels will be presented. Ceramic materials were classified 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 Belorusian Puszcza region during the Neolithic period.

Group 1 is represented by slightly shaped vessels with inverted upper part and slightly bent rim. The vessels were tempered with organic and coarse-grained crushed stone. The dominant ornamental element is called "tapa". Ornamentation is dense - with closely spaced rows of prints. These types of ceramics are similar to those from the sites of the Desna River basin.

Group 3 is represented by vessels with shoulder, wide neck, narrow 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 Dniester culture. In addition the pottery with features of the Pši-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 Desna 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 Belorussian Pabužža (Belorussian part of the Bug River basin). During recent excavations Sub-Neolithic pottery was found at 19 sites in the region.

For the first time pottery of the Dubičiai type was discovered in the region. This fact gives the possibility of defining more exactly the area of the Prypiat-Neman culture. Some finds attributed to the Sokolíckaw pottery type were also found. The latter type is most probably a result of a local development of the Dubičiai pottery in the western part of Prypiat-Neman culture area.

Neman culture is represented by pottery of Lyžaia 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 Lyžaia 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.

The question raised is whether we can suppose the presence of Retz-Gajary culture or its influence at the site Crkvišće-Bukovlje? Clay pastes of Lasińa culture pottery and pottery with Retz-Gajary traits will also be analysed in order to see if there are any differences between them.
TH6-04

ENTANGLED MIGRATION.
THE MATERIALITY OF DIASPORA COMMUNITIES IN THE MEDIEVAL AND EARLY MODERN WORLD

Thursday, 1 September 2016, 14:00-18:30
Faculty of History, Room 331

Author - Linea, Jette, Mosegaard Museum, Højbjerg, Denmark (Presenting author)
Co-author(s) - Rosén, Christina, Statens Historiska Museer, Göteborg, Sweden

Keywords: Early Modern, Materiality, Migration
Presentation Preference - Regular session

Migration 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 16th 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 Scandinavonian cities. Urban Diaspora is based on the materiality of consumption reflected primarily in ceramics, eco/zoofacts and written records, but we invite speakers to give their perspectives on immigrant identities through papers dealing with all kinds of materiality, whether rooted in Scandinavian 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 01
Ireland and its medieval diasporic communities

Author - Ø Itglæn, Russell, University of Cambridge, Heidelberg, Germany (Presenting author)

Keywords: Acculturation studies, Migration, Postcolonial theory
Presentation Preference - Oral

For a region traditionally associated in recent centuries with its emigrant diasporic communities, Ireland has had a long and complex relationship with internal migrant communities. In fact, the main strands of the nationalist mythos formulated during the floruit of nationalistic Romanticism were constructed in the context of – and often in contradistinction to – the outcomes of these episodes of migratory activity. While recourse will occasionally be made to sixteenth/seventeenth-century migratory and colonial activity, this paper will mainly compare and contrast two medieval case studies: the arrival of settlers firstly from Scandinavia and the Scandinavian Diaspora between the ninth and twelfth centuries, and secondly from the broader Anglo-Frisian world from the end of the twelfth century to the mid-fourteenth century. While each of these episodes differed from the others, in terms of scale and outcome, there were some commonalities. For example, both involved settlers from geographically disparate homelands, such as modern-day Denmark and Norway and areas of associated settlement in the case of the former, and modern-day England, France, Flanders, Wales and Scotland in the latter. Furthermore, both might be regarded as colonialism, seen here as a particular form of predatory migration, at least in terms of the intentions of the initial migrants.

Before assessing the outcomes of each episode, it is first necessary to determine the extent of the associated migratory activity by recourse to a combination of material settlement evidence, documentary sources, the toponomic record and the evidence of material culture. Following this, using the same sources of evidence, an assessment will be made of number of cultural phenomena associated with migrant, diasporic and/or colonial communities, namely osisation, the carrying on of certain cultural traits from the homeland beyond their usage in that homeland, acculturation, the adoption of certain cultural traits by one group based on their contact with another, and hybridisation, the coming together of several packages of cultural traits of diverse origins to form a new cultural package. Such discussions should of course only take place having absorbed the various lessons of recent scholarship regarding the mutable nature of ethnicity, and the ability of both groups and individuals to identify themselves in several overlapping – if not conflicting – ways, and so the penultimate section of the paper will discuss the evidence for the holding of multiple identities in the case studies based on different spheres of social life. Following this, the paper will close with a discussion of the utility of the application of the lessons learned from these case studies to other examples of colonial, migratory or diasporic phenomena at other points in space and time.

TH6-04 Abstract 02
Jugs and pots - beer and stew? "Hanseatic "impact on medieval and early modern Bergen (Norway)

Author - Dr. Rosén, Christina, Arbokédjemena SHMM, Tölösjö, Sweden (Presenting author)

Keywords: Germans in Bergen (Norway), Hanseatic league, Pottery, drinks and food
Presentation Preference - Oral

As widely known, the city of Bergen on the west coast of Norway was an important element in the trading network of the Hanseatic league. From the 14th to the 17th century a considerable number of Germans from various Hanseatic towns were living here, making up partly up to a quarter of the town's overall population.

There is a large collection of archaeological material that can be connected with these Hanseatic population, as the site of the Hanseatic lomtor was in the scope of extensive archaeological research from the 1950's to the 1970's. Based mainly on the analysis of a selection of pottery from Bergen, I want to discuss how far the archaeological material reflects the everyday habits of the persons that lived in the Hanseatic quarter of Bergen, presumable their eating and drinking habits. Are there significant traces that can be linked to the Northern German origins of these groups? Is it possible to pinpoint differences in the archaeological material that can indicate whether ethnic Norwegians or immigrants Germans lived on a particular site? What may have been possible areas of cultural contact and transfer between the different ethnic and social groups? By combining the archaeological material with historical evidence the outlines of social realities in an international trading town my emerge.

TH6-04 Abstract 03
Urban Diaspora - Entangled diaspora communities in Early Modern Scandinavia

Author - Dr. Linea, 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 too series of reactions from the hostlands: Some meetings were peaceful; others were conflict-ridden. The migrants came with different agendas: conquerors and colonizers, traders, economic, 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 welcome to conflict and resistance. The urban Diaspora project is an ongoing cross-disciplinary and cross-national research project on immigration into medieval and early modern Scandinavia. In the course of the project our participants has uncovered traces of migration based in archaeology, history and science. All the project is in its final phase The aim of this paper is to present the research framework and some results of the project, concentrating on the agendas of the many immigrant groups, that settled here, and the official and unofficial responses of hostland to the pressure of the immigrants. The Urban Diaspora is funded by the Danish Council for Independent Research/Humanities.

TH6-04 Abstract 04
Migration in Early Modern Scandinavian towns. The Nya Lübösce case

Author - Dr. Rosén, Christina, Arbokédjemena SHMM, Tölösjö, Sweden (Presenting author)

Keywords: Early Modern, Migration, Scandinavia
Presentation Preference - Oral

The town Nya Lübösce 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.}

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Archaeology without borders

The city of New Lōdöse 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, to what is now modern- day Gothenburg. In the research project Urban Diaspora – Diaspora communities and materiality in early modern urban centers, New Lōdöse 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 Lōdöse, no written document has been found that makes it possible to identify owners of excavated plots or to study individual traits 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 done 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 Nordsjælland, Hørgholm, 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 to the archaeology of the wealthy Dutch immigrants in the 16th 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 the town’s economic growth and progress for the town as the king Frederik II rebuilt the castle of Kronborg. Many well-established Dutch merchants settled at the sandy area situated between the town of Elsinore and Kronborg Castle. This new town quarter, earlier known as Sanden, i.e. the Sands, got an abrupt end due to the Swedish attack in 1658.

Recent archeological investigations in connection with extensive construction work in this area, which were until recently hidden under the former shipyard area, have revealed remnants of buildings, culture layers, latrines and wells connected to the rich 16th-17th century settlements. The fauna and the botanical remains reveal, as do the archeological finds, that the Dutch merchants in Elsinore dined on the finest quality food and on imported tableware in faience and ceramics.

TH6-04 Abstract 07

Can an animal bone assemblage indicate a diaspora?

Author: Dr. Enghoff, Inge Syrke, University of Copenhagen, Copenhagen OE, Denmark (Presenting author)

Keywords: Animals, Diaspora, Entangled Migration, Zooarchaeology

Presentation Preference - Oral

Analyses of archaeological animal bone assemblages sometimes provide evidence of successes 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 basis for the discussion is a number of recent archaeobotanical analyses dating from around 1400 A.D. until the late 17th century from Aalborg. The analyzed samples represent diverse archaeological contexts, ranging from 16th century garden soils or dung layers coming from a monastery and a later hospital area to different latrine samples. One latrine sample of particular note comes from a late 17th century latrine connected to the bishops house in the central part of the city.

TH6-04 Abstract 08

Tracing ethnicity in food consumption - the case of Nya Lödöse

Author: Maltin, Emma, Bohusläns Museum, Gothenburg, Sweden (Presenting author)

Keywords: consumption, ethnicity, fish bones

Presentation Preference - Oral

The present paper deals with the question to what extent ethnic identity can be traced in the archaeological 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 Lōdöse (1473-1624), Sweden. The town was situated at the Swedish west coast, and was characterized by a multilingual population largely consisting of merchants, soldiers and sailors. From 2013 and onwards comprehensive excavations covering large parts of the town have been conducted. A range of different features have been excavated, from houses and backyards to streets and refuse pits. The clearly defined plots form a unique possibility to map differences in food consumption between households, and possibly connect the variation with the identity of the plot owner; eg. 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?
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 Eastrone during the renaissance. The focus will be put on stove tiles as type of material culture with a solid background of research and many possibilities to identify the origin of fabric, decoration and use. Moreover, the position of a stove in the house and its relationship to the development of dwelling habits will be discussed.

TH6-04 Abstract 12
In the houses of urban strangers?
Author - Historian Christ, Jakob, Danish Centre for Urban History, Aarhus, Denmark (Presenting author)
Co-author(s) - István, Angel, Heteronomy archaeology, Bragv, Romania
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.

TH6-04 Abstract 13
A newcomer’s burial: anthropomorphic graves in medieval Transylvania (12-13th c.)
Author - Dr. István, Daniela Veronica, Bragv, Romania (Presenting author)
Co-author(s) - István, Angel, Heteronomy archaeology, Bragv, Romania
Keywords: anthropomorphic graves, medieval colonization, Transylvania
Presentation Preference - Poster

From the mid-12th century, guests from Central Europe, generally known as Teutonic, 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 rivaled 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 manifestations of these communities’ individuality was of funerary nature. When excavating the lower stratigraphic layers of the cemeteries used by German settlers, archaeologists often find anthropomorphic graves, i.e. dug into yellow clay by following the shape of the human body, with a niche for the head. After this burial custom had been used for nearly a century (1150-1250), it suddenly disappeared.

In recent decades archaeology has brought to light hundreds of such tombs scattered among other burials in Saxon cemeteries. Although it is clear that anthropomorphic tombs represented a specific ritual, not the rule, and that they were only used for certain members of the community and only within certain communities, some questions remain unanswered. Which was the rule? What was the meaning of this ritual within the same community? Why and when did some people prefer an anthropomorphic grave while others opted for a simple, rectangular grave pit? No satisfactory explanations have been provided to date.

Our paper/poster will introduce this problematic and will also show examples of anthropomorphic brick-laid tombs from the same area. Although their shape is related to the early settlers’ funeral customs, these graves appeared in a topographic and chronological 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.
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 ‘cultural’ groups and their associated material culture. To say a site belongs to “the Iron Age” carries very different meaning to a person in Greece or in France. Even in a space as small as Britain, “the Iron Age” can mean different things when looking at either side of the Anglo-Scottish border. Moving through geographical boundaries, problems are only exacerbitated when also faced with a boundary dividing one chronological period from another.

Drawing primarily upon examples from Iron Age Britain, from both sides of the Anglo-Scottish border, from the North to the South, and across the period of Roman contact and conquest, this paper will explore how the development of precise-independent chronologies enables archaeologists to negotiate the potential perils in these liminal locations, allowing us to better model and understand social change across space and through time.

**TH6-05 Abstract 03**

**Strangers at the Feast? Elites, artefacts and exchange in the 1st millennium BC in SE Slovenia**

**Author** - Mason, Philip, Zavod za varstvo kulturne dediščine Slovenije, Center za preventivno arheologijo, Ljubljana, Slovenia (Presenting author)

**Keywords:** Iron Age, Late Bronze Age, Slovenia

**Presentation Preference** - Oral

The paper explores the role of elite contact and competition in the LBA and EIA societies in SE Slovenia in the transmission of artefacts and technologies around the head of the Adriatic in the 1st millennium BC in the light of recent research. Exotic material in both mortuary and settlement contexts reflects changing patterns of elite exchange in the balance, the importance of a N-S route between the Eastern Adriatic and the Eastern Alps on the one hand and a E-W route between North and Central Italy through the head of the Adriatic to Pannonia and the northern Balkan peninsula on the other.

It explores the way in which specific types of exotic artefacts were incorporated into the existing elite or prestige repertoire, connecting the eastern Adriatic to western Etrusco-Corsica and local forms and traditions in the mortuary and transformation sphere. This is reflected in the adoption of iron technology, new forms of elite expression and the aggrandisement 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 Palaeovenetian 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 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 Palaeovenetian 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 Minio river, records the presence of Etruscan finds - a bronze double axe and 4 funerary statues, one with an inscription - it seem to record a probable presence of high status figures (magistrates?) among the Palaeovenetian 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-Sanzaro culture). Leonardi proposed to recognize in this case a phenomenon of hybridization due to trade contacts between the local (Palaeovenetian) community and the Rhaetic human groups that finally succeed in acquire the cultural and political supremacy.

Both areas, in the IV century BC, appear to be strongly affected by the Celtic-Cenomani invasion 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 (2005) as mercenaries controlling the compulsory trade axis in the Pre-Alps belt. During the IV century BC the central place of Gazzau 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 Palaeovenetian 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, Oppiano and Mantua leading to a contraction of the Palaeovenetian polity.

**TH6-05 Abstract 05**

**Iron Age Burial Customs and Cultural Dynamics Between Eastern Alps and Southern Pannonia**

**Author** - Prof. Petovec, Hrvje, University of Zagreb, Faculty of Humanities and Social Sciences, Zagreb, Croatia (Presenting author)

**Co-author(s)** - Krž, Borut, Dolinski Muzej, Novo Mesto, Slovenia

**Keywords:** Burial customs, Kaptol, 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 Umfurd Culture – the Halstatt 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 ritual 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 that is traditional hierarchical approach to different forms of social identity is justifiable and if 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 Umfurd Culture, containing distinctive cremation burials in pits; the second is a Halstatt graveyard with monumental tumuli enclosing multiple radial-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 complementarily, 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 areas of relation between burials and identity will be demonstrated through comparison between the Lower Carniola burials and burials in the Kaptol 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 in excess of 50,000 objects and is one of the most used cultural heritage databases at a European-wide scale. Its efficiency for trans-border archaeological and pale-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 archeologists, geographers involved in the project, and the ways in which the tool can be useful for any future cross-border project.
TH6-05 Abstract 07
Crossing the borders of the La Tène “world”

Author - Dr. Daniela Ivanova Steins, Institute of Archaeology, CAS, Prague, Czech Republic (Presenting author)
Co-author(s) - Dr. Potrebica, Hrvoje, University of Zagreb, Faculty of Humanities and Social Sciences, Zagreb, Croatia (Presenting author)
Keywords: La Tène, borders, La Tène world
Presentation Preference - Oral

How can we design borders of and within the La Tène “world”? By spread of typical material culture? By distribution of characteristic sites (flat burials, oppida), by textual evidence of the presence of the “Celts” or according to the political-economic structures reflected namely in spatial distribution of characteristic coinage or pattern of long distance imports? Can the same material culture reflect different cultural identities, different political, economic or even ethnic entities? How we understand communities existing under the label of “the La Tène culture”? Who were their neighbours, counterparts and of what nature were their mutual contacts? Did they understand the concept of borders as we understand it nowadays?

Our recent findings show (mostly peaceful) coexistence of the main cultural groups in the Transalpine area (especially “Celts” and “Germans”). This is well attested especially along the long distance routes (Amber route, Elbe route), in peripheries of traditionally used lands and at most of the major settlements. The true break seems to come with the later Germanic occupation, when many of the regions around the central European area (Saar, Lusatia, parts of Bavaria, parts of middle Danube area etc.) remain deserted. However, there exist some evidence of the prevalence of these traditional connections.

The contribution aims to summarise research development made on the territorial issue of the La Tène culture and its northern (the “Germans”) and southern (the “Romans”) counterparts during the last ten years. We want especially to assess the importance of long distance routes (connecting the Adriatic, transalpine and Baltic regions) and to point out how contemporary study of these communications with the use of modern methods can change our traditional perspective of the concept of borders of the La Tène world.

TH6-05 Abstract 08
Exchanging rough materials between North and South of Europe at a time of transition

Author - Prof. Dr. Potrebica, Hrvoje, University of Zagreb, Faculty of Humanities and Social Sciences, Zagreb, Croatia (Presenting author)
Co-author(s) - Dr. Gorgues, Alexis, University of Bordeaux Montaigne, Pessac Cedex, France (Presenting author)
Keywords: amber, La Tène, Baltic countries, Celtic cultures
Presentation Preference - Oral

The Baltic area is in the deep North of the European Continent still reachable from southern people already in the Late Bronze Age as mythical “Hyperborea” destination. Different types of Baltic amber have been found in different archaeological contexts of many regions of the Mediterranean as proof of the interest on this exotic northern product. The Baltic area, though, is not only a potential “Hyperborean” destination in Late European prehistoric, source of exotic rough materials, but it could be the epicenter of early commercial exchanges which forms, for the first time, the vast network of a vast cultural “core” between South and North, and protagonist in decisive developments in the interrelations among diverse geographical districts of Europe. The last decades a variety of analytical methods/techniques has been developed and is applied to the characterization of ancient organic and inorganic materials. The scientific investigation of amber can be proved an important tool in the hands of the archaeologist aiming to identify prehistoric social interaction, trade and exchange networks between ancient civilizations. In this paper the Baltic area will be examined, in its geographical context, with archaeological and scientific data provided.

TH6-05 Abstract 09
Was there any border to cross? Mobility and rejection of the alien in the Iron Age

Author - Dr. Gorgues, Alexis, University of Bordeaux Montaigne, Pessac Cedex, France (Presenting author)
Keywords: mobility, identity, mobility
Presentation Preference - Oral

Before going any further, the author wishes to warn that this paper is highly speculative. It is based on the observation of an apparently analog, when Iron Age patterns of mobility appear year after year more complex than the ones observed in earlier periods, through isotopic studies, it remains pretty difficult to detect, based on the study of the material record (personal ornaments, burial practices, etc.), people of foreign origin in any one specific region. This observation suggests that, in the very specific case of individual mobility (i.e. not a mobility through group migration or deportation), geographical origin was more of an influence on one’s biology than one’s “social skin”. In other words, individual migrants would easily have adopted identity markers proper to their new community, thus abandoning those they brought from their original home.

Yet, occasionally, isolated foreigners could be segregated through specific funerary practices, or be the target of specific forms of violence, sometimes ritualized. Exclusion of the alien, going as far as physical extermination, was not then beyond the scope of the Iron Age communities.

These practices seem to have remained quite scarce, however. Above all, they were embedded in a wider range of patterns related to violence used as a mean for negotiating social order, and involving exhibition of weapons, body parts, ritual murders, etc. In this paper, I would like to argue that the construction of Iron Age identities relied less on one’s geographical origin, but rather on one’s kinship and lineage. This allowed a fluid mobility along the network of a network whose complexity and range varied from one time to another and from one person to another, but always connected different geographical and cultural areas through interpersonal bonds built through many generations. In this context, the construction of identity obeyed rules much more complex than those based solely on ethnicity, embracing kin rivalry, devotion to the consensual social norms, etc. In other word, the devaluation of the other was a multiscale phenomenon, not preeminently related to territorial identity.

One may ask, therefore, what was the relation between violence and alterity. As a conclusion, this paper will address this topic through some specific examples collected all throughout Iron Age Europe, and even on its margins.

TH6-05 Abstract 10
Early/Late Iron Age transition in Southern Pannonia – Crossroads of Identity

Author - Prof. Potrebica, Hrvoje, University of Zagreb, Faculty of Humanities and Social Sciences, Zagreb, Croatia (Presenting author)
Co-author(s) - Prof. Andjovska, Dora, The National Museum of Bosnia and Herzegovina, Sarajevo, Bosnia-Herzegovina
Keywords: Donja Dolina, Early/Late Iron Age Transition, Kaptol
Presentation Preference - Oral

This paper will discuss shift of identity that occurred at the Early/Late Iron Age transition in Southern Pannonia. Presentation will focus on the River Sava basin which has been perceived as border in recent centuries. However, at the end of the Early Iron Age, this is the area of dynamic cultural transfer directly related to changes in peripheries rather than to a lack of cultural contacts. The shift in identity was rather a reflection of the change in social and cultural structures reflected on the level of burial customs as well as settlement organisation. During the Early Iron Age, northern Bosnian territory was dominated by the Donja Dolina – Sarnski Most cultural group. Chronologically, the necropolis in Donja Dolina begins in the Late Bronze Age, but the site continued to be used for burials until the end of the La Tène period. Around one quarter of the graves within the necropolis contain incineration burials, mostly belonging to earlier periods, while the majority of graves are flat graves with skeletal burial. The material discovered in graves within the necropolis displays similarities to the neighbouring Iron Age groups in the Balkan hinterlands, but it also corresponds to the finds made in Lower Carniola and even more to those from the Podega Valley and the entire Kaptol Group.

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.

Generally, it would appear that in the middle of the 6th c. B.C. Hallstatt communities in southern Pannonia did not actually disappear, but their identity was radically changed. The most visible reflection of that change can be seen at the level of burial ritual, with the disappearance of incineration burials under tumuli. The few sites dated to this period, such as the well-known graveyards of Beremend and Szentőrinci in Hungary, and the graves in Vinkovci, Vucedol, Đal and Belić in Croatia, indicate that these were smaller, flat, skeletal graveyards. The material discovered in them displays a universal similarity in the entire southern Pannonia, including Donja Dolina and, presumably, the Podega Valley.

From the point of view of the Early Iron Age, this changes the picture of Latehallstatt region and suggest that the identity of local communities should be viewed from an entirely different perspective. The earliest manifestations of the La Tène Culture did not come in contact with the typical Hallstatt populations that buried their dead under tumuli, but rather with communities which had already been largely transformed, which used flat skeletal graves and whose attire was generally similar to a relatively large region. The La Tène influences penetrated this universal identity of the Late Hallstatt, thus creating - during the chronological period of the Early La Tène – some kind of a cultural amalgam, observable in the rare graves of the Early La Tène period (which are mostly female).
TH6-05 Abstract 11
Textile Cultures of Iron Age Central and Mediterranean Europe: breaking down the boundaries
Author - Dr. Giebel, Margarita, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: culture, Iron Age, textile
Presentation Preference - Oral

Textiles represent a product the design and use of which are subject to cultural patterning and as such they can be used to identify the identity of an individual or a group with respect to other individuals or groups. Worn or displayed in an emblematic way, textiles can denote variations in age, sex, rank, status or group affiliation, thereby creating and reinforcing social and cultural boundaries. Yet, textiles have rarely been used as archaeological indicators of cultural boundaries in later prehistoric Europe. Textiles from Central and Mediterranean Europe preserved in a mineralised form have recently been analysed within the scope of the ERC funded project Production and Consumption: Textile Economy and Urbanisation in Mediterranean Europe 1000-500 BCE (PROCON). The data collected from several hundred of such finds suggest that, during the Iron Age, and possibly already much earlier, most of Italy shared the weaving techniques and aesthetics of the Eastern Hallstatt, while Greece was much more closely connected with the Near Eastern textile culture. These results suggest that the traditionally perceived cultural boundaries between the East Alpine region and the Mediterranean societies, as well as the connections amongst the latter, have to be reconsidered. The paper will review the evidence and suggest some ideas for transcending boundaries in later prehistoric Europe by using the generally conservative and ubiquitous textile technology to delineate wider cultural and technological spheres of influence.

TH6-05 Abstract 12
Digital approaches to the presentation and analysis of Iron Age art
Author - Professor Armit, Ian, University of Bradford, Bradford, United Kingdom (Presenting author)
Co-author(s) - Evans, Adrian, University of Bradford, Bradford, United Kingdom
Co-author(s) - Buxton, Nicholas, University of Bradford, Bradford, United Kingdom
Co-author(s) - Becker, Katharina, University College Cork, Cork, Ireland
Keywords: art, digitisation, Iron Age
Presentation Preference - Oral

3D digital methods of data capture and analysis have the potential to transform the ways in which we record, display and interpret Iron Age art. One element of the ENTRANS Project has been the investigation of Iron Age objects in the south-east Alpine region using a range of new technologies. This is part of a broader programme aimed at breaking down boundaries between typological/art historical methods of analysis, and newer approaches based on concepts of object biography and materiality.

Many of the objects studied within the ENTRANS Project belong to the tradition known as situla art, classically defined as figurative repoussé decoration applied to sheet bronze objects, such as the eponymous situlae, as well as belt-buckles, helmets and occasional other objects. However, both figurative and geometric decoration is also applied to a range of other objects and materials, which are equally important in explorations of the social meaning of Iron Age art in the region. This paper presents a series of case studies based on the digitisation and visualisation of decorated Iron Age objects held in museum collections in Slovenia and Croatia. The aim is to illustrate the potential of specific methods in both the analytical and presentational applications of 3D imaging. The work is a collaboration between ENTRANS, the Fragmented Heritage Project and Bradford Visualisation at the University of Bradford and University College Cork.

TH6-05 Abstract 13
The cremated dead: investigating cremated remains from the Late Bronze Age/Early Iron Age transition
Author - Nicholla, 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
Presentation Preference - Oral

The paper presents the results of osteological analysis of cremated bone from the Late Bronze Age and Early Iron Age funerary assemblages of Croatia and central and eastern Slovenia. This doctoral research forms part of the larger HERA-funded ENTRANS Project, examining the Later Bronze Age and Early Iron Age cultural encounters in the East Alpine region.

Cremated remains, while rarely examined, can provide a valuable insight into the past. Although the potential for age and sex data can be diminished by the cremation process, the burnt remains can still offer information regarding pyre technology (e.g. heat and degree of burning), selection processes for deposition, and clues as to the condition of the body prior to cremation through the observation of fracture patterns.

In the past the process of cremation and subsequent deposition of human remains has, on occasion, been described as reflecting egalitarian social structures, or even the idea of a 'poor man's grave', especially in comparison with more elaborate Iron Age funerary monuments. The examination of cremated remains from unfilled cemetery sites in modern day Slovenia, and of the large Early Iron Age funerary complex of Kapitol in northern Croatia, has offered an additional level of understanding regarding pre-Historic attitudes to the disposal of the dead.

The investigation seeks to cross boundaries, not only of geographical and chronological terms, but also in regards to strategy. Interpretations draw upon both scientific and more traditional approaches as a means of enriching interpretations of funerary processes in the past.

TH6-05 Abstract 14
Beyond the vessel: residue analysis and the understanding of identity in Early Iron Age Europe
Author - Bastos, Beatriz, University of Bradford, Bradford, United Kingdom (Presenting author)
Keywords: 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, which aims to expand our knowledge regarding the nature and impact of cultural encounters during the European Iron Age. This paper presents the results obtained from the analysis of residues of at least one organic compound in ceramic vessels, and their potential relationship to the identity of the vessels themselves.

This paper also demonstrates how organic residue analysis can show patterns of change and encounters during later prehistory.

TH6-05 Abstract 15
‘Beyond the grave’ with the help of multidetector computed tomography and micro-excavations
Author - Dr. Črešnar, Matija, University of Ljubljana, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Dr. Cavalli, Fabio, Hospital University Enterprise ‘ospedali Riuniti’, Trieste, Italy
Co-author(s) - Vinazza, Manca, University of Ljubljana, Ljubljana, Slovenia
Co-author(s) - Innocenti, Dario, Hospital University Enterprise ‘ospedali Riuniti’, Trieste, Italy
Keywords: cremation burials, micro-excavations, multidetector computed tomography
Presentation Preference - Oral

The urn is the ultimate ‘burial place’ of the cremated remains of an individual. But it is much more than that. The type of vessel, preparation of the contents, possible additional grave goods etc. has by far not only function but foremost symbolic meanings and values and holds information about the time of the deposition, ‘cultural’ milieu, status of the deceased and much more.

The study of a cremation burial is not a straightforward and self-evident process. We have to bear in mind that we are dealing with traces of events and/or processes, the understanding of which is only partially. 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 site 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 graveyard when all the possible details have to be observed and documented, with modern excavation techniques and methodology as well as standardized reporting protocols the results became much more comparable, which is crucial when trying to study wider cultural phenomena, as in this case the burial rite.

However we can go further in our quest for more detailed and reliable data. An important step forward, when dealing with urn graves is the use of multidetector computed tomography individually connected with the micro-excavations of urns. Such research results in an until now unknown variety of new data, not only of the grave itself and its preparation, but also of the post-
depositional processes, which play an important role in the final interpretation of the graves, burial rites etc. It has furthermore shown that we have to shed new light on older published data and sometimes `traditional' interpretations.

The 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 - Loračk-Dizdar, Daria, Institute of Archaeology, Zagreb, Croatia (Presenting author)
Co-author(s) - Radošić, Sinisa, Croatian Academy of Science and Arts, Zagreb, Croatia
Co-author(s) - Rajić, Siniša, 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 (IRP-717-2013-5372), 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 anthropologists 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 deposition, suggest different criteria of which some obviously reflected tradition while others indicate innovations presented by individuals living in these communities. Moving beyond the existing borders, it is possible to see images of the `small worlds' that overlap in the contact networks of practiced customs. Some customs (e.g. cremation of deceased, animal meat as offering of food, and various sets of vessels as 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 ArTeHiS, Strasbourg, France (Presenting author)

Keywords: ceramic technology, Late Bronze Age, social network

Presentation Preference - Poster

Between Vosges and Black Forest mountains, Bronze and Iron Ages (10th-8th century B.C.), modern France and Germany, the context of this study defies borders. In the Upper Rhine Valley, at the end of the Bronze Age, one can a priori hardly expect to reconstruct boundaries because of a standardisation of the material culture, and the point is more about interactions' significance. During Late Bronze age, the cultural entity `Rhin-Suisse-France Orientale' or `RSFO' (`Rhin-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 anthropologists of techniques, ceramic coatings operate, 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 rims… 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 boundaries (like mountains or the Rhine river) do not impact on social boundaries. Moreover, technical traditions go through chronological limits and bring thus a complementarity approach to artefacts' morphology to understand transition mechanisms.

TH6-05 Abstract 18
There is Power in a Cohort. Between Myth and Reality in the Development of Warfare in Scandinavia

Author - MA Kolberg, Are Bjarstein, 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 Gomann who, by drawing analogies to Siberian shamans, hypothesised that the berserkers were in fact in a trance state 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 rampant 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 legionaries 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 Mars.) 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 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 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.
"DUSTY" ARCHIVES AND ARCHAEOLOGY:
OLD INFORMATION – NEW PERSPECTIVES!

TH6-06 Abstract 01
KAFU – A network for archive studies
Author: Prof. Dr. Neumayer, Heino, Museum für Vor- und Frühgeschichte, Berlin, Germany (Presenting author)
Keywords: Archivearchaeology, Archivearchaeology 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 Sammungen Archäologischer Funde und Unterlagen aus dem nordöstlichen Mitteleuropa (KAFU)”, which was founded in 2001, is to reconstruct in international cooperation – Germany, Poland, Russia, Lithuania – the archaeological collections and documentation that was destroyed or dispersed in the Second World War, and so to render this “lost 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.

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 threasures, 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 „archive archeology“ plays an increasing role in the international research. Its meaning is in gathering and publishing of all the written sources, locating the finds, mentioning the archaeological finds and sites. With the 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. Hüssen, Claus-Michael, German Archaeological Institute, Frankfurt / M., Germany (Presenting author)
Keywords: cultural heritage management, Reichs-Limeskommission, Upper German-Raetian Limes
Presentation Preference – Oral

The Carpathian Basin is as a venue of people from the prehistory. A multitudes archeological material is characteristic for it. The Carpathian Basin is an important territory of the archeological research in Europe. But a 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 threasures, 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 „archive archeology“ plays an increasing role in the international research. Its meaning is in gathering and publishing of all the written sources, locating the finds, mentioning the archaeological finds and sites. With the 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.
photo collections, reflected archaeological investigations in the entire Russian Empire. Fortunately throughout the following reorganizations in Soviet times Commission has not been eliminated, and the archives were preserved well. Moreover remarkable materials continue to come from: from scientific societies and different organizations (for example, Moscow and Russian Archaeological Societies, Petersburgh Archaeological Institute, Libraries of Emperor Nikola II and Great Princess Konstantin Nikolavitch and Konstantin Konstantinovitch), from personal collections of outstanding archaeologists, architects, restorers, orientalists and other researchers. Nowadays the Scientific Archive of IHMC RAS contains 107 record groups and 79 photo collections of researchers and organizations which unite about 700 thousands documents. These documents cover age from the 18-th century to the present day, containing a great value to researchers in history of Russian archaeology and culture, but the archives include also a large number of materials, which represent history, architecture and archaeology of European countries. Most of them are related to the investigations carried out on the territory of Courland, Estland, Lithland, the Grand Principality of Finland and the Poland-Lithuania, that once belonged to the Russian Empire. The Collections contain documents on the subjects of occasionally discovered artifacts; excavation documentation (field reports, including in German, photographs, drawings, maps); materials, which illustrate the architectural investigations and there projects; correspondence with European researchers and Scientific Societies: a numerous splendid photos, including glass negatives, of finds and architectural monuments; records and photographs from travels of Russian scientists in Europe, where we can find information about the museum collections and pictures of archaeological sites in Italy, Greece, France and others. Some of them have already been published, but many still remain unknown. 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. 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.

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TH6-06 Abstract 07

Architecture of tumuli in Kosovo

Author - Dr. Ass. Baraliu, Sedat, Faculty of education, Prishtina, Kosova (Presenting author)
Co-author(s) - Aqiq, Premit, Institute of archaeology, Prishtina, Kosova
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 caur. The forms of grave construction are not the same in all necropoleis. 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, even in the cases of cremation are followed a range of rituals and ceremonies.

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TH6-06 Abstract 08

The Prussia-Museum in Königsberg/Ostpreußen. New archaeological research on an old archive

Author - Dr. Elsbrodt, Heidiemarie, Museum für Vor- und Frühgeschichte, Berlin, Germany (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 18-th 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 Mezin, Germany” realizes a huge project on the reconstruction of the archive materials from the Prussia collections, conducted by the Centre for Baltic and Scandinavians Archaeology in Schwerin and the Museum of Prehistory and Early History in Berlin. The project aims at supporting ongoing 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?

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TH6-06 Abstract 06

The biography of two Phoenician jars from the National Museum in Poznan

Author - Dr. Krueger, Michal, Adam Mickiewicz University in Poznan, Poznan, Poland (Presenting author)
Co-author(s) - Guszczak, Inga, Nicolaus Copernicus University, Torun, Poland
Keywords: archaeology, archival holdings, Phoenician pottery

Presentation Preference - Oral

In the National Museum in Poznan, Goticowch branch, two ancient jars of clearly oriental origin can be found. Neither the provenance, nor the chronology of the artefacts is clear. This paper is willing to show that through archival, archaeometrical and typological studies it is possible not only to determine the specific origin and detailed chronology of the vessels, but also to reconstruct an important part of their cultural biographies. The studies of the private correspondence from the end of the 19th century between Izabela Dzialeyska, née Czartoryski, the buyer, and Alfréd László Delattre, a French missionary and archaeologist working in Cartage, are revealing the context of acquisition of the artifacts. The archival holdings are clearly showing that the oriental art collection in Goticowch was much bigger than previously thought. What is more, the information given by A. L. Delattre can be useful in determining the place where the jars were discovered. The vessels were also subject of recent archaeometric studies (X-Ray fluorescence spectrometry and petrographic analyses) in order to get the basic information about their technology and place of production. Having in mind this data, we are able to reconstruct the biography of the jars from their “birth”, through their deposition in a tomb in Cartage, ending in the art collection in Goticowch where they have been exposed as unrecognized items. The promising results of this small-scale investigation encourage the authors of this proposal to apply for a bigger research project based on the pottery and archival holdings from the former collection of Izabela Dzialeyska.

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TH6-06 Abstract 05

The Esquiline (Rome). Urban transformation and ancient topography between lost archives and Webgis

Author - Boi, Valeria, archaeological consultant, Roma, Italy (Presenting author)
Keywords: ancient topography, Open access to archival documents

Presentation Preference - Oral

This paper is aimed at retracing the steps of the reconstruction of the ancient topography and of the archaeological potential of an area of Rome’s historic centre, which was the subject of a doctoral thesis in Methodology of the archaeological research, disputed in January 2016 in the University of Sassari. The case-study area is the Esquiline District, located at the south-eastern borders of Rome’s inner centre, in the Middle Ages, and until the last decades of the XIX century, the Esquiline was a suburban area, where only a few religious complexes rose up in a vast area occupied by gardens and orchards and then by the aristocratic villas built in the XVII century. The landscape kept itself almost intact for centuries, as is shown in the historical cartography, from the XVI cent very Piazza; the city of Rome became the Capital of the new united Italian nation, and a major building expansion completely transformed the face of the nineteenth-century city. In the aftermath of Italy Unification, in fact, the landscape was heavily twisted, and a regular urban pattern completely erased the original ancient morphology. In a few decades, between 1873, when the first town planning was approved, and 1930, when last buildings’ construction was completed, the specifically created “Archaeological Commission”, headed by Rodolfo Lanciani, tried to save from complete destruction the complex and extremely rich archaeological context of the esgualiae.

Archaeological findings were archived in the renowned in Lanciani’s “Forma Urbis Romae” and sometimes published in the journals “Notizie degli Scavi di Antichità” and on the “Bollettino della Commissione archeologica comunale”. In the following years, a lot of archive documents were dispersed in the archives of various State and Municipality offices. Thanks to this doctoral research many of those documents are now accessible in a Open access web database, and this „lost archaeology“ is now accessible for researchers in a digital environment.

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TH6-06 Abstract 04

The Prussia-Museum in Königsburg/Ostpreußen. New archaeological research on an old archive

Author - Dr. Elsbrodt, Heidiemarie, Museum für Vor- und Frühgeschichte, Berlin, Germany (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 18-th 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 Mezin, Germany” realizes a huge project on the reconstruction of the archive materials from the Prussia collections, conducted by the Centre for Baltic and Scandinavians Archaeology in Schwerin and the Museum of Prehistory and Early History in Berlin. The project aims at supporting ongoing 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?
Rich Roman Iron Age graves, equipped with Roman imports, are interpreted as being burials of persons of high status in the social hierarchy. Unfortunately a lot of these graves were discovered by accident and the documentation of the finds is poor. So one can say, an inexpert discovery is quite a main attribute of the Roman Iron Age 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 possess more informations than published. It is difficult to explain, but especially in case of princely graves very often not all data were released in publications. Studies of old finds, stored in the museums, deliver new data and give new basis of interpretations. This will be shown by the example of some so-called princely graves of the Lubiszow type.

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 Fibulformen der ersten nachchristlichen Jahrhunderte with Berücksichtigung der provinzialrömischen 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 fibulas 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 first 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 Fibulor), 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 fibulas 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.

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 Przeworski and Wielbark cultures in the area east of the lower Vistula.
The cemetery of Wijkauoten is located at the south-western corner of the Curonian Lagoon, close to Zelenogradsk in the Russian Oblast Kaliningrad. Immediately north of Wijkauoten 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 600 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 Wijkauoten 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 Wijkauoten can be found in Stockholm, Olaztu, Berlin, Marburg, Schleswig, and of course Kaliningrad. These complex conditions could explain why a complete presentation of the research results has never been published, although archaeological interest in the site is unbounded. Since the 1870s, at least 12 different excavation teams from Germany, Sweden and Russia have worked on the grave mounds of Wijkauoten and the archaeological investigation is still ongoing under Russian guidance. Thus it is the aim to give a complete presentation of the research results available from all accessible excavations in Wijkauoten, and to reassess the conclusions from the early days of archaeological research. Moreover, it is essential to compare the grave architecture and the material culture of the burials in order to connect them to local Scandinavian customs, as well as to similar sites on the Baltic Sea and in Russia that have burials with Scandinavian links, in order to re-evaluate the duration and nature of Viking presence in late Iron Age Wijkauoten.

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Excavating an Archive - The Irish Viking Graves Project

Nineteenth-century Dublin saw the recovery of a substantial assemblage of Viking artefacts from several parts of the city, and particularly from the Kilmainham-Islandbridge area. Unfortunately, very little of this material was published at the time, and the surviving manuscript records are limited and contradictory. The Irish Viking Graves Project was set up to address these problems, and to produce the first comprehensive and accurate catalogue of these artefacts and the furnished Viking graves that they clearly represent. To do this, the archives of the Royal Irish Academy were investigated, alongside the surviving cartographic evidence, and these were cross-referenced with museum records and archive documentation at the National Museum of Ireland. This paper discusses the methodology used by the Project, which moved beyond archival records to consider the relationship between these manuscripts and surviving artefacts in various museums, as well as the relationship between the archives and cartographic evidence for Viking graves. By doing this, the paper demonstrates the potential of research of this type, and provides an Irish perspective for this session.

The paper will also engage with key research issues. Now that the catalogue has been published, we have the first (accurate) list of grave-goods from Dublin, divided into acquisition groups and linked to more or less specific locational areas around the modern city. But how can this ‘new’ evidence be used to investigate Viking activity in the Dublin area and further afield? Potential areas of future research include investigations of topography, which suggest links between burials and boundaries at local and regional levels; the use of artefacts to promote and sustain identities at multiple levels; and scientific analysis of some of these artefacts. Again, this will provide an Irish perspective on these key issues.

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Forgotten maps – important information about the 3rd century AD graveyard Hāven, Mecklenburg

The extensive working papers of Friedrich Lisch (1801-1883) on the late Roman Iron Age inhumation graves from Hāven, Ludwigslust-Parchim District in western Mecklenburg, which are archived in Wiligard Castle north of Schwerin, provide a very interesting insight into the lively scientific exchange between Lisch and leading Scandinavian archaeologists such as Conrad Engelhard, Christian Friedrich Herbst, Hans Hildebrand, Jens Jacob Asmussen Worsaae and others. The previously unpublished map of the site, drawn by Lisch’s son Friedrich Wilhelm Lisch in 1869, gives new and important information about the inner structure of the graveyard and its meaning for intra-Germanic relations between southern Scandinavia and Central Germany during the 3rd century AD. The grave categories as well as the grave furniture can be clearly differentiated: some graves have affinities with types found on Zealand in the North, while others are more similar to graves of the Hassleben-Leuna-group in Central Germany in the South. It seems that Hāven was in fact a staging post between these two centres.

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The gift of director of Königsberg’s Museum Bezenberger

In holdings of State Historical Museum in Moscow an old plate with archaeological finds resides. It is defined as the ‘Archaeological collection from Etruscan graves of Italy, from different places of Germany and East Prussia’ (Accession number 9174, List 1133/XXVIII), and consists of 27 items (a strands of beads and stand-alone beads). According to registry and information at the place, written in old Russian orthography, the collection came in to the Museum not as the result of II World War, but before 1818. The right side of the plate contains two strands of beads from Livland and ‘Etruscan graves’. Most interesting are names of ‘places of finds’ from the left side: Russsen, Stobingen, Lötzen, Trausitten, Kalberg bei Rantau, Warenang, Polwitten, Grebieten, Daumen, Eschenort, that are correlative to the names of graveyards from East Prussia, that were excavated in second half and the end of 19th century. Finds from these graveyards kept in Prussia-Museum in Königsberg. Miserable, but curious data in register reads as it was ‘gift of director of Königsgaers Museum Bezenberger’ from «non inventory fund». A search of information about
Archival Archaeology: experience of mapping and survey in SW Courland

Author: Dr. hist. Virše, Ingrida Liga, Latvian National Museum of History, Riga, Latvia (Presenting author)

Keywords: Archival Archaeology, systematic mapping, identification and research, SW Courland

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.

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

The issue of fragmentation and disunity of archaeological documents stored in the archives of the Republic of Bashkortostan was raised in the beginning of the 1990s. Data restoration about archeological monuments and finds of the Bashkir Urals was made possible owing to international cooperation. Materials about the region’s archeology were stored in the archives of the former Soviet Union (the archives of the Republic of Kyrgyzstan), the archives of Finland (the National Library of Finland / Helsinki University Library), Sweden (The Swedish National Heritage Board / The Antiquarian-Topographical Archive) and Great Britain (Cambridge University Library: Manuscripts). Archival information about the territory of the Bashkir Urals began to be collected in 1854, on the basis of the Regional Static Committee, since 1867 it became the Provincial Museum (at present - the National Museum of the Republic of Bashkortostan). Ufa provincial archives (now the Central Historical Archives of the Republic of Bashkortostan) started to be formed in 1919. After formation of the Academy of Sciences in 1932, a scientific archive of Ufa Scientific Center of RAS started operating. Such diversity of the archives led to fragmentation of archaeological materials and sometimes even to their loss. Reorganization of the archives and document funds often results in loss of archaeological documents. Part of the archaeological archive materials was separated depending on the scientists’ workplace location, often there were no conditions for heritage storage. In Bashkir Urals it is especially vividly observed in the scattered archival materials by K.V. Salnikov, A.P. Shokurov and R.G. Kuzeev. Also, scientists' manuscripts can be transferred to some organizations after their death, which also leads to partial loss of the material, for instance, again, the long-suffering R.G. Kuzeev’s fund. If the World War II became the most destructive for the archival funds in some regions of the USSR, other processes can be observed in the rest of the country. The processes of mass loss of archival materials are related to revolutionary events and the Civil War. Active passion for archeology of the most educated part of society spread in the Ural region, led to the exchange of archaeological information with the European scientific elite. In the fund by E.H. Minns (Cambridge University Library: Manuscripts) a fragment of correspondence between A. Pashkova, the owner of Volvovsky 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 field diaries were destroyed, but also the correspondence of represed 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.

Acknowledgments

The research was carried out with financial support of the Russian Foundation for Humanities, Project No 15-31-01273. The methodological support was provided by Dr. hist. Virše, Ingrida Liga, Latvian National Museum of History, Riga, Latvia.
**TH6Archaeology without borders**

Friday, 2 September 2016, 09:00-16:00

Faculty of Philology, Room 118

Author: Tys, Dries, Vrije Universiteit Brussel, Brussels, Belgium (Presenting author)

Co-author(s): Foster, Sally, University of Stirling, Stirling, United Kingdom

Co-author(s): Hansen, Gitte, University of Bergen, Bergen, Norway

Co-author(s): Predovic, Katarina, University of Ljubljana, Ljubljana, Slovenia

Keywords: Europe, Lithuania, Medieval Archaeology

Presentation Preference - Committee / Working Party meeting

The Forum of MERC (Medieval Europe Research Committee) is an annual meeting held at EAA to promote active archaeological research in the medieval period (AD000-1600) 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 MERC, 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 contain medieval archaeologists working in the academic, government and commercial sectors and to encourage students to research the period by attending the EAA conference and our Forum. In addition to invited speakers and speakers from the floor, the Round Table will be hosted by Dr. Dries Tys, Dr. Gitte Hansen, Dr. Sally Foster and Dr. Katarina Predovic.

Keyword Speakers:

- Lithuanian medieval archaeology, Prof. Kuncavičius, Albinas (Vilnius University, Lithuania)
- Early medieval horse cemeteries of Prussia and Central Lithuania on a comparative scale. Dr. Shroukhov, Roman (Vilnius University, Lithuania)
- Cultural resilience and adaptation at the frontier: Klaipėda and Žarde pottery analysis. PhD student Urbanis, Edvinas (Klaipėda University, Lithuania)
- Future archaeologies of the “Great Wilderness”: Crusading, depopulation and colonisation in the frontiers of Lithuania. Dr. Piuszkowski, Aleks (University of Reading, United Kingdom)

**TH6-07 Abstract 01**

Cultural resilience and adaptation at the frontier: Klaipėda and Žarde pottery analysis

Author - PhD student Urbanis, Edvinas, Klaipėda university, Klaipėda, Lithuania (Presenting author)

Keywords: frontiers, medieval archaeology, pottery

Presentation Preference - Oral

This presentation focuses on pottery, which were found in two nearby settlements: a) Klaipėda (Memel) castle and town; b) Žarde settlement. These settlements are about 8 kilometers from each other. The first one represents Baltic crusaders and the second one local community. Klaipėda was found at year 1252. This event led to the transformation of the region to the frontier and borderland between two countries and two cultures (Christian and Pagan). Besides it can be said, that these structural transformations created some sort of the “Third space” in nowadays Western Lithuania in which were possible negotiations, translations and remaking. From historic sources, it is known that Livonian order cooperated with local nobility. However, there are no information about impact from newcomers to local community in their daily life. On the other hand, local traditions and goods could also affect crusaders.

The analysis is focused on the pottery complex analysis and comparison of them. The main aim was to identify pottery groups, which in process of interactions between local and crusader communities were imported and possibly came from one to another site. The analysis showed that locals used so called “German” style greyware pottery, but there were not found to the newly arrived people (for example proto-stonewares). On the other hand, only small number of local tradition pots were found in Klaipėda castle and nearby town cultural layers. The author calls into question the possibilities to interpret such artefacts as markers of interaction, adaptation, resilience or assimilation processes in two culturally different communities.

**TH6-08 Abstract 01**

The Hydrosocial Margins: Settlement, Socio-ecology and Sustainability 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 ecologies, where scarce or unreliable water resources can exacerbate a natural fragility in the socio-ecological balance. In transitional regions, such as oases and delta-desert boundary zones, small-scale or local changes in the interaction between people and water may bear significantly on broader-scale issues of human/landscape co-evolution and vice versa. This paper will explore, via a multi-proxy approach that integrates geoarchaeology, remote sensing and survey data, new ways of conceptualizing marginality, transitionality and hydrosocial relationships in late-Holocene arid margins.

To address these co-evolutionary and multi-scalar aspects of human/water relationships, this paper considers the arid-zone transitionality of the island Murghab Delta in Turkmenistan, an alluvial fan that has seen complex trajectories of socio-ecological development throughout the late Holocene. Populated since at least the late 3rd millennium BC and likely earlier, the region has been described by a number of competing models: one that treats the region as an “oasis” in which desertic processes have been more or less stagnant throughout the late Holocene, and one that envisions the region as a widely occupied and well-cultivated alluvial fan in which desertification was a relatively late process. The research described in this paper traces a more dynamic and locally variable trajectory that focuses on small-scale 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 hydrosocial resources. Analysis include 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.
This variability can then be used to suggest local and sub-regional environmental and ecological ‘niches’ that can help us understand hydrosocial relationships in these unique transitional environments.

**TH6-08 Abstract 02**  
**Preliminary results of the paleochannels network of Margiana on the basis of remote sensing analysis**  
**Author:** Arziero, 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 Middle Bronze Age (2400-1950 BCE) and the southwards shift of the barycenter 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 Togtogot 1, Adj Kuit 1 and the nomadic site area of Site 1211-1219 and Ojokay. 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 Sarakhs oasis (Turkmenistan)**  
**Author:** Ma Buseikai, Nazari; Institute of Archaeology, University of Warsaw, Warsaw, Poland (Presenting author)  
**Keywords:** Iron Age, Sarakhs oasis, Central Asia, Water management, landscape taphonomy  
**Presentation Preference:** Oral  

The Sarakhs 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 Sarakhs 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 Sarakhs oasis. Here the topographic maps, high-resolution satellite imagery made in different periods of time and SRTM derived levies are used followed by deep analysis of landscape taphonomy of Sarakhs 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.) contradicts this dominant narrative, especially in the South Gobi Desert where there is evidence of sedentary communities who utilized pottery, mortars, and pestles. Some researchers argue these were hunter-gatherers foraging in the area. At some point during the Bronze Age (3500-700 B.C.E.), nomadic pastoralism was adopted as the dominant subsistence strategy and these sedentary communities were abandoned. This unexpected transition 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 Khorsan, Tapeh Damghani, Sabzevar city**  
**Author:** Garazhan, Orman, 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, Tapeh 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 canals.  

This research will examine evidence from Workshop II and III of Tapeh 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 Tashbulak archaeological site (ca. A.D. 900–1200) is illustrating the importance of many 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 Karashkhan Khatana (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.

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**635** Archaeology without borders
SOCIALLAND GENDER COMPLEXITY THROUGH THE ARCHAEOLOGICAL REMAINS IN HOME HOUSING

Thursday, 1 September 2016, 11:30-13:00
Faculty of Philology, Room A7

Author - Grass, Francesca, University of the Basque Country, Vitoria Gasteiz, Spain (Presenting author)
Co-author(s) - Greif, Enrico, Ludwig Maximilian Universität, München, Germany

Keywords: artifacts and community, domestic contexts, social complexity

Presentation Preference: Regular session

The main objective of this session is the study of Social and gender complexity through the archaeological remains in home housing, using a comparative approach on the basis of archaeological data.

The main focus will be on: household artifacts in domestic context (presented in categories of pottery, glass, metal, wood). We can assume that the typology of household artifact had a direct relationship with social framework of communities and with the formation and the existence of local powers. The archaeological research on ancient communities has recently increased in Europe in terms of quantity and quality, and some studies have attempted to connect all these types of artifacts found into domestic context, producing some excellent summarising results for individual sites or local territorial contexts.

Particularly we would compare how the relations between domestic artifacts had been interpreted in the key of reconstruct the complexity of ancients societies, the formation of elites and their recognisability, in a terms of broad range of chronology and geography too. The session will explore the potentiality and the limits of our records and our approaches to face social and gender inequality in 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 - Michalak, Katarzyna, University of Gdańsk, Gdańsk, Poland (Presenting author)
Co-author(s) - Potoczyński, Łukasz, University of Gdańsk, Gdańsk, Poland

Keywords: activity zones, processing of food, social relations

Presentation Preference: Oral

This paper focuses on aspects of identification of activity zones around LBK longhouses discovered at the multi-phase Neolithic settlements in southern Poland.

Studies on the spatial and functional diversity of features located around the longhouses as well as quality (a state of preservation) and quantity of artefacts found there (pottery, finds, fragments of stone tools and grain remains) allow us to distinguish two main types of activity zones interpreted as possible places of household activities and intense deposition of waste, and places associated with processing and/or storing of food. Indication of these domestic/kitchen zones that have been used 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 depositional 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 CONISCE, A SWISS NEOLITHIC SITE

Author - Post doctorale Chiquet, Patricia, Muséum d’histoire naturelle, Geneva, Switzerland (Presenting author)
Co-author(s) - Burri-Wyser, Elena, Etat de Vaud, Sipal, Archéologie cantonale, Lausanne, Switzerland

Keywords: lake dwelling, Neolithic, session, tasks sharing

Presentation Preference: Oral

Tell me who is living here... Some considerations on people living in Concise, a Swiss Neolithic site

Studies of the Middle Neolithic lake dwelling of Concise (Switzerland) are expanding year by year, with more fine assumptions about the spatial structures of the villages, the identity of the actors of the material culture, the history of the populations... The architecture of some villages is known as well as the material culture which contains in some cases a mixture of components NMB from Franche-Comté and the Swiss Plateau Cortaillod. The spatial distribution of remains between activity areas common to several houses and domestic waste in each house shows an essentially domestic economy, but there are also synergies by groups of houses for some components. The analysis of these distributions has led us to propose a gendered tasks sharing. In this general atmosphere of domestic subsistence, two buildings appear to have a particular function.
An escape by divorce was for the womenfolk mostly not possible due to laws or social grounds. Wergeld should save the girl's life at the family in law, so that they cannot afford it to kill the maid and repeat their old demands. In law. This might be to pay debts or as sign for a contract as well as a sign for an alliance or as sign that a vendetta is over. The high wergeld was an insurance for the girl not to be killed by her new family. Girls where engaged very early to the family. At the first World War it was emancipation which brought women to the army. When war was nearly over woman had to leave the battlefields again. The reasons why a woman joined war are various: poverty, a bad childhood, desire for adventures or a problem within the family. If a woman fought she had still to fulfil the stereotypes 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 21th century emancipation was another reason why women turned into army service. At the first World War it was emancipation which brought women to the army. When war was nearly over women 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. An indirect reason why a young woman might have joined the army could be the higher wergeld for female babies. In the early Middle Ages 2400 solid were paid for a baby girl and 600 solid 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 who engaged very early to the family in law. This might be to pay debts or as sign for a contract as well as a sign for an alliance or as sign that a vendetta is over. The wergeld should save the girl's life at the family in law, so that they cannot afford it to kill the maid and repeat their old demands. An escape by divorce was for the womenfolk mostly not possible due to laws or social grounds. The graso for the weapon must have been for some women or girls the exit from a forced marriage.

We have found women burials that can be dated to the early middle ages. Surprisingly these burials don't show the typical grave goods for women like pottery or jewellery instead weapons were found. The archaeological research has difficulties to accept these burials as women tomb because the grave goods are typical for man ones. The anthropologist results were ignored and the female skeletons were declared to male ones. Supporting their decision by saying that during the early Middle Ages the social gender is not like the biological gender. Anyway, women with weapons are not known just for the early middle ages but also in the 5-3 Century BC in the Asiatic/Russian area. In general women had no access to political or social power so the stereotyped of the peaceful woman was founded. If a woman fought she had still to fulfill the stereotyped of womanhood. Men were shocked when they found out that they have fought against women. The reasons why a woman joined war are various: poverty, a bad childhood, desire for adventures or a problem with their natural gender. With the beginning 21th century emancipation was another reason why women turned into army service. At the first World War it was emancipation which brought women to the army. When war was nearly over women 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. An indirect reason why a young woman might have joined the army could be the higher wergeld for female babies. In the early Middle Ages 2400 solid were paid for a baby girl and 600 solid 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 who engaged very early to the family in law. This might be to pay debts or as sign for a contract as well as a sign for an alliance or as sign that a vendetta is over. The wergeld should save the girl's life at the family in law, so that they cannot afford it to kill the maid and repeat their old demands. An escape by divorce was for the womenfolk mostly not possible due to laws or social grounds. The graso 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 large amount of time. By studying the tool marks on archaeological charcoal, we will try to reveal the chaine opératoire and the socio-professional organization of wood cutting and fuel production. Afterwards, a dendrochronological approach on charcoals will authorize to inter-date the archaeological sites studied and to discuss the type of wood practiced (existence of coppice?).

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**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)**: Córdoba da 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 metallurgy. Based on the information provided by the documentary sources of the time, the aim of this paper is to analyze the use of this natural resource in 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.

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**TH6-10 Abstract 03**

Synthesis of the anthropological approach

**Author**: Dr. Vaschalko, Christophe, ISEM UMR 5564/L43M UMR 7298, Montpellier, France (Presenting author)

**Keywords**: Anthropology, 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, anthracological analyses were realized in Mediterranean France on nearly 80 ancient, medieval and modern sites. If several activities are now well documented (charcoal and lime burning, pottery, cremation), no global approach has been attempted so far. An inventory was realized, based on a broad range of activities (ceramic, charcoal, lime, vegetal exudates, food, metal, glass, textiles, leathers, soap, salt, plaster) gathered in a same data basis. In order to understand phenomenon of rupture and continuity of the practices, the corpus comprises a chronology going from the Romanization to the Industrial Revolution. Craft and industry constitute the major part of the corpus. This work raises new questions. Currently, archaeologists aim to link the use of fuel with the type of products made (ceramic, lime, glass, etc.). Also, they affirm that some taxa have a calorific value more important than others, and that craftsmen used to chose the fuel regarding its specific properties. Nonetheless, our research proves that these ideas are not representative of past practices. For this reason, we propose a new approach which takes into account the constraint imposed by thermic and technical necessities (i.e. concentration of fire, or, on the contrary, circulation of fire in the kilns). Indeed, the choice of fuel does not always rely on the choice of a 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” (determination of charcoal coming 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 tests, a socio-professional approach of the preparation of the fuel will also be possible. At last, the energetic transition towards the use of fossil charcoal will also be attempted.

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**TH6-10 Abstract 04**

Fuel Selection and Forest Management by Middle Age Belgian Brass Blacksmiths Along the Meuse River

**Author**: Dr. Chevalier, Alexandre, Royal Belgian Institute of Natural Sciences, Brussels, Belgium (Presenting author)
**Co-author(s)**: Thomas, Nicolas, Laboratoire de médiévistique occidentale de Paris – Université Paris 1, Paris, France
**Co-author(s)**: Verbeken, Marie, Service de l’Archéologie, Service Public de Wallonie (SPW), Namur, Belgium

**Co-author(s)**: Plumier, Jean, Service de l’Archéologie, Service Public de Wallonie (SPW), Namur, Belgium

**Keywords**: Belgium, Brass blacksmith, wood charcoal

**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. Cautions, bows, 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 “Bouvron” site, dated to the 6th century. The copper metallurgy boom appears at the end of the 12th century in both Dinant and Bouvignes are 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 this natural limitation. In addition, merchants 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, hearths, smelters and moulds. Copper and brass production however ends abruptly in 1466 in Bouvignes, property of the earldom of Namur, and in 1554 in Dinant, property of the prince-bishop of Liège, when the two cities were defeated in the Burgundy wars led by Charles the Bold.

Since 1995, several archaeological excavations have taken place under the supervision of the Walloon Archaeological Service in the towns of Bouvignes and Dinant. These excavations uncovered several 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 Oblats, 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.
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) - Dolbunova, 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 - Roio, 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 – Koorikuļa Valtjärv 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 - Chaniakiaus, Maxim, Institute of History NAS of Belarus, Minsk, the Republic of Belarus (Presenting author)
Keywords - Kryvina peat-bog micro-region, Late Neolithic - Bronze Age, Northern Belarus (Lakes region)
Presentation Preference - Oral
Kryvina peat-bog is an archaeological microlayer located in Vitebsk region of the Republic of Belarus (south of Belarusian 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 in the region are presented by the materials of 3rd - first half of 2nd millennium BC which belongs to Usvyaty and North-Belarusian cultures. 9 monuments preserve organic in the cultural layers, 8 of them are peat-bog sites. The most studied settlements of the micro-region are Krivina 1, Asaviec 2 and Asaviec 7 settlements. Since 2010, the Asaviec 2 settlement was annually researched by the joint expedition of the Institute of History of NAS of Belarus and the Faculty of History of Belarus State University under the guidance of Michal Chaniauski and Maxim Chaniakiaus. In the southern part of the site 27 square meters were excavated. The use of new approaches in the field studies and the analysis of the received materials (in comparison with former methods) has allowed to clarify and obtain new information on the household, material and spiritual culture of the population of the region. We should also mention the identification of the immediate materials of the circle of Corded Ware cultures and the Globular Amphora culture on the settlement, which allowed to reconstruct the process of transformation of Ustyevo 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
Author - Mazurkiewicz, Andray, the State Hermitage Museum, Saint-Petersburg, Russian Federation
Co-author(s) - Kittel, Piotr, Lodz University, Lodz, Poland
Co-author(s) - Magront, Yoelane, UMR 8215, Université de Paris 1-CNRS, Paris, France
Co-author(s) - Kulkova, Marielina, Herzen State Pedagogical University, Saint-Petersburg, Russian Federation
Co-author(s) - Dibitonia, Edwige, the University of Paris 1, France
Co-author(s) - Bibin, Michaël, Zoological Institute of RAS, Saint-Petersburg, Russian Federation
Co-author(s) - Lyashkevich, Elona, Institute of history BAS, Minsk, Republic of Belarus
Co-author(s) - Regert, Martine, UMR 7264 UNS – CNRS, CEPAM, Nice, France
Co-author(s) - Mazy, 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 wetlands; 2) moraine plateaus with predominantly clayey soils covered by broad-leaved trees; 3) moraine plateaus with predominantly sandy, podzolic soils. The combination of these 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 develop of fluvial system in places can be also supposed. Only specific landscapes with high geodiversity 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 the presence of human settlement. The majority of fish remains were caught in the lakes and rivers. The domesticated animals' remains were found in the excavated sites. The raw materials' availability was estimated with the use of GIS-techniques.

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 toolskits and pieces of art.

TH6-11 Abstract 05
Pile dwellers in the Sukhona basin? New Russian-German research at Veksa, Northern Russia
Author - Dr. Plezronka, Henry, German Archaeological Institute, Berlin, Germany (Presenting author)
Co-author(s) - Dr. Nedomolkina, Nadezhda G., Vologda State Museum, Vologda, Russian Federation
Co-author(s) - Dr. Heufner, Kirsten, German Archaeological Institute, Berlin, Germany
Co-author(s) - Prof. Dr. Kireks, Wisloka, Institute of Pre- and Protohistory, Christian Albrechts University Kiel, Kiel, Germany
Co-author(s) - Dr. Lorenz, Sebastian, Institute of Geography and Geology, University of Greifswald, Greifswald, Germany
Co-author(s) - Dr. Wielczewski-Lüth, 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 on 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 3900 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 Onega 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 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 settlement 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.
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 former overgrown arms flowing into the lagoon or have been formed on the river bottom. The excavations of 400 stakes driven into the ground were studied. The ends of the stakes are dug into the lower-laying alluvial layers by 0.5–1.2 m. The height of the stakes is 0.5–2.5 m, the diameter is 7.18 cm. Fatty stakes were as long as 4–5 m. The stakes were made of coniferous and broadleaf trees: pine tree (50%), fir tree (18%), aspen (17%), birch (9%), willow (2%), and juniper (1%). Rowan tree was used in one case. About 20 fragments of constructions made of splinters were discovered. Some of them were left at the bottom or along the edges of the piles; others were destroyed or relocated. Some constructions took like a fossilized bundle of splinters (from 10 to 20 units) 3.5–4.0 m long. Their width ranges from 2.0 to 3.5 cm; their thickness is 0.5–1.0 cm. Other constructions, which constitute the majority, have a fence-shaped or mat-shaped; their sizes are from 1.05 x 2.30 to 2.20 x 2.0 m. The number of splinters in such arrays reaches 27–80 units. The splinters were being placed one to eight rows. The preserved length of the splinters varies from 1.5 to 2.80 m., their width varies from 1.2 to 4.5 cm; their thickness is from 0.2 to 1.8 cm. The distance between the splinters in a construction was 1.5–2.5 cm. They were bound together with either “ropes” or black willow twigs. According to dendrochronology and dendrochronometry tests of the wooden structures, these structures date back to mid 4th. – mid 3rd millennium BC. Research has shown that site Oktiha 1 had been an actively used fishing site on the sea shore during several millennia. The fishing site was equipped with fishing devices, pile-supported platforms, and buildings.

TH6-11 Abstract 07
Characterization of activity areas in the early Neolithic site of La Draga (Spain)

Author: Dr. Piqué, Raquel, Universitat Autònoma de Barcelona, Bellaterra, Spain (Presenting author)
Co-author(s): Moreira, Núria, Universitat Autònoma de Barcelona, Bellaterra, Spain
Co-author(s): Barceló, Joan Antón, Universitat Autònoma de Barcelona, Bellaterra, Spain
Co-author(s): Boragován, I. Oriol, Universitat Autònoma de Barcelona, Bellaterra, Spain
Co-author(s): Palomo, Antoni, Universitat Autònoma de Barcelona, Bellaterra, Spain
Co-author(s): Revellés, Jordi, Universitat Autònoma de Barcelona, Bellaterra, Spain
Co-author(s): Sanfeliú, Maria, Universitat Autònoma de Barcelona, Bellaterra, Spain
Co-author(s): Terradas, Xavier, Universitat Autònoma de Barcelona, Bellaterra, Spain
Keywords: Area works, Prehistoric, Spatial analysis
Presentation Preference - Oral

The early Neolithic site of La Draga is located on the shore of Lake Banyoles, in north-east of Iberian Peninsula (Spain). The site has provided evidences of two phases of occupation dated between 5300-4700 cal BC. The preservation of the site differs depending on the proximity to the lake. In some parts of the site a layer of well-preserved wood has been documented, corresponding to the earliest phase. In other sectors only the tips of the poles stuck in the lacustrine chalk are preserved. The spatial analysis of the remains recovered at the site aims to identify possible areas of activity and characterize them. In-situ spatial analysis of different categories of remains have been explored in order to set boundaries and relationships between different spaces.

TH6-11 Abstract 08
Wood architecture in the Early Neolithic (5300-5000 cal BC) site of La Draga (NE of Ibiza)

Author: Dr. Oriol López-Bulb, Universitat Autònoma de Barcelona, Barcelona, Spain (Presenting author)
Keywords: Early Neolithic, Iberian Peninsula, Pile-dwelling
Presentation Preference - Oral

La Draga is the only Neolithic pile-dwelling site of the Iberian Peninsula. It is located on the shore of the Banyoles Lake (Girona, Spain) in the North-east of the Iberian Peninsula. The site was occupied during early Neolithic (5300-4900 cal BC). The remains of wood recovered at the site have been studied with the objective of characterizing the wood management process: obtaining of raw material, woodworking technology and the use as tools or construction elements. All this process is usually hidden for archaeologist, but its economic and social implications are of great relevance. The analysis of wood elements had been carried out involving a wide range of different methodologies: dendrology, description of morphology, experimentation, tool-marks, use-wear and 3D modeling. In this work are summarized the result of the analyses of the architectural elements. We’ll outline the main characteristics of the building process of the wooden constructions at La Draga, from the obtaining of the raw material to its use for architecture, through its elaboration process. The analysis of architectural elements (beams, posts, planks, framework, etc.) show in one hand the predominance of certain species of raw material, season of obtaining, diameters and supports selected. In the other hand it has been spotted certain predominance on the elaboration process. Finally, a few master lines of the construction structure have been spotted.

TH6-11 Abstract 09
Dry land and lakeside settlements in the region of Four Lakes at Amindone Basin (Greece)

Author: Dr. Chrysostomou, Panikos, Greek Ministry of Culture and Sports, Florina Ephorate of Antiquities, Amindone, Florina, Greece (Presenting author)
Keywords: Western Macedonia
Presentation Preference - Oral

The surveys and excavations of the last years in Amindone region conducted by Florina Ephorate of Antiquities, resulted in the discovery of several prehistoric dry land and lakeside settlements dated from the late 7th to the late 2nd mil. BC. Some 31 new habitation sites were spotted in an overall area of 550 hectares, from which 15 sites were partially or totally excavated, covering an area of 25 hectares. From the preliminary overall approach of the excavational data so far yielded, the development of a unique culture, in the region is documented, with an active contribution - especially during the earlier phases - to the neolithisation of Balkans, as part of the basic axis of populations and ideas mobility from the southeastern Balkans towards central and northern Europe. The location of the settlements confirms the special relationship that local neolithic communities developed with wetland environment, an interaction sustained with an impressive adaptive ability throughout prehistory. Even during Early and Middle Neolithic periods (mid 7th - mid 6th mil. B.C.) - as documented by the excavational data from the settlements Anarghiri XI and Anarghiri XIII and Xllia - although some basic choices regarding the construction and organization of habitation’s space refer to dry land occupation - the proximity of those settlements to the adjacent marshes necessitate the adaption of building techniques similar to pile dwellings. At late 6th mil. B.C. the occupation of the lakes and marshes’ shores is intensified, resulting the establishment of several lakeside settlements. The most recent partial or total excavation of some of these and the investigation of extended destruction layers, numerous structural elements and artifacts of various organic materials, yielded new data to the prehistoric research of the region. The preliminary study of the evidence from the lowest waterlogged layers of Limnochori II, Anarghiri Ixa and Ibx refers to dwellings built on water or by the shores, with a wide range of construction techniques exploited for flooring, walling, roofing etc. Especialy the on-going large scale rescue excavation at Anarghiri Ixb has so far yielded some impressive wooden structures referring to an organized communication and/or defense system of palisades and trackways connecting the settlement to the opposite lakeshore. All these significant evidence referring to the diachronic intra-settlement spatial organization, the form, structure and internal arrangement of the houses, together with thousands of clay, stone, wooden tools related to the productive, manufacturing 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 Giaigoulis, 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 coalmining zone of Public Power Corporation S.A. - Hellas (Amindone, 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 excavational evidence, the earliest occupation’s structures were built in immediate spatial relationship to water with matching building choises 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 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 findings and their spatial integration in the excavational grid with the use of GIS tools. Although the study is still in an early stage, the present 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 differentiations in
A research project focusing on Lake Degersee in Southern Germany revealed settlement activity and land use in the hinterland of Lake Constance older than the onset of the pile-dwelling period at Lake Constance in the 40th century BC. The outcomes of recent archaeological and palynological investigations suggest new settlement sites and human impact dating back to the 5th millennium (see contribution of Mainberger, this session). Within the tri-national project ‘Beyond Lake Villages – BELAVI’ palaeoenvironmental on-site and off-site data from the Western Altgäu region are synthesised with archaeological records. The chronological basis and with it the relation to regional and over-regional vegetation and climatic records is established by high-resolution pollen, charcoal and sedimentary records on annually laminated lake sediments, dendrochronology, and AMS radiocarbon dating. 

With regard to the results of plant macrofossil and pollen analyses on the cultural layers at Degersee, we expect to provide further evidence of changes in subsistence strategies and landscape management in response to environmental and climatic changes throughout the Neolithic period.

Dendrochronology provides information on woodland management of settlers at the periphery of Lake Constance. Main construction timber at Degersee comes from ash trees, and tree ring patterns show a cyclic settlement activity with repeated usage of small woodland plots with intermittent fallows. Wood charcoals from cultural layers complement the spectrum of potentially selected construction timber, to gain a more complete picture of wood resource usage. Geoarchaeological investigations look into land use impacts, namely erosion, and together with the taxonomic analysis and dating of embedded charcoal can give further chronological as well as information on prehistoric vegetation cover.

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**TH6-11 Abstract 11**

**Wet, Wet, Wet: Neolithic wetland and lakeside settlements in the Balkans**

**Author:** Dr. Naumov, Gooz, Museum of Macedonia, Skopje, Macedonia (Presenting author)

**Keywords:** Balkans, pile dwellings, pottery and human representations

**Presentation Preference: Oral**

The Balkans is known as the first outpost of Neolithic societies that introduced the agriculture on the European continent. There is an abundance of publications and discussions on the ‘dryland’ settlements and their communities in this region, but there is not much on sites established within marshes and on lakeshores. Few of them were excavated, but their significant role in the modification of environment and incorporation of farming were neglected. Besides their specific features pile dwellings were rarely studied through the potentials of wetland archaeology and although this discipline is one of the most advantageous directions in understanding of the past landscapes it is still mostly introduced in the Balkans. There are number of lakeside settlements and prehistoric villages in marshy areas, but they are not thoroughly explored in relation to the environment, climate and more complex social networks.

Nevertheless, the excavations so far provided elementary information on the material culture and chronology of these sites and indicated the density of settlements established on lake shores, river beds and falls within marshes. Pile dwellings were considered as typical of wetland settlements, but recent research on the littoral prehistoric sites on the shores of Lake Ohrid, Lake Prespa and Lake Dojran, but recent research in Pelagonia valley indicate such constructions on the periphery of tell-sites in wetlands. The main focus in this paper will be on the Neolithic settlements in Lake Ohrid basin and Pelagonia, but a broad-spectrum overview of similar sites in the Balkans will be presented in order to emphasise the thorough networks of farming societies that inhabited wetlands and lakes.

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**TH6-11 Abstract 12**

**Live and survive in prehistory on northern shore of Ohrid lake**

**Author:** Todorska, Valentina, NU Museum Nikola Nezibinski Struga, Macedonia (Presenting author)

**Keywords:** pile dwellings, tools

**Presentation Preference: Oral**

Aim of this presentation is to represent the pile dwelling settlements situated in northern part of Ohrid Lake. Movable archaeological finds in few of them, located in this part of the lake, indicate on fact that we can talk about pile dwelling settlements which existed in early prehistory: late Neolithic, Eneolithic also late Bronze and Iron Age. A huge concentration of pottery and tools will help us to complete the picture of this region in prehistory. Especially, focus will be given on tools used by people who lived in these regions and help them to survive and live traces of their existence.

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**TH6-11 Abstract 13**

**Neolithic environment and subsistence in the Western Altgäu – first results of the BELAVI project**

**Author:** Dr. Wick, Lucia, Landesamt für Denkmalpflege, RP Stuttgart, Gaienhofen-Hemmenhofen, Germany (Presenting author)

**Co-author(s):** Maier, Ursula, Landesamt für Denkmalpflege, RP Stuttgart, Gaienhofen-Hemmenhofen, Germany

**Co-author(s):** Nele, Oliver, Landesamt für Denkmalpflege, RP Stuttgart, Gaienhofen-Hemmenhofen, Germany

**Co-author(s):** Vogt, Richard, Landesamt für Denkmalpflege, RP Stuttgart, Gaienhofen-Hemmenhofen, Germany

**Keywords:** human impact, Neolithic land use, subsistence

**Presentation Preference: Oral**

The preliminary remarks presented in this paper refer to specific clusters of wooden elements (vertical and horizontal piles, planks etc), which due to their similar characteristics, spatial and stratigraphical distribution can be correlated to structures built at the edge of the main habitation area’s settlement. The specific building processes followed, the original form, as well as the possible function of these structures are some of the future research topics. Furthermore, the microscopic examination of the wooden elements sampled so far, as well as the expansion and intensification of the sampling processes at the forthcoming excavational campaigns, not only will add crucial and qualitative information regarding the use of wood as construction material, but will possibly open new perspectives for palaeoenvironmental research and - most importantly - dendrochronology in Amindeon Basin...

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**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 palaeoecological background data. If their palaeoenvironmental, palaeoeconomic and palaeoclimatic information can be exactly paralleled to waterlogged archaeological evidence from lake shores, a dataset on human activities in landscapes far beyond the lake shores is generated. This is the core outcome of a research project completed in 2010, focusing on the small Degersee Lake in South Western Germany. The Degersee project triggered not only a whole series of new discoveries, but also the design of the tri-national ‘Regard Lacs – 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 woodlands growing up on drumlin rows and moraine belts, and by an entanglement of lakes, bogs, lozlands and water courses. The archaeological assessment of the Western Altgäu region is based on a concept of complementary components, with the cultural landscape dominated by farming activities on one hand, and the aquatic landscape with their benefits in respect to foraging, settlement-building, and communication on the other. The presentation will provide with initial results of the GIS - supported landscape analysis and first outcomes of 2015 and 2016 field campaigns.

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**TH6-11 Abstract 15**

**Beyond Lake Villages in the Neolithic of Austria**

**Author:** Kerstin, Kowarik, University of Vienna, Vienna, Austria (Presenting author)

**Co-author(s):** Klammer, Julia, University of Vienna, Vienna, Austria

**Co-author(s):** Scali da Fonseca, Helena, University of Vienna, Vienna, Austria

**Co-author(s):** Maurer, Jakob, University of Vienna, Vienna, Austria

**Co-author(s):** Dworzak, Cyril, Kuratorium Pfahlbaulen, Vienna, Austria

**Co-author(s):** Haas, Jean Nicolas, University of Innsbruck, Innsbruck, Austria

**Co-author(s):** Taylor, Timothy, University of Vienna, Vienna, Austria

**Presentation Preference: Oral**

Austria’s prehistoric lake village sites have been known for over 150 years. Research in the 19th and 20th century identified a number of prehistoric lacustrine structures, with rich cultural deposits. But research into Austria’s Pfahlbauten (pile-dwelling) phenomenon has been characterized by discontinuity and modern transdisciplinary research has been limited to specific and at a theoretical level. This has begun to change with several new research initiatives focussed on the Salzkammergut region in Upper Austria. This paper presents data analysis from the international project ‘Beyond Lake Villages’ (funded by FWF-DFG-SNF 2015-2018). The Austrian part of the project focuses on the Lake Alterrsee-Mondsee region, including both large and small bodies of water, bogs, and newly discovered ‘hinterland’ sites. The aim is to characterise lake in impact in terms of land use dynamics during the Neolithic with special focus on the 4th millennium BC. The project goals are (i) to establish a highly resolved Holocene
paleoenvironmental record for the research area; (ii) to enhance our understanding of landscape in terms of spatial networks; (iii) to integrate paleoenvironmental data sets with archaeological data. The research is conceived at three scales: (1) Micro-regional, to produce an accurate picture of the complete range of surviving archaeological features through intensive field survey; (2) Regional, incorporating LIDAR data and aerial photography to facilitate a systematic understanding of the archaeological landscape; and (3) Macro-regional, providing new socio-cultural, economic and ideological models/hypotheses that can be tested in subsequent transdisciplinary research.

TH6-11 Abstract 16
Beyond lake villages. Archaeological and palaeoecological research at Lake Burgäschi/ Switzerland
Author - Prof. Dr. Hafner, Albert, University of Bern, Bern, Switzerland (Presenting author)
Co-author(s) - Gobet, Erika, Institute of Plant Sciences and Oeschger Centre for Climate Research, Bern, Switzerland
Co-author(s) - Laabs, Julian, Institute of Archaeological Sciences and Oeschger Centre for Climate Research, Bern, Switzerland
Co-author(s) - Rey, Fabian, Institute of Plant Sciences and Oeschger Centre for Climate Research, Bern, Switzerland
Co-author(s) - Wey, Ottmar, Institute of Archaeological Sciences and Oeschger Centre for Climate Research, Bern, Switzerland
Co-author(s) - Trinner, Willy, University of Bern, Bern, Switzerland
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 Landesdenkmalamt Baden-Württemberg and University of Vienna, funding: SNF-DFG-FWF). Three archaeological and three palaeoecological teams work together on three small lakes on the Northern side of the Alps. The aim is to compare environmental changes and human impact of Neolithic societies. The Swiss study area is Lake Burgäschi, a small water body in the central part of the Swiss Midlands. Archaeological research started already in 1877 and several major excavation campaigns took place in the 1940ies and 1950ies. Up to now four settlement of the 4th millennium BC areas are known and single finds indicate settlement activities during the 5th and 3rd millennia BC. This presentation gives an overview on former and recent activities in one of the classic find spots of Swiss pile-dwellings research. A special focus will be put on new archaeological and palaeoecological results.

TH6-11 Abstract 17
Above the lakes – Organic finds from Bronze Age mines in the Alps
Author - Reischlauer, Hans, Naturhistorisches Museum Wien, Vienna, Austria (Presenting author)
Co-author(s) - Kowarik, Kerstin, Naturhistorisches Museum Wien, Vienna, Austria
Keywords: Mines, Organic material
Presentation Preference - Oral
Organic finds fascinate as they convey exceptional insights into prehistoric daily life and work routine. Organic objects make up the bulk (far more than 90%) of material culture in the period from the Stone Age to very recent times (19th cent.). Aside from underwater and wetland sites organic materials such as wood, fur, skin, leather and textiles have also been preserved in considerable numbers in several alpine mines (e.g. Hallstatt, Mitterberg). Those ancient mining relics are fundamentally different from the objects we know from wetland and underwater sites in terms of taphonomy, functionality and age at discovery. Those hot handles, lightning tapes, buckets, mining timber, axes and so on are remnants of large scale prehistoric production systems. A particular difficulty in dealing with these objects lies in the uncertainty whether they represent highly specialized mining tools or tools commonly used in the settlements as well. Comparison with the organic finds from wetland and underwater sites is essential in the understanding of the finds from the alpine salt and copper mines. In addition the alpine finds present important complementary information in the analysis of the organic finds from bogs, wetlands and water bodies as certain materials that decay underwater are preserved in the mines. Furthermore the Hallstatt salt mines offer addition the alpine finds present important complementary information in the analysis of organic finds from bogs, wetlands and underwater sites is essential in the understanding of the finds from the alpine salt and copper mines. In 2016 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 Landesdenkmalamt Baden-Württemberg and University of Vienna, funding: SNF-DFG-FWF). Three archaeological and three palaeoecological teams work together on three small lakes on the Northern side of the Alps. The aim is to compare environmental changes and human impact of Neolithic societies. The Swiss study area is Lake Burgäschi, a small water body in the central part of the Swiss Midlands. Archaeological research started already in 1877 and several major excavation campaigns took place in the 1940ies and 1950ies. Up to now four settlement of the 4th millennium BC areas are known and single finds indicate settlement activities during the 5th and 3rd millennia BC. This presentation gives an overview on former and recent activities in one of the classic find spots of Swiss pile-dwellings research. A special focus will be put on new archaeological and palaeoecological results.

TH6-11 Abstract 18
News from prehistoric lakeside settlements in Austria
Author - MA Pohl, Henrik, Kuratorium Plähhauten, Atatürk, Austria (Presenting author)
Keywords: Austria, Neolithic, pile dwellings
Presentation Preference - Oral
The most recent extensive survey undertaken in Austria and a small but successful study of the prehistoric lakeside settlements took place in the 1970s and 1980s. The inscription on the UNESCO list of World Heritage sites in 2011 provided the crucial impetus to resume the archaeological investigations and the associated protection measures. The Pile Dwellings Curatorium was tasked by the Austrian state authorities with coordinating the work and establishing systems of monitoring the sites. In 2013 a monitoring plan was developed with the aim of maintaining long-term observation and putting in place protection programmes; at the same time, archaeological investigations were mounted at five Austrian world heritage sites on the list of 'prehistoric pile dwellings'. Now, three years later, a first up-to-date inventory is available, which will allow us to implement concrete protection measures beginning in 2016. Additionally we have got some new data as a result of our research. A new research programm has been started with an underwater excavation in Lake Attersee in 2015.

TH6-11 Abstract 19
Wet worlds in context–The Bronze Age pile dwelling of Must Farm in the East Anglian Fens (UK)
Author - Huisman, Floor, Durham University, Durham, United Kingdom (Presenting author)
Keywords: Contextualising wetland living, East Anglian Fens, Must Farm pile-dwelling
Presentation Preference - Oral
The recent discovery of the Bronze Age site of Must Farm in the former wetlands of the East Anglian Fens opens up a new chapter in pile-dwelling research in the UK. Older than the artificial Iron Age islands known as '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-lake-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.

TH6-11 Abstract 20
Sailing the lakes of the Alps.
Notes on the prehistoric navigation and boats
Author - Tiboni, Francesco, Università Aio-Marseille 1, Avenzano, Italy (Presenting author)
Keywords: Boats, Lakes, Monoxyle
Presentation Preference - Oral
The aim of this paper is to propose a new framework to deal with the topic of ancient monoxyles and canoes that have been found in great number in different prehistoric sites of the Alpine region, and particularly to deal with those pertaining to pile dwelling sites. Usually considered simple boats, essentially in use for fishing and for short travels on water; these objects have not been studied in the same way around the Alps. Their knowledge is in fact not homogenous and is essentially linked to single experiences and researches, held by singular scholars, often isolated.

Far from wanting to exhaust the topic, the main aim of the proposed framework is in fact to overspill the often-overestimated idea of a sort of primitivism of these ancient ships, as well as to propose a new and more complex interpretation of their forms and features.

To do this, the paper first tries to examine why the analysis of these boats appears to be usually conditioned by the ethnomnological 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
TH6-11 Abstract 21

Pots, pans and dishes to understand food in a pille-dwelling Neolithic society

Author - Dreau, Lia, CEPM UMR 7264, Nice Cédex 4, France (Presenting author)
Co-author(s) - Mirabaud, Stéphane, INP Institut National du Patrimoine, 38000 Aubervilliers, France
- Roelf-de-Salique, Marie, GeoArchaeology Unit, BioGeoarchaeometry Research Centre, University of Brussels, Brussels, Belgium
- Balsac, Thierry, CNRS-UPMC Université Paris 6, UMR 7099, LOV, Plateforme Spectrochimie isotopique, 62593 Villeneuve-sur-Mer, France
- Péréquon, Philippe, MSHE C.N. Ledoux, CNRS & Université de Franche-Comté, 25030 Besançon Cedex, France
- Péréquon, A.-M., MSHE C.N. Ledoux, CNRS & Université de Franche-Comté, 25030 Besançon Cedex, France
- Eveready, R.P., Organic Geochemistry Unit, BioGeoarchaeometry Research Centre, University of Brussels, Brussels, Belgium
- Regert, Matthias, (1), (U), University Sophia Antipolis, CNRS, CEPM UMR 7264, 06300 Nice, France

Keywords: Dairy products, Organic residues, Pottery use

Presentation Preference - Oral

Traditionally, pottery use has been discussed through morphological characteristics and geometric properties of the vessels (Rice 1987) but amorphous organic residues analysis has also greatly contributed to understand exploitation of natural resources during the prehistoric time (Eveready 2008). Nevertheless these methodologies are rarely combined due to the high fragmentation of pottery and to the impossibility to link ceramic content with specific sites. At the site of Clairvaux XIV (Middle Neolithic, MB - 39e-37e century BC), the large and diversified corpus of ceramic vessels (377 vessels with restituted profiles) combined to anoxic condition favoring lipids preservation offers a unique opportunity to investigate the use of pottery to better understand lake dwelling Neolithic society (Péréquon et Péréquon 2015).

The corpus was first classified based on morphological and morphometric criteria. Chemical analysis of the lipids preserved inside lipids and on 144 amorphous organic residues were then carried out using an analytical strategy combining chromatographic (HT GC, spectrometric analysis of GC+MS, NMR, MS/MS) and isothermal (IRMS) techniques. The data obtained on 95 pottery conducted to: (i) the identification of a broad diversity of commodities processed in the vessels, mainly from animal origin; (ii) the establishment of clear relationships between content, traces of cooking, shape and volumes of the vessels.

This study highlights some characteristic consumption pattern of the Neolithic people living at Clairvaux XIV 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 preparation of dairy products. Dairy products, amorphous organic residues analysis, Pottery use

TH6-11 Abstract 22

Micro-economic and socio-cultural networks in lakeside settlements

Author - MA Spring, Markus, Zurich University, Oetwil am See, Switzerland (Presenting author)
Keywords: Neolithic-Bronze Age, Network analysis, Settlement archaeology

Presentation Preference - Oral

Urban morphologists are investigating the ‘genetic code of cities’, laws according to which modern cities emerged and grew. They have identified socio-economic processes that activate the act of building which in turn shapes urban space. The emergence of spatial pattern is seen as determined for the evolution of configuration networks. These networks, together with spatial agency of rational movement, the flow of people to meet and interact, have a significant impact of the movement in modern cities. Movement through micro-economically motivated grid networks encourages the emergence of ‘generative’ land uses, such as retail, while movement-poor-socio-culturally influenced background networks form ‘conservative’ residential areas. Lakeside settlements, on the other hand, are – quite similar to space stations – built for human habitation basically hostile environments. Swamp-born diseases posed constant health risks, and fluctuating water levels or seasonal flooding asked for structural solutions to still allow human activities and interactions despite adverse conditions. 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)

Author - Steiner, Bigna, IPAS (Integrative Prehistoric and Archaeological Science), Basel, Switzerland
Co-author(s) - Antoni, Ferran, IPAS (Integrative Prehistoric and Archaeological Science), Basel, Switzerland
- Steiner, Bigna, IPAS (Integrative Prehistoric and Archaeological Science), Basel, Switzerland
- Kühn, Marta, IPAS (Integrative Prehistoric and Archaeological Science), Basel, Switzerland
- Bleicher, Niels, Centre for Underwater Archaeology and Dendrochronology, Zürich, Switzerland
- Jacomet, Stefanie, IPAS (Integrative Prehistoric and Archaeological Science), Basel, Switzerland

Keywords: archaeobotany, GIS, sampling strategies

Presentation Preference - Oral

Archaeobotanical research in the Alpine Forals has a long tradition. Abundant quality data have been produced since the seventies of the XXth 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 paleo-economic 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).

With an optimal sampling strategy was conducted at the recently excavated 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 and marshland levels, the sites 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 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 Bachweißen I (Bad Buchau, Kr. Biberach) located at the Federeisen fen in Baden-Württemberg, excavated in the years 2005 and 2011, can be assigned to the Late Neolithic Schurwald Culture between ~ 4000 and 3800 BC. The site itself is dated by dendrochronology around 3970 BC.

The objective is to model a settlement system during the Late Neolithic by comparing the features, the corpus of finds and the results of natural scientific analysis of this settlement with other known settlements. The main source of information of this comparison are the known wetland sites.

To understand the possibilities and limits of such a model it is crucial to discuss which aspects of life can not be traced in the archaeological record and are forced to remain in the dark. Nevertheless important factors of how life is functioning among human groups can be hidden there. E.g.: Little do we know about what happened on the mineral soil during the same time.

In a first step a comparison of settlement structures, their duration, substantia 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 Schurwald 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

Author - Dr. Baioni, Marco, Museo Archeologico della Valle Sabbia, Gavardo, Italy

Co-author(s) - Mangani, Claudia, Museo archeologico G. Rambotti, Desenzano del Garda, Italy (Presenting author)

Co-author(s) - Martelli, Niccolò, Dendrodata sas, Verona, Italy

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). In Late Bronze Age pile dwellings in Northern Italy: - Oral

the inhabitants of the pile-dwellings intensively exploited the areas around the villages. 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 picture 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 Schurwald Culture?

The presentation will give an insight in the current state of this PhD project and discuss the preliminary results.

TH6-11 Abstract 27

Cultural layer formation, production and dwelling areas on pile-settlements of Upper Dvina region

Author - Mazurkevich, Andrey, The State Hermitage Museum, Saint Petersburg, Russian Federation

Co-author(s) - Kfit, Peter, Lodz University, Lodz, Poland

Co-author(s) - Dolidonova, Ekaterina, The State Hermitage Museum, Saint Petersburg, Russian Federation (Presenting author)

Co-author(s) - Maigret, Yolaine, UMR 8215, Université de Paris 1-CNRS, Paris, France

Co-author(s) - Zaceva, Ganna, Institute for the history of material culture of RAS, Saint Petersburg, Russian Federation

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 Serkeya 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 coarse-detritus gyttja at the depth of approx. 80-150 cm b.g.l. Although any sediments synchronous to the time of pile-dwelling settlement existence were not revealed - the conclusion based on the analysis of sediments in trenches and a hand auger coring at the site area indicate 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 sites were uncovered at the site: - they were: nuts, fish bones, shells and other materials, not mixed, which occasionally and intentionally were accumulated in pots or garbage heaps, nearby preserved remains of dwellings.

They could be interpreted as open production areas. Inside the remains of wooden constructions, sandy platforms for fire-places were recorded - remains of all year production areas, which were deposited in another manner.

We could also suppose a much higher erosion of the upper cultural layer, where material was admixed by environmental factors during milieu changes (lake’s regressions/transgressions) in the process of its deposition. Here we can trace clay penetration and materials accumulation around wooden piles, fragmentarily of artifacts, and homogenous distribution of material within the cultural layer.

Other particular layers and other organic remains were uncovered at the site Serkeya I, with fishing constructions synchronous to Neolithic pile dwellings. Thin interlaminations, 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 Serkeya II site, also in the buried lake shore zone.

TH6-11 Abstract 28

Geophysical prospection of submerged Neolithic settlements in Lake Sennitca (Pskov Obl., NW Russia)

Author - Dr. Lorenz, Sebastian, University of Greifswald, Greifswald, Germany (Presenting author)

Co-author(s) - Prof. Dr. Fassbinder, Joerg, Bavarian State Dept of Monuments and Sites, Munich, Germany

Co-author(s) - Hensel, Roberto, University of Greifswald, Greifswald, Germany

Co-author(s) - Dr. Mazurkevich, Andrey, The State Hermitage museum, Saint Petersburg, Russian Federation

Co-author(s) - Dr. Dolginova, Ekaterina, The State Hermitage museum, Saint Petersburg, Russian Federation

Keywords: geophysics, Neolithic, Sennitca

Presentation Preference - Poster

First archaeological sites on the bottom of Lake Sennitca (13 km², 148 m a.s.l.), located in NW Russia on the border with Belorussia were uncovered in the 1970s. These lacustrine sites, dated to the 4th-3rd mill BC, were located along the shorelines 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 megallactic 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 varifomer configuration. Combined with a high spatial resolution (sampling rate of 12.5 x 25 cm) the results allow us also to detect the weak magnetic signals of archaeological structures of wooden constructions such as rows of post or parts of post-build houses, fish-traps, but also very clearly the traces of paleochannels and the typical strong magnetic anomalies which could be ascribed to ancient fireplaces or kilns.

Supplementing the archaeological underwater surveys three sites in the littoral fringe have been investigated by dense side scan sonar tracks with varying frequencies (80-200 kHz). The sonar mapping revealed details in lake bottom morphology, which is is recently enveloped by soft sediments as well as the precise distribution of ancient stone and wooden constructions on the sites. These prospections not only allowed us to reconstruct in details paleorelief, precise distribution of ancient stone and wooden constructions on the sites and to define and to locate the places for further excavations but moreover provides us a comprehensive approach to the site.

TH6-12 Abstract 01
Ritual continuity and changing monuments in the southern Sperrin Mountains, Northern Ireland

Author - Dr. Brogan, Catriona, Queen's University Belfast, Belfast, United Kingdom (Presenting author)
Keywords: Neolithic/ Bronze Age transition, Northern Ireland, Ritual landscapes

This paper argues that there was a surprising degree of spatial stability between Neolithic and Bronze Age ritual landscapes in the southern Sperrin Mountains, Northern Ireland. The Sperrin Mountains form the largest mountain range in Northern Ireland, stretching across the north-west of the country. Glacial activity during the last ice-age has created a landscape of rolling mountains cut by deep glens. Today the upper slopes of the mountains are largely unhabitied as the spread of blanket peat has pushed settlement down into the foothills, with the often barren and windswept uplands reserved for the seasonal grazing of cattle. It would, however, appear that these mountains were not always so desolate.

During the courses of the Irish Neolithic substantial anthropogenic changes occurred; people began farming the land and constructing megalithic tombs in which to bury their dead. These tombs are often regarded as being linked to ideas of ancestor veneration, where the remains of the deceased symbolically tied the community to the land they had invested in. Landscape analysis of the Sperrin region reveals particularly high concentrations of Neolithic burial activity, suggesting that this may have been perceived as a ritual landscape. The advent of the Bronze Age sees profound cultural changes throughout Ireland and evidence from a recent genetic study has even indicated that there was a significant migration of people into Ireland (Cassidy et al. 2006). Within the funerary/ritual sphere, megalithic burials are gradually abandoned as burial within cist and pits becomes more prevalent and new ritual practices are introduced.
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 Spermel 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.

TH6-12 Abstract 02
Viking-Age landscapes in the longue durée: change, continuity, and perceptions of place

Author - Dr. Leonard, Alison, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: Landscape, Portable material culture, Viking Age

Presentation Preference - Oral

It is no simple task to assign dates to a landscape. In England, however, metal-detected artefacts recovered from rural contexts provide valuable benchmarks that bring chronological narratives of settlement and activity to light. This can be used to highlight specific ‘moments of crisis’ within narrow 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. Proximity to Roman roads, for example, is a shared trait across the case studies, but why does treatment of other Romano-British structural features appear to differ so widely? Drawing upon a range of supporting evidence such as place-names and environmental data, and looking at the artefactual and landscape evidence within a number of shifting chronological frames, it is suggested that certain discontinuities and continuities can be explained with reference to the evolving agrarian economy. Conversely, the influence of antecedent features such as barrows and structural remains on succeeding 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.

TH6-12 Abstract 03
The way to the shore: why going to the beach may not be as straightforward as you might think

Author - Johnson, Andrew, Manx National Heritage, Douglas, Isle of Man (Presenting author)
Keywords: coastal landing places, Isle of Man, old rights of way

Presentation Preference - Oral

Although modern ports and harbours dominate how we relate to the sea and to associated maritime activities and industries in the present, technological and scalar differences resulted in alternative responses to these pressures in the past. Seven modern harbours dominate the 150 km coastline of the Isle of Man, but these represent only a small proportion of the 40 landing places historically used by, and available to, a once largely rural population. Intrigued by the way in which we take these modern harbours for granted today, my research focusses on identifying natural landing places – without quaysides, jetties or breakwaters – and the routes which connected them to the agricultural hinterland.

Some landing places were naturally usable, but others show evidence for the adaptation of the intertidal shore and other simple alterations designed to improve safety or ease of use. It is sometimes possible to glean from this the reasons the landing places were exploited: fishing and the collection of seaweed as manure are amongst the most obvious uses.

The character and status of the ways to the shore are similarly significant in betraying their former purpose. Some survive only as footpaths, some as tracks leading to individual farms, and others have been transformed into public highways. In this respect, map regression techniques, particularly when allied with GIS, provide a powerful means of gathering and presenting the information.

TH6-12 Abstract 04
Multidisciplinary data-crossing about settlement and land-use in Jura mountains (5th-17th c.)

Author - PhD student Chevassu, Valentin, MSHE Ledux / Université de Bourgogne-Franche-Comté, BESANCON, France (Presenting author)
Keywords: Jura mountains, 5th-17th century

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 Mendicant Orders and medieval cities. Archaeological and historical surveys and archivological studies of Mendicants in eastern France (in particular in Bugey and Martin, 1795) or in Alsace and Lorraine (1986) since provided numerous and varied clues allowing a renewal of the problems linked to the settlement and building of Mendicant 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 Mendicants 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 mendicant convents still remains difficult to answer in most cases.

This paper aims at putting emphasis on the phenomena of change and continuity in the settlement of Mendicant Orders in urban spaces through the example of the cities of 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 Mendicants decided to instal in specific places in 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.
This fluvial route was also followed by a terrestrial one remembered by Tabula Peutingeriana, which also mentions the main stations which marked its track; this road was a coastal itinerary parallel to the innermost one followed by the Via Popilia, a consular road built in 132 BC as a direct connection between Ariminum (Rimini) and Aquileia linking all the important port centers of the Upper Adriatic coast such as Ravenna, Atia and Altinum.

Therefore, Paying attention to all these elements, the paper aims to investigate the complex relationship man-landscape, which was established in the area during the Roman period ranging from 3rd century BC and 6th century AD. A landscape archaeological approach and through an integrated reading of all the available archaeological, historical and paleoenvironmental data, the final goal we want to reach is double; on the one hand, to identify the environmental factors that both favoured and conditioned the Roman occupation of the territory; on the other hand, to come to a better understanding of the forms this occupation took, and of its actual effects on the natural environment.

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**TH6-12 Abstract 08**

Where did all the power go?

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 Thetarchic period as a matter of fact with the Dacianian and Constantian reformation she received officially the title of capital of the Venetia et Histria 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 material agenda, firstly in relation with the Danube times patrol but most of all as a bridge-head for northern in southern 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 (off 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 single events trying to track those long lasting 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) as the transfer of the capital to Ravenna in 402 AD.

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**TH6-12 Abstract 09**

“The rivers promised not to deluge the country”: the Arno and Serchio lower valleys

**Author:** Prof. Pasquinculli, Marinella, University of Pisa, Pisa, Italy (Presenting author)

**Keywords:** coastal proggradation, North Etruria, Water management

**Presentation Preference:** Oral

In North Western Tuscany (ancient Etruria) landscape dynamic transformations, due both to natural and anthropic factors, and phenomena of persistency, resilience and/or shortness are studied in a long-term perspective. In this district multidisciplinary researches provide evidence of coastal proggradation 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 (S.2.C., 2220.). 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.), in a period characterized by sea level rising and by the absence of drastic climatic changes, the coastal evolution was mostly probabilistic 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 depletion of communities in the early 2nd century B.C. and in the late 1st cent. B.C., in particular with the organization of their territories (pantanial and land allotments). The continuous natural transformation of the
Archaeology without borders

TH6-12 Abstract 10
Proper Valley, Hiden in Mountains: Dynamics of Settlement in Lubużki (Bosnia and Herzegovina)

Author - Dżudzik, Tomaz, Institute of Archaeology, University of Warsaw, Warszawa, Poland (Presenting author)
Co-author(s) - MA Dzięgielewski, Karol, Jagiellonian University in Cracow, Kraków, Poland
Keywords: Late Antiquity, Roman, settlement patterns

Presentation Preference - Oral

The paper analyses the changes in settlement brought about by the Roman occupation of the Trebižat river valley and its surrounding highlands and mountain ranges, a geographically well-defined microregion which today constitutes the modern community of Lubużki in West Herzegovina. The lay of the land, just a mountain range from the sea coast and with good connections through river valleys and passes with the highlands inland, is such that throughout its history it was the border and contact zone of different cultural, economic and political entities and systems. In antiquity this area was the close hinterland of Narona, a major city of the region. Not only was it important for the subsistence of the city’s population due to the rich agricultural land and pastures in the highlands, but it also played an important strategic role. The most important road in the province, connecting Narona with Salona, the capital of the province, crossed through the valley as it offered the most convenient route. A Roman garrison ensured the safety of this road, the defence of Narona against indigenous tribes resisting the Roman expansion, and at the same time it resolved conflicts between the quickly Romanizing farmers in the valley and the more traditional shepherding populations of the highlands.

A non-invasive archaeological landscape project conducted in the area proved that a most close correlation exists in the area between the level of development of the economy, the level of perceived safety and the locations of settlements. The advent of Roman rule, which brought about pacification of the province and economic prosperity, resulted in a gradual shift from the traditional well-defended hilftorts located on peaks to settlement in the valleys, with a local centre emerging in the valley around the major military installation, not only the smallest place, but also the largest market in the area. On the other hand, in Late Antiquity the military presence was much weaker, and the safety of the regional system was threatened from the outside. In reaction the settlement seems to disperse and move to the naturally defensible places. A parallel to these cyclical developments can be observed also in the medieval and early modern periods. It appears that the choices of places for settlement and of the main economic activities of the population of the region were dependent on the perceptions of safety, which in this difficult, mountainous landscape could be achieved in one of two ways: by resorting to inhabitation of naturally defensive places or by the participation of peacekeeping forces, demanding both an economical and political outside involvement, but giving the possibility for much more intensive local economic development.

TH6-12 Abstract 11
Comparing cultural transmission patterns in southern Poland during the Bronze and Early Iron Age

Author - MA Dzięgielewski, Karol, Jagiellonian University in Cracow, Kraków, Poland (Presenting author)
Co-author(s) - Gawlik, Anna, Jagiellonian University in Cracow, Kraków, Poland
Keywords: Bronze and Early Iron Age, cultural diversity, cultural transmission

Presentation Preference - Oral

In our paper we want to show the methodology and preliminary results of the ongoing project addressing the question when, and in what circumstances, the culture of past societies was determined by such factors as vertical (inter-generational) and horizontal (inter-population) transmission of cultural attributes, and when the decisive role was played by the adaptation to local environment. Several well-investigated settlement regions in southern Poland, intensively occupied for a long time and representing various ecological zones and landscapes (Western Małopolska Loess Upland, the upper Vistula valley, the Carpathian Forestland, and the West Carpathians), were chosen to test the role of these factors.

We apply the comparative method (using standardised data and a set of ‘middle range’ theories) to analyse similarities and differences. The list of variables we included contains: time (the pace and synchronicity of change in past space), space (communication factors in inter-population transmission), environment, with its natural and anthropogenic transformations in time, stylistic diversity in manufacturing traditions, organisation of settlement area (at the site and micro-region levels), access to resources, and social hierarchies and relationships. The data are examined using statistical tools, e.g. multidimensional techniques of data exploration, and – in case of stylistic studies – compared with the phylogenetic model. The next stage must cover establishing the nature of identified correlations and identification of potential causal relations.

This way we will explore whether cultural diversity is similar – as proposed by the culture-historical school, recently supported by many evolutionists – to biodiversity and develops through branching of traditions inherited between generations with only slight modifications (so that we can speak of an ‘essence’ of cultural tradition, typical of certain groups in long cycles of historic processes)? Or perhaps is the decisive role played by diffusion - blending of cultural traditions as a result of unique historical events, and the horizontal transmission of patterns within ‘network society’? Or, finally, does the diversity of culture result from tight adaptation to local ecological niche, as adaptationists propose?

TH6-12 Abstract 12
Pastoral Nomads’ Use of the Semi-Arid Syrian Landscape c. 1810-1760 BCE: A GIS Projection

Author - PhD Josephson Hesse, Kristina, Uppsala University, Uppsala, Sweden (Presenting author)
Co-author(s) - Paradisi Serrai, Sami, Uppsala University, Uppsala, Sweden
Keywords: GIS, MB Syria-Mesopotamia, Pastoral Nomads

Presentation Preference - Oral

Hundreds of Akkadian clay tablets, derived from archaeological excavations at the palace of Mairs by the Uppsaters, clarify the strong integration between mobile tribes and city-states in Syria-Mesopotamia during the Old Babylonian period (c. 1810-1780 BCE). My project aims to illuminate the social and economic dynamics between pastoral nomads and settled people in this period by focusing on the former. Based on the economics of food providing, exchange, trade routes, and the infrastructure such as caravan escort and mercenary. Not only are the connections between these groups of essential importance but also their ways of interacting with the surrounding environments.

The paper deals with the first step of methodology of 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 caims, corrals, kites) registered in the Syria-Norwegian Palmyra project that I have been a part of. The structured location of several hundred Bronze Age caims, distributed on strategic hills and read outlets, in the mountain range outside the ancient trading centre of Palmyra in Syria, indicates that in addition to have been burial chambers these caims 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.

TH6-12 Abstract 13
Road caravanserais of the Medieval Middle East: landscape, architecture and patronage

Author - Asaf, prof. Tavernari, Cinzia, Abdullah Gul University, Kaysari, Turkey (Presenting author)
Keywords: caravanserais, landscape, patronage, architecture

Presentation Preference - Oral

In the Islamic world, caravanserais had been faithfully serving travelers, traders and pilgrims for many centuries, sometimes functioning as stopovers until the beginning of the 20th century. The impressive geographical and temporal diffusion of this institution, original to the Islamic world, clearly shows that caravanserais fulfilled a key role in society, in relation both to the physical act of travelling and to the notion of travel as the expression of cultural values. For different reasons tied to religion, knowledge and also trade, travel and travellers have always been important issues for the Islamic civilization but it would be misleading to consider road caravanserais only as way stations for travelers. Road caravanserais were the center of a spiritual institution; the centre of a variety of functions that linked together religious, political and cultural motivations. Yet it is striking to observe that until now road caravanserais have been poorly studied from a comprehensive point of view and are consequently till insufficiently understood. For example, although well know elements of several oriental caravanserais in one of their characteristic features, the relationship of road caravanserais to the landscape they have been built in has not been studied thoroughly.
How did the construction of such buildings transform the landscape and its perception by its hosts, the inhabitants but also their patrons?

I will attempt a broad contextual comprehension of this question by considering if and how 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 experienced within different Midle East contexts. In this presentation, in fact, I will compare medieval Anatolia and medieval Syria and I will investigate how the construction of road caravanserais changed the landscape in these two regions. Did it change in the same way? What are the similarities and differences?

This good use of the territory, and its associated organization, has crossed the times until the humankind modify natural landscape.

The contemporary landscape organization keeps different remains of this situation in the linesaments, in the parceling system and in the road network. It also shows us that the «colonization» by the Roman Empire keeps a part of the former forms when it is in accordance to the new one.

Since the middle of the twentieth century, most of the testimonies of this very organized frontier have disappeared. Because of its originality, it's now time to look at its last remains as a huge historical monument which needs to be kept for national memory of Romania.

This paper seeks to examine the impact of the relationship between the communities that lived in these settlements, and the water systems that they used, had on the urban development of these sites. Does the change or continuity that is displayed through the sites urban development reflect this dynamic relationship? Through examining how water has impacted communities decisions regarding their settlements across Europe on a broader scale, wider trends during this period can be identified and understood alongside regional variation to enable a more complex understanding of the nature of the relationships between Early Medieval communities and their landscapes.

The contours of the city of Antioch on the Orontes are revealed in the ancient writings and the excavations conducted on the city. The grave stones that remained from the Antiquity can provide us with precious data concerning the urban outlines in ascertaining the information we presently have at hand.

Nonetheless, we must above all be aware that the grave stones are most often fortuitous finds detached from their original place whose provenance is unidentified. In addition, they are usually acquired by institutions or individual collectors via purchase, donation or confiscation. Therefore, none of the researches executed throughout XXth century has offered a veritable comparative analysis.

In this paper, we will present main results of our study concerning the grave stones that we led in pursuance of delineating the urban structures across Western Europe. Places such as Londinium/Ludeneex experienced a significant transition from their previous urban layouts, while others, including Cordulia, appear to continue to function within the original Roman boundaries. This good use of the territory, and its associated organization, has crossed the times until the humankind modify natural landscape.

The contemporary landscape organization keeps different remains of this situation in the linesaments, in the parceling system and in the road network. It also shows us that the «colonization» by the Roman Empire keeps a part of the former forms when it is in accordance to the new one.
The landscape of iron production – from prehistory to the Early Modern Period in present-day Latvia

**Author** - Dita, Aušina, University of Latvia, Riga, Latvia (Presenting author)

**Co-author(s)** - Jelena, Jaric, Oxford, United Kingdom (Presenting author)

**Co-author(s)** - Daniela, Radu, Agroturism, Râşnov, Romania

**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 archaeology, history and natural sciences, the changes in landscape-production agency will be analysed.

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Warfare and Urban Transformation in Late Antique Central Balkans

**Author** - Jalena, Jacic, 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 the 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 Antiquity 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 Konis 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 behind the more developed international scholarship on Late Antiquity and Late Antique urbanisation.

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Medieval and post medieval village of Zasavje

**Author** - Miroko, Mihai, Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana, Slovenia (Presenting author)

**Co-author(s)** - Bavec, Určo, Institute for the Protection of Cultural Heritage of Slovenia, Novo mesto, Slovenia

**Co-author(s)** - Nabatih, Barbara, Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana, Slovenia

**Co-author(s)** - Rizic, Darko, Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana, Slovenia

**Co-author(s)** - Cerne, Mija, Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana, Slovenia

**Keywords** - Bračice (southern Slovenia), flood, medieval, post medieval

**Presentation Preference** - Poster

In the vicinity of city Bračice (southern Slovenia) Institute for the Protection of Cultural Heritage of Slovenia, Centre for Prehistoric 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 Križa 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 farmland.

The Sava River is a typical Alpine river. Water levels can rise fairly high because of melting snow and seasonal spring rains. It can still cause major flooding in the event of a so called one-hundred- year flood. Flooding of the area did not stop until the second half of 19th and the first half of 20th century when the Sava River was regulated. Many of the abandoned river channels can still be seen in the landscape. In 2010 the analysis of LIDAR data and geological survey were made as part of preliminary research of the area. Investigations led to the conclusion that the area has been heavily transformed and that not many remains of medieval and post medieval buildings could be preserved in situ. Architectural remains of buildings were it was erased from the face of the earth due to massive water erosion that destroyed predominantly wooden architecture.

In 2009 extensive and intensive archaeological field surveys took place in the area. In 2014 and 2015 also trial trenching of 25,3 ha in the eastern part and smaller archaological 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.
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 alia, the control of some satellite settlements, the control of the access roads, the placing in the proximity of 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, solarity, seasonal dwelling structures). These changes are visible at the level of the communication system and transfer of goods, too. Thus, the dominant north-south road in the Middle Bronze Age is replaced with east-west road that seems to dominate the Late Bronze Age. By adding these features can be certified a kind of a territorial exclusion: the Middle Bronze Age communities preferred the area located between the north-south hydrographic axis represented by the Siret River in the east and the Carpathian area in the west. On the other hand, the Late Bronze Age communities seem to avoid the pre-alpine location and preferred the area bounded by the Siret River in the west and the north of the Black Sea in the east.

Through the interconnection of the data obtained from the landscape analysis, the analysis of materiality, of the different perceptions for this two types of communities it result that for the area of study was applied a model of a total change. In 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.

The presentation focuses on the results of my PhD thesis that were submitted to the University of Bremen in 2014. The topics of this research are 110 archeologically excavated institutions mainly from Germany, Britain, Denmark, Sweden and Iceland. All these institutions brought to light, knowledge about the inmates and the various types of support they received. The archaeological evidence has been examined against the background of four relevant questions. 1. what kind of caring institutions existed in this area and period of investigation? 2. Who was admitted? 3. Where can one postulate both prophylactic and medical support and how do these institutions differ from others? 4. Which developments and changes can be observed? The presentation provides some interesting answers to these questions and gives the possibility for an intensive discussion.
TH6-13 Abstract 03

Surgical treatment at the Danish Cistercian Abbey of Æm - A critical analysis

Author: MA Møllerup, Line, Museum Standerborg, Standerborg, Denmark (Presenting author)
Keywords: Medieval abbey, Skeletal paleopathology, Surgical treatment
Presentation Preference - Oral

Through eight decades the Cistercian Abbey of Æm, 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 ruin. 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 undeated. Modern anthropological analysis is questioning the former interpretation of the human skeletal material. New insight gives the basis to reevaluate the role of the Cistercian monks as physicians and surgeons. This paper looks into the alleged surgical 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 Il, Joe Wallace, Reykjavik, Iceland (Presenting author)
Co-author(s) - Prof. Kristinssandti, Steinn, Department of Archaeology, University of Iceland, Reykjavik, Iceland
Co-author(s) - Deirdra, Natasia, Reykjavik, Iceland
Keywords: disease, osteology, alchemy, heavy metals, culture, Iceland, monastery, hospital, medicine, treatment, syphilis, mercury, paleopathology, ICP-MS
Presentation Preference - Oral

Snýdlakurkur, located in the east of Iceland near the Vatnajökull glacier, operated between AD 1493-1554. As an Augustinian monastery, Snýdlakurkur 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 inclusions in the past. Between 2002-2011, 271 out of 265 individuals were excavated from the site, presenting a vast array of medical conditions including syphils, 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 in the decades after the large volcanic eruption in Vatnajökull in 1477.

In the 13th century, alchemists began to use cinnabar ore (mercury sulphur) as a medicinal elixir as it was believed to impart long life due to its deep red color and philosophical associations with blood and the soul. Towards the end of the 15th century, distillations and fumigations of mercury from cinnabar became widely used to treat syphilis and remained to be the only viable 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 was seen in high concentration 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 Snýdlakurkur. 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 Snýdlakurkur, thereby providing further insight into concepts of mobility, isolation and care in historic Iceland.
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 treatment is readily observable when we analyse the actual recipients of such procedures. Therefore this presentation aims to provide a critical evaluation of potential evidence for treatment found in human skeletal remains from archaeological contexts from Northern European countries, and in particular England. Palaeopathological analyses have established that a range of diseases and injuries are visible on the human skeleton, although the majority of diseases would have only affected the soft tissues. The most commonly observed skeletal lesions include dental disease and trauma. Dental disease in the form of caries and periapical lesions increased in the later Medieval period, especially with the wider availability of sugar and finely milled flour that would have promoted dental caries. However, according to medical treatises removal of infected teeth was largely avoided and it must be speculated that the high percentage of teeth lost ante-mortem in medieval individuals can be attributed to natural causes. Fumigation was one form of treatment for “tooth worms” thought to cause dental caries and potentially such treatment could inform the upper respiratory tract and, if chronic, could lead to miliary abscesses. Nevertheless, since infections may have a number of different causes and should therefore not be seen as proof for dental treatment. More solid evidence for treatment is found in form of surgical interventions such as trepanations and amputations. Trepanations, or opening of the cranial vault has been practiced for millennia and evidence for successfully healed (and unhealed) trepanations is known from almost every continent. Trepanations would have been 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 werefavoured. 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 with angular, even in the absence of treatment.

In conjunction with these examples, further evidence for medical 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.
fractures, were found in eight individuals, of which five were females and three were males or possible males. These and three 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 eight individuals, of which five were females and one was male; two of these were young adults, two mature adults, and two old adults. One mature female was diagnosed with a Clay shoveller’s fracture of the 1st and 2nd thoracic vertebrae, and one young adult male with a Boxer’s fracture of the fifth metacarpal. Examples of trauma also include two subluxated shoulders and one case of myositis ossificans on the posterior tibia.

Males had more trauma than females and the prevalence was higher in older individuals, which was also found in most of the previous bioarchaeological studies. The ribs, tibia, and skull were more affected in males, while the radius, ulna, and vertebrae were more commonly involved in females. The radius and ulna were more affected in the individuals that died as adults. Interestingly in our study trauma was found to be positively correlated with moderate or considerable amounts of dental calculus and osteochondritis dissecans, and the implications of these findings will be discussed in more detail.

Most of the observed trauma consisted of well healed lesions with only slight angular deformity and little overlap. Two of the fractures were healed but ununited, and two were unhealed perimortem injuries. Barber-surgeons in many of the locations are known from historical sources and in the mid-18th century provincial doctors were employed to treat the injured.

TH6-13  Abstract 11
Living on the Edge: Trauma Patterns in Medieval Vilnius (16-18th c.)

Author - PhD student Kozakiele, 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 Liejyklos street (17-18th c.) - elite members of society, church of The Holy Trinity (17-18th c.) - clerics, poor hospital in 7 street (16-17th c.) - Vilnius laymen, Mindaugas street (16th c.) - poor.

A total of 109 injured individuals (27.9% of total individual count) were observed among 400 examined males, females, and non-adults. 82 (20.5%) had only one fracture, while 27 (8.6%) 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-risk’ 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 poorest part of the town, the fracture rate was surprisingly low compared to those of elite, clergy or ordinary town-dwellers. Furthermore, latter indicated many of their lesions were a result of higher energy accidents with involvement of a large portions of body parts. Meanwhile, statistically significant difference was observed between higher-ranking part of society and laymen in terms of head trauma - the former being more susceptible to it.

TH6-13  Abstract 12
Social welfare and health status of the Upper Lauzisz - a Tormersdorf/ Toporów settlement case study

Author - PhD Szczurek, Jacek, Wroclaw University of Environmental and Life Sciences, Wroclaw, Poland

Co-author(s): PhD Konczewska, Barbara, Wroclaw University of Environmental and Life Sciences, Wroclaw, Poland

Co-author(s): PhD Nowakowski, Dariusz, Wroclaw University of Environmental and Life Sciences, Wroclaw, Poland

Co-author(s): PhD Tomaszewska, Agnieszka, Wroclaw University of Environmental and Life Sciences, Wroclaw, Poland (Presenting author)

Co-author(s): MSc Konczewska, Magdalena, University of Wroclaw Institute of Archaeology, Wroclaw, Poland

Keywords: Excavations, Lower Silesia, Paleopathology

Presentation Preference - Oral

Since 2014 the Department of Anthropology at the Wrocław University of Life and Environmental Sciences has been conducting the research project ‘People, culture and natural environment of Upper Lauzisz based on the example of research of the settlement micro-region Tormersdorf/Toporów’ funded by National Science Centre in Poland.

One of the objectives of the research project is to present complete and interdisciplinary analysis of the historical population, its culture and environmental interactions on the basis of the Tormersdorf/ Toporów settlement from the late Middle Ages until its destruction during II World War in 1945.

Accomplishment of the research includes reconstruction of the biological condition of the population based on broadly approached reconstruction of the health status, including comprehensive analysis of the skeletal lesion.

So far, during two seasons of field work carried out in the micro-region Tormersdorf/Toporów, excavations were conducted within the relics of the cemetery, located to the northwest of the ruins of the village. During archaeological analysis, only one phase of use of the cemetery was found, dated on the first half of the XIXth century and from that period 32 adults (24 men and 8 women) were excavated.

Pathological lesions were present in all excavated skeletons. Its intensity was predominantly high. In 26 cases (81%) intravalual teeth loss was visible. Dental caries was present in 20 cases (62.5%) and in 9 cases (28%) periodontal lesions were found. Moreover, degenerative and overload lesions of the spine, injuries and bone fractures were observed as well. An unique case of the male skeleton in maturus class of age with bilateral amputation of lower thigh was found.

The nature, intensity and incidence of pathological changes found in the skeletons from the cemetery from the micro-region Tormersdorf/Toporów may indicate study group exhibit distinctive features. Variety and occurrence of the pathological lesions may indicate a low level of hygiene, poor health conditions and long-lasting work overloading of the individuals as well.

Based on archival data, it was established that at the turn of the XIXth century in former Tormenrsdorf thesoscal care home (Brüder-undPflegehausZOAR) was functioning. This allows tose a working hypothesis that the majority (even all) ofthe graves found in Tormersdorf/Toporów are likely to be associated with burials of the residentsof this institution.

TH6-13  Abstract 13
Medieval medical cultures in Sweden – practices and ideas mirrored in materiality

Author - PhD Bergqvist, Johanna, Lund university, Genarp, Sweden (Presenting author)

Keywords: archaeology, medicine, medieval

Presentation Preference - Poster

Medical practice is formed not primarily by knowledge, but by culturally motivated apprehensions of what disease is, what causes it and how the body functions. In medieval Sweden (by today’s geographical borders) the monastic orders brought with them a medical culture with roots in ancient classical and medieval scholastic traditions. This medical culture included its special material culture, i. a. in the form of surgical instruments and other equipment. These artefacts are encountered when monastic sites are excavated. A previous assumption within medieval history has been that it was the monasteries which brought medical knowledge to the North. However, an extensive survey of archaeological findings in Sweden, has revealed that artefacts related to monastic medical culture did not spread outside the monastic milieus to the surrounding society. This can be interpreted as the result of a very limited dissemination of the practices and ideas associated with monastic medical culture. In this paper possible explanations to this, such as clashing medical cultures or paradigms (monastic versus indigens) and diverse traditions and conditions of communication of knowledge, are discussed. The content of the paper is based on some of the results of a larger research project, published as a doctoral thesis in 2013.
TH6-14 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-anthropological 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 Nîmes, will be analyzed by crossing at the same time textual and archaeological sources. These discoveries still few in France allow to discuss the institution or not of religious communities such as the Muslims or the Protestants in funerary spaces. But it will important to analyze their presence over the long term of history and to try to distinguish potential evolution.

TH6-14 Abstract 02

Dealing with identities. Archaeological traces of Muslims and Dimmi-s in the Middle Mark

Author - Bueno, Marisa, Université Paris Est-creteil, Paris, France (Presenting author)

Keywords: Archeology, Ethnicity, Identity

In this paper I deal with the problems derived from adscription of archaeological data to Berbers, Muslims and Christians in the north of the Middle Mark of al-Andalus. I present both, the results of archaeological surveys integrating data from the Archaeological and Culture Territorial Service of Soria, Castilla-León, and the analysis of materials preserved in the Numantino Museum (Soria) used in my PhD dissertation. I will pay special attention to cemetery sites such as Miflo de Medinaceli and Conquetaula. These sites reflect the different powers successively overlapped and the problems concerning the identification of the complex Middle frontier between 8th-11th centuries.

The settlement of Umayyad’s powers in the north-east of the Middle Frontier is a process quite well established trought 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 nomina of Abd – al Rhamman III (939) as Caliph, this area was rebuit and became the most active frontier with Christianity in al-Andalus between the 10th and 11th century. However, the explicit recognition of these realities raised delicate problems concerning their chronological and religious-identitarian adscription.

In one hand, the settlement of Berbers Images in this area, as well, clients of the Umayyad’s lords raised with the problem of their adscription to a specific material culture. What kind of archaeological data can we use as cultural markers of this specific ethnicity? What interpretation problems present these indicators in order to identify Berber population? Are they fully assimilated with the Umayyad’s elites? Can we demonstrate the islamization traces of this population?

After 946, Medina al-Nuri 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 Alcazara fortress. This area became a sophisticated frontier based entirely in a network of fortress and towers depenned on Umayyad power, and the expression of power of the Umayyad Caliphate based on jihadi mentality.

However, the new Muslims’ rulers were not installed over an unhabited areas, terra deserta, but rather over a territory previously politically-disarticulated. The previous indigenous inhabitants were mostly ‘Christians’. The new power granted them a protected subordinate place in society through the status of dimmi-s or protected people. The traces of these people are almost invisible, mainly rock-cut tombs sites. These ones are not associated with artefactual or osteological remains, thus making it impossible to determinate accurate chronologies, so they merit to be integrated in a collective debate.
Archaeology of the Spanish Civil War:
The example of the Évora Inquisition court (Portugal)

Author: Magalhães, Bruno M., University of Coimbra, Coimbra, Portugal (Presenting author)
Co-author(s): Santos, Ana Luísa, University of Coimbra, Coimbra, Portugal
Keywords: Jewish, Minorities, Persecution

Presentation Preference - Oral

The origins of the Inquisition are related to the power that religion had in Medieval times, representing values as engines of collective lives. As a result, the Catholic Church and the Papacy took over, since the 12th century, the leading role in the fight against heresy. The Inquisition had its origin at that time, and its development through the Catholic world led to its official creation in Portugal in 1536, aiming the surveillance of the ‘purity of faith’, the suppression of heresy, and the discipline of religious beliefs and behaviors, essentially related with the Jewish presence in the Portuguese territory. In 2007/2008 an archeological 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 archeological 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 Judaisme, heresy and/or apostasy. The archeological traces, as well as the anthropological and historical contexts, are in accordance with the characterization of these individuals as unburied dead, that were not judge by the court of the Portuguese Inquisition and reconciled with the Catholic faith before they died. More than a penalty to the body, this was a punishment to the soul of the deceased. Nevertheless, we will never be certain if these individuals were really Jews, once it could happen that people made their accusations because they were afraid of being accused first. Also, the defendant never knew what crime he was accused or even who made the accusation. From this perspective, the archaeological findings have to be interpreted carefully, but also show us the climate of fear created in people’s everyday life. Even so, these individuals show a unique context which can be used in the future to help interpret other burials which do not fit within the usual scope of the Catholic burial rules in Medieval and Modern times.

Archaeology of the Spanish Civil War:
Is new data contributing to a deeper understanding?

Author: Dr. Perez-Juez, Amalia, Boston University, Madrid, Spain (Presenting author)
Co-author(s): Dr. Morin, J., AUDEMA, Madrid, Spain
Keywords: archaeology of conflict, Spanish civil war, trenches

Presentation Preference - Oral

Between 1936 and 1939, Spain was blazed 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.

The Fact of the Mother Goddess

Author: PhD Sozer Kolemenoglu, 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 figure) 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 archeological narratives, the social events in the world conjurethrough 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 integrats 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 nafs. 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), (con 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 life 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.
ARCHAEOLOGY WITHOUT BORDERS

TH6-15

ARCHAEOLOGY FOR “CONVIVENCIA”, ARCHAEOLOGY AFTER SAINT DENIS

Thursday, 1 September 2016, 9:00-11:00
Faculty of History, Room 211

Author - Criado-Boado, Felipe, Institute of Heritage Sciences (Incipit, CSIC), Santiago De Compostela, Spain (Presenting author)

Keywords: Archaeology, Citizenship, Territory

Presentation Preference - Oral

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 the 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

Defying First Nations to live with Muslims. A Basque reflection on existence and coexistence

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

Keywords: convivencia, cultural heritage, disciplinary heterogeneity

Presentation Preference - Oral

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.

The Basque Country is also going through other internal processes focused on restoring peaceful coexistence. The declaration is expected to foster increased discussion and collaboration on cultural heritage studies. Created in English, the document has already been translated into Spanish, French, and Portuguese. The group is currently seeking formal approval from each of the professional societies and academic institutions that sent representatives to the inaugural meeting that they will become convening signatories to the declaration.

A number have already agreed to “sign on.” Participants in the working group include archaeologists, cultural anthropologists, and linguists. The development of the “Campinas Declaration” is used as a case study to explore the dynamics of international, heterogeneous disciplinary communities working together successfully to craft a declaration that could be a model for collaboration in heritage studies.

On 23rd October 2015 last, several unidentified persons threw rubbish in the mosque of Llido (Arab). Several days later, a hooded person threatened and insulted those who were congregated inside. Nobody has been able to identify those of these incidents before 13th November in a village that is proud to coexist with one of the largest Saharan communities of the Basque Country. This duality, which links emerging xenophobia with consolidated internationalist activities, represents a recurring ideological structure in the Basque Country. The attachment is greater with respect to oppressed peoples from whom we empathize and whom we support.

Inefficacy 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 declaration is expected to foster increased discussion and collaboration on cultural heritage studies. Created in English, the document has already been translated into Spanish, French, and Portuguese. The group is currently seeking formal approval from each of the professional societies and academic institutions that sent representatives to the inaugural meeting that they will become convening signatories to the declaration. A number have already agreed to “sign on.” Participants in the working group include archaeologists, cultural anthropologists, and linguists. The development of the “Campinas Declaration” is used as a case study to explore the dynamics of international, heterogeneous disciplinary communities working together successfully to craft a declaration that could be a model for collaboration in heritage studies.

The declaration itself was crafted through intensive but brief collaboration that created an intellectual bond among the participants. Whether the working group can become a sustainable network of functioning partners will depend on the willingness of the sponsoring organizations to allow the network to flourish and establish working procedures that allow for its independent operation. If the focus can remain on a joint understanding that threats to cultural heritage, both tangible and intangible, are real and shared, and the need to develop methodologies to allow the network to flourish and establish working procedures that allow for its independent operation. The focus can remain on a joint understanding that threats to cultural heritage, both tangible and intangible, are real and shared, and the need to develop methodologies to allow the network to flourish and establish working procedures that allow for its independent operation. The focus can remain on a joint understanding that threats to cultural heritage, both tangible and intangible, are real and shared, and the need to develop methodologies to allow the network to flourish and establish working procedures that allow for its independent operation.

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.

Participants in the working group include archaeologists, cultural anthropologists, and linguists. The development of the “Campinas Declaration” is used as a case study to explore the dynamics of international, heterogeneous disciplinary communities working together successfully to craft a declaration that could be a model for collaboration in heritage studies. The declaration itself was crafted through intensive but brief collaboration that created an intellectual bond among the participants. Whether the working group can become a sustainable network of functioning partners will depend on the willingness of the sponsoring organizations to allow the network to flourish and establish working procedures that allow for its independent operation. If the focus can remain on a joint understanding that threats to cultural heritage, both tangible and intangible, are real and shared, and the need to develop methodologies to allow the network to flourish and establish working procedures that allow for its independent operation.
TH6-15 Abstract 04
Integrating Archaeology at Vitoria-Gasteiz (Basque Country): terrorism, immigration and peace

Author - Professor Xurxo, Ayg, University of Basque Country, Vitoria-Gasteiz, Spain (Presenting author)
Co-author(s) - Garci Rodriguez, Sonia, University of Basque Country, Vitoria-Gasteiz, Spain
Keywords: Archaeology of Contemporary Past, Community Archaeology, Integrating Archaeology
Presentation Preference - Oral

In the late 1950’s and early 1960’s the small Basque town of Vitoria-Gasteiz became an important industrial center that attracted thousands of immigrants from other Spanish regions. Although it was considered by the francist 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, 1976 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. As in the 1960s, it is a challenge to integrate these immigrants. A challenge not without its problems. Despite the effort made by the administration (social support) and civil society (platform ‘Gora Gasteiz’) at urban level they are creating real ghettos. A rejection of initiatives such as the construction of mosques (especially those working-class neighborhoods that had housed the first immigrants of the late twentieth century) has been observed.

At this very reality of globalization, in Vitoria-Gasteiz it is being lived another equally important process. The cessation of armed activity by ETA in 2011 has given way to a period of peace building and collective memory throughout Public policies of memory trying to do justice to the victims of the Franco’s regime (1937-1975), of the terrorist group ETA (1958-2011) and State terrorism. Thus, the weight of terror continues to set the social and political agenda of the city in 2016. A purely Spanish terror, for now.

Within this reality, we believe that Archaeology of Contemporary Past is a valid and useful tool to try to consolidate a culture of peace, overcome the traumas of the past and promote a real integration of immigrants. In our communication we show the work of Heritage socialization that we have developed over the past three years: workshops on Archaeology of the Spanish Civil War, guided tours at working-class neighborhoods of Vitoria-Gasteiz, cultural courses about Archaeology of Francisco at community centers. As a case study we will present the example of the district of Coronación, erected by the dictatorship in the early 50s 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.

TH6-15 Abstract 05
Uncovering convivencia from the dark depth of modernity: toward intercultural rights to heritage

Author - Orlando Baribano, Francesco, Castr Di Lacce, 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 conquest the perception of cultural diversity was the justification for the exclusion of “others” and the imposition of a dominant culture which was called “Christian” that it was, and somewhere it still is, a synonymous for “civilized”. In Granada, according to the Italian Historian Adriano Prosperi, it was ignited the “seed of intolerance” that would have been the source for the legitimation of European expansion and colonial power throughout the world.

By focusing the attention on the process of modernity as a project for imposing a universal ethic and controlling peoples through 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 unsuitable with the right way of social relation, cultural practice or economic development. Heritage conservation emerged within the context of imagining the national communities and formalizing imperial powers in XX century. International protection of heritage followed this ambiguous origin and it has been made possible in the second half of XX century thanks to its institutionalization and bureaucratization. Such a regime of heritage practice has reached its highest recognition in the last few decades through the deployment of multicultural policies within the context of the neoliberal affirmation of cultural diversity. But the same politics have made it possible the organisation and visualization of a world indigenous resistance based on the cultural relation between communities and the lands, in which the pre-modernity, that is the pre-colonial tradition, is articulated with the global context and participate in it by a counter-hyphenic 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 wherewithal 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.
TESTED TWINED CLOTHING IN MESOLITHIC

In 2008–2010, 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 time baste. 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 Ryemarksgård 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 wore 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.

As a result of the conducted experiments many interesting discrepancies in the effectiveness of individual methods were observed. Some of them seem highly effective, while others appear to be useful only in specific aspects or prove completely ineffective. In the course of the speech some of the current ideas regarding the discussed area of prehistoric economy shall be verified basing on the obtained data.
In this paper, we will present the results of five-year Experimental Archaeology Project on making Eneolithic pottery, based on our research in the Kodjadermen—Gumelnita—Karanovo VI tell settlement from Sultana-Malu Rous, south-east Romania. In our work, we have experimented with different hand-making techniques such as building the vessels from one lump of clay, cooling and also molding. Experiencing with the molding technique came as a necessity in our effort to understand the presence of large and shallow plate-like vessels (sometimes larger than 50 cm in diameter), in the pottery assemblages characteristic of these past communities. To understand better the making pots process, we have also tested a series of hypotheses regarding the types of clay, temper, modeling, burnishing, decorating, drying and firing.

Our work is backed up by petrographic and chemical analysis which not only helped us identify the local clay source as the raw material used by the Eneolithic potters 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, Maria, 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 Tarssian 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 Tarssian 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 methodolohy, and thereby shed a light of these, still relatively weak recognized aspects in the study of the Iron Age pottery from the southern 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 preserved image of ancient bronze as green, lacking rather for evidence of polychromy and a spectrum of copper alloys. This swatch combines the technical processes of the lost wax method and the addition of polychrome bronze surfaces (via patina and inlay).

I intend to use this study as a repository both for my research and for other studies related to bronze production. Bronze is an alloy of copper and tin, lead may also be added. The objects examined in this study have a variable percentage of metals, and because of this the colour of the alloy differs. The colour of the alloy can be maintained by polishing but it is also possible to give a patina to the surface of the bronze with a reagent. Other metals and alloys (aluminium, silver, gold, Continental bronze) can be inlaid by damascening or 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. Archaeological bronzes also may suffer from overly aggressive restorations which scour the original surfaces or cover them with a layer of paint imitating green corrosion.

In the present research, we have been able to give a patina to the surface of the bronze with a reagent. The patina 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-1st century AD, starting with the Roman invasion in AD 43. Prior to that, Britain had no history of glass bracelets' production, yet the late Iron Age Continental glass bracelets have been attested 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 shed 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 craftspeople 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 - Rimkus, Virginija, Vilnius University, Vilnius, Lithuania
Co-author(s) - Luchitanas, Aleksejaus, 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-galery “Amatu gildija”, workshop-living museum “Seniuju amatu dibutis”), club for craft reconstruction “Dvaro masteik”, experimental archaeology club “Paljau”, as well as some museums (Archaeological and Historical Museum of Koryv club at Paljau Air Museum of Lithuania in Rumškės). 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 exam, which contains a presentation of a particular committed archaeological experiment. 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.
Six years of experimental traseology at Klaipėda University: accomplishments and future prospects

Author - PhD Rimkūnas, Tomas, Institute of Baltic region history and archaeology, Klaipėda, Lithuania (Presenting author)
Keywords: experimental traseology, 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 analysed. Later, this method was applied for a several Stone and Metal periods flint material functional analysis, which due to a lack of technologies and specialist in Lithuania, was also studied in foreign laboratories (Russia and Poland). Since 2010 experimental-traseology studies were launched at the University of Klaipėda (Lithuania).

Systematically studies in this institution are orientated on Stone and Early Bronze Ages economies research. In this laboratory, more than 100 units of experimental tools data base are in store, which helps to determine authentic archaeological tool functional dependence.

This paper seeks to represent during the period of six years obtained data of experimental-traseology research of Stone and Bronze Ages flint tools, and to summarize executed experimental results. The research includes archaeological data from major Stone Age and Early Bronze Age settlements and cemeteries from West and South Lithuania sites.

Experimental archaeology 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 tourism.

Microwave analysis on early medieval combs

Author - Pi, Nathalie, Vrije Universiteit Brussel, Gengelen, Belgium (Presenting author)
Co-author(s) - Tys, Dries, Vrije Universiteit Brussel, Brussels, Belgium
Keywords: bone or antler, combs, microwave
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 combs 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 microwave research, an attempt is made to reconstruct the production of the comb, as well as its possible life biography. This microwave 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.

The method will be developed to ‘read’ and detect these production techniques and use wear markers of the combs. The aim is to develop a technique that, combined with typological, scientific and context-based research, can investigate in how far these combs reflect aspect of identity.

The restructuring of the Artefact Study

Author - Rybka, Kryzysztof, Nicolaus Copernicus University in Toruń (NCU), Torun, Poland (Presenting author)
Co-author(s) - Kucypera, Pawel, Nicolaus Copernicus University in Toruń (NCU), Torun, Poland
Co-author(s) - Kazimierczuk, Ryszard, Nicolaus Copernicus University in Toruń (NCU), Torun, Poland
Keywords: Early Medieval, Neolithic, reconstruction
Presentation Preference - Oral

The Artefact Study was created in the Institute of Archaeology of the Nicolaus Copernicus University in Toruń, Poland in 2011. It presents archaeological sources, both movable and non-movable objects (features) coming from different sites and time periods.

The Study is used for teaching as well as for scientific research, as since its restructuring which took place during the years 2014–2015 it hosts investigations in experimental archaeology. Within this field of study, archaeological hypotheses are generated and tested, mostly by approximating or replicating the feasibility of historical cultures to perform various tasks or feats, employing a wide and varied methodology in a controlled environment.

The functioning of the Artefact Study with its broad offer fits in the steadily increasing trend towards interdisciplinary research within the scope of archaeological (anthropological) subjects of interest, in general, the need to use ever-growing means for the expansion of knowledge about the past.

The main objectives of the investigations were planned for and are carried out in three major areas:

- Conducting experimental research related to the reconstruction of material culture in prehistoric, medieval, and early modern periods focused on the restoration of used techniques and known technologies.
- Interdisciplinary studies on building, equiping, and organizing basic craftsmen workshops. Comparative research into archaeological data acquired from archaeological objects employing the results obtained by experimental methods.

New insights into the Eneolithic architecture based on the experimental archaeology

Author - Dr. Lazar, Catalin, National History Museum of Romania, Bucharest, Romania (Presenting author)
Co-author(s) - Ignat, Theodor, Museum of Bucharest, Bucharest, Romania
Co-author(s) - Stan, Sebastian; Ion Minco University of Architecture and Urbanism, Bucharest, Romania
Keywords: Balkans, Eneolithic; Experimental houses
Presentation Preference - Poster

Currently is evident for all that the archaeological excavations provide only fragments of data, like the pieces of a puzzle, about the architecture of the Eneolithic period. Thus, the archaeologist and architects are constrained in the interpretative process by the existing data, which leads inevitably to the speculative hypothesis, sometimes exaggerated or unrealistic. In these circumstances, the experimental archaeology makes a significant contribution to the overall knowledge and the understanding of the past, therefore further facilitating the implementation of a high-quality analytical approach. The aim of this paper is to examine the results of an experimental archaeology project from Romania, whose goal was the reconstruction of a Giumlăna culture dwelling (ca. 4500-3800 BC), based on relevant archaeological data. This reconstruction was paired by an inquiry of the volume of materials used for raising the construction in conjunction with the human factor and the time needed for building. Additionally, five years (2011-2015) it has been recorded the degradation process of the construction under the influence of environmental factors. The data collected over these years now help us to get a more accurate picture of the Eneolithic houses and how the Giumlăna communities build, use and repair this kind of structures. This work was performed through the Partnerships in Priority Areas Program - PN II developed with the support of MEN - UEFISCDI, project no. PN-II-PT-PCCA-2013-4-2302.
Among the wide variety of decoration techniques discovered at the Alba Iulia -Lumea Nou site (Transylvania, Romania), a specific painted decoration technique has been identified. This technique is present 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 analyses 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 a 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 territories. 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 skilful 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.

**TH6-16 Abstract 16**

**Flint awls: theory and practice**

**Author**: PhD Student Siaha, 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 subgroup in East Baltic region so far. Nevertheless, there were carried out several classification works, experimental and tracological 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 experimentations by using different kinds of animals' skin: bison, deer, roe deer, beaver and mink. Skins and furs, extracted from these copies, 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 chronological periods.

After the research, 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.

**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 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, QGIS, Idrisi). However, this is often at the detriment of hiding the technicalities of the program's method, which may not always be ideal for archaeological research. As such it is often advised that these pre-prepared systems should not be overly relied on (Herzog, 2013, 164, Rademaker et al. 2012, 38). Yet, there are few papers dedicated to assessing the effects of varying any of the modifiable parameters available to each program, and therefore few guides in selecting an appropriate methodology. Those that do focus only on a limited selection of variables (Gietl et al 2008, Magyari-Sága, 2 & Dobóaz, 2012, Determining minimum hiking time using DEM, in Geographica Nepoecana Anul 82, pp 124-129).

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 QGIS), DEM resolution, Cost components (slope and terrain) and the coefficients that determine the cost of human movement.

It will demonstrate the variability in catchment area size and least cost paths that are produced through changing these variables across ten case study zones in Britain and also present wholly new data identifying the friction co-efficient for 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.

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.


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 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-ranging 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 our key event, the 2016 Archaeology 2025 conference in the centre of Dublin, which celebrated the work of archaeologists across Ireland and Northern Ireland

The Committee on Professional Associations meets annually during the EAA Conference. It will reflect on the developments in the past year. Members will present on the situation in their countries and organisations. The committee sees a great potential for Professional Organizations to improve the place and recognition of archaeologists in society by promoting professional conduct and behaviour in the different countries and Europe as a whole. Furthermore it sees a role for these organizations to take on an advocacy role to enlarge the awareness of the values that are inherently connected and make cultural heritage. It aims to work in close cooperation with the board of EAA and therefore to further the aims of this organisation. During the committee meeting in Glasgow it looked for possibilities to stimulate the growth of Professional Organisations within European Archaeology. This exchange of ideas and experiences will be continued during this meeting.
SPECIAL SESSION ON BREXIT

Thursday, 1 September 2016, 11:30-13:00
Faculty of History, Room 211
Author - Cristóbal Braido, Felipe, Institute of Heritage Sciences (Inacip, CSIC), Santiago De Compostela, Spain
Presentation Preference - Round Table

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 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 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.

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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 craftspeople. The same interdisciplinary has been applied to images with the iconological approach. This has created an approach involving identification using biological, geographical and chronological criteria, integration of dimensions such as ethology (animal behavior) into image comprehension, and classical and logical description.

This presentation shows how iconology can be useful to archaeology through examples covering: • Canine farming techniques in pre-pharaonic times in Egypt from the 5th millennium BCE and sodium 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 craftspeople afterlife during the Bronze Age using feline and bovine analysis.

GS Abstract 04

Natural factors in early metallurgical production in Egypt and southern Levant

Author - MA Biatorzacka, 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 conditions the same pattern of production has been formed in areas of Egypt and 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.

GS Abstract 06

Calculated Harmony

Author - Richter, Eva, 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 basket technique and has been surviving up to the present. The earliest motifs and religious symbols, such as chevron, checker board, toroids and the forms based on meander hook (meander and swallow) 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.

GS Abstract 07

Celtic cart graves from Bržečke

Author - Muro, Milko, Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana, Slovenia (Presenting author)

Keywords: Celtic cart, late Iron Age cemetery

Presentation Preference - Poster

In the vicinity of city Bržečke (southern Slovenia) Centre for the Protection of Cultural Heritage of Slovenia, Centre for Preventive Archaeology is carrying out a large-scale archaeological projects new Hydropower plant is being built on the Save 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. Archaeological excavations took place in the area of a previously known archaeological site of Bržečke - 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 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 and his team excavated 58 graves. In 1997, another 10 graves were excavated west of the veterinary station. Until 2014/2015 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, fibules, glass beads, rings etc. Grave 36 contained parts of cart represented as crushed (during burial rituals) iron wheel alloy.

Chronologically, the graves can be dated in Middle and Late La Tene period (L C D). Majority of metal artefacts are still undergoing conservation process, thus final chronological and typological evaluation and interpretation of excavated artefacts will be done after all the conservation works finished.

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Woltermann, Giessa TH1-18
Wouters, Barbara TH1-11, TH5-02
Wright, Deni TH5-04
Wright, Holly TH5-03
Wright, James TH2-01
Wronicki, Piotr TH4-02, TH5-06
Wulf, Sybina TH5-14
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Xuno, Ayan TH2-21, TH6-15

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Zinny, Marcella TH5-14
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Žulkus, Vladas TH5-13
Zuparek, Bernada TH1-14, TH3-20
Zych, Renata TH3-10

FOR NOTES
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