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

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22nd Annual Meeting of the EAA
31st August - 4th September 2016 Vilnius
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Archaeological material remains and archaeological records of the past are the main sources of archaeological research. Growing ranges of methodological tools now help to interpret that record. The way in which we use these methods to define and decode the past predetermines the way in which the scientific goals of our research agendas are achieved. New research questions in archaeology go far beyond those posed using traditional methods of analysis and treatment of material cultural remains. An absence of evidence is no longer considered evidence of absence. Research now seeks to identify the potential cultural ‘presence’ behind absence in the record. Using new techniques, new analytical equipment and new procedures, in appropriate theoretical frameworks and contextual proxies, archaeological research continues to refine its interpretation of the past.

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

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TH1-01

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

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

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

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

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

TH1-01 Abstract 01

Introductory remarks: the study of human-bird interfaces as archaeo-ornithology

Author - M.A. Hussain, Shumon T., Universiteit Leiden, Leiden, Netherlands (Presenting author)
Co-author(s) - Dr. Kost, Catrin, LMU Munich, Munich, Germany
Keywords: human-bird interfaces, ontology, symmetry
Presentation Preference - Oral

This paper situates the study of human-bird interfaces within current theoretical frameworks and perspectives provided by the spatial turn/landscape theory, the animal turn, the ontological turn, symmetrical archaeologies/post-humanism and speculative realism. We delineate the potential and significance of studying the human-bird intersection within past archaeological contexts.

TH1-01 Abstract 02

Gazing at owls? Strigiformes as important parts of East-Central European Gravettian lifeworlds

Author - M.A. Hussain, Shumon T., Universiteit Leiden, Leiden, Netherlands (Presenting author)
Keywords: Gravettian, human-bird interfaces, owls
Presentation Preference - Oral

The East-Central European Gravettian is known for its distinct regional profile. Its archaeological record is rich in organic materials and artefacts as well as in so-called non-utilitarian objects, and features large-scale open air sites with evidence for permanent structures and reduced settlement mobility. Among the numerous theriomorphic representations, owls and owl-like creatures occupy a prominent position in the reservoir of motifs and ideas that defines this regional entity within the wider Gravettian phenomenon. This paper argues that the figuration of owls appears to directly reflect the structure of the human-owl intersection in this particular spatio-temporal setting. Depicting owls and owl-like beings must therefore be understood as an expression of negotiating the human-owl interface and consequently as an indication of meaningful and highly significant human-owl relations in this part of the Gravettian world. By drawing together available evidence for the specifics of the various environmental, climatic, vegetational, faunal and...
TH1-01 Abstract 03

Spirit Birds at Neolithic Çatalhöyük

Author: - Professor Russel, Nerissa, Cornell University, Ithaca, NY, United States of America (Presenting author)

Keywords: Anatolia, Neolithic, zooarchaeology

Presentation Preference - Oral

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

TH1-01 Abstract 04

The Human-Bird Interfaces in the Enolithic 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, Enolithic

Presentation Preference - Oral

The aim of this paper is to explore the complex interaction between humans and birds in the Kögđenmer- Gumelnita-Karanovo VI communities (ca. 4500-3800 BC) from the Balkans (Romania and Bulgaria). Thus, our investigation will cover the bird figures iconography study from some key-sites in the target area (e.g. Meriuta, Sultana, Vlasesti, Yunatala, etc.), in correlation with the zooarchaeological analyses, in order to identify the significance of avian species in the Enolithic 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 Lazarchiz, Maria, Universidad de Cadiz, Cadiz, Spain (Presenting author)

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

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

Co-author(s): - Cruz, 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 Taío de las Figuras (Benalup- Casas Viejas, Cadiz), which represents the 99.94% of the total of 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 birds. In it, social groups in the Recent Prehistory capture the rich ecosystem of the former Laguna de la Janda and where birds had a leading role. Our research group has recently made a detailed investigation of these paintings, in which we have been able to ascertain the existence of very diverse species and scenes of ethology of these birds and an examination of diversity, as a whole. Other scenes, even though they could be related to waterbird hunting, it is also possible that they have a shamanic ritual significance, in connection with life and death.

By the same token, systematic prospecting works in the surroundings allow us confirm the existence of a spatial pattern, where shelters with rock paintings are dislocated in the territory in close liaison with settlements, necropolises, communication routes and catchment areas. Of special interest is the megalithic necropolis, located at the foot of the shelters (Necropolis del Calamini), due to its complex exchange of intervisibility between shelters with paintings (Arco and Taño de las Figuras) and megalithic tombs.

TH1-01 Abstract 06

Omnicient 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 motifs localized in the local Stila Art style depict birds in almost every scene. Experience of birds would have been relatively constant – birds are almost always present, yet human relationships with them were likely based more on observation than direct interaction. The distinction of these animals was drawn upon and reinforced in local artistic representations, cementing their place as ideologically significant and set apart from domesticates and other wild animals. In this case study, depictions of birds from the Dolenjska Hallstatt culture of Southeastern Slovenia will be presented in the context of local human-bird interactions, and modes of depiction as well as contextual associations with wild avian imagery will be presented to test the limits of the Dolenjska Hallstatt experience and ideologies. 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. Günstler, Yvonne, Wuppertal, Germany (Presenting author)

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

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

Keywords: Iron Age, Mediterranean region, ostrich eggs shells

Presentation Preference - Oral

As this quotation of Xenophon (Anabasis 1, 5) suggests, ostriches were the ultimate free-ranging animal during the Iron Age (ca. 1200-330 BC). Their Mediterranean habitats covered North Africa, Egypt, Anatolia and further east. Their cultural significance is already well documented in the Bronze Age. Egyptian and Libyan pre-Iron Age rock art depict ostrich hunts. The ostrich was connected to the Babylonian goddess Tiamat, and in Egyptian mythology Maat, goddess of truth and justice, wears an ostrich feather. Well paintings and inscriptions show offerings of feathers and eggs to various Egyptian Pharaohs, and numerous archaeological finds demonstrate that ostrich eggs were used as votive offerings in temples; ostrich eggs were also among the cargo of the Uluburun shipwreck. The shells were manufactured as amulets or beads for necklaces and earrings, or reworked into containers, flasks, cups and other vessels. During the Iron Age engraved or painted ostrich egg vessels were a luxury item shared between many Mediterranean civilisations, from Assyria, Egypt, Greece, Ethiopia and beyond. Aside from noting them in funerary and dedicatorial contexts, no research to date has sought to understand their trade mechanisms.

Iron Age Assyrian 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? Reliefs of Assyrian lion hunts show that wild lions were penned and hunts staged. Could the reality of ostrich egg acquisition have involved captive birds rather than opportunistic retrieval? Did this luxury trade therefore
Interpreting the Archaeological Record

TH1-01 Abstract 08

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

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

TH1-01 Abstract 09

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

Author: Kuriaso, Tuuk, ZIBA/Tatlin 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 copper 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 found from hillforts, settlement sites, hoards, interment 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. Additionally, interpretations that connect these finds to status and Finno-Ugric identity will be considered briefly.

TH1-01 Abstract 10

Toward an Archaeo-Orientaly 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 loons (divers) and shorebirds. Human burials as early as the Ipiutak period (c. 400 CE), caches, masks, amulets, and ethnohistoric narratives indicate that select bird taxa mediated the human experience of coastal environments.

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 Bayeux tapestry (including the Norman victory at the Battle of Hastings) 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 they can be abundant in archaeological deposits. The Bering Sea is somewhat underexplored 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.

Presentation Preference - Oral

Avian-Human Interactions in North Atlantic Island Environments: Modes & meanings of bird capture

Author: Dr. Bect, Julia, Bournemouth University, Poole, United Kingdom (Presenting author)
Keywords: Avian Archaeology, Islands, Seabirds
Presentation Preference - Oral

Birds were a small but often important component of diet and economy in the past, particularly in islands, as a diverse range of birds, especially aquatic birds, thrive in coastal and island locations. Large colonies of gregariously breeding seabirds would have provided past populations of these locations with a concentrated resource base that could be targeted intensively or sporadically for meat, eggs, oil and fat. Bird use in the North Atlantic Islands is therefore integral to fully understanding life, diet and resource use in these settings. This paper presents results from a large-scale investigation of Medieval 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 fowling. The zooarchaeological dataset reveals that whilst many birds were sourced locally, others required specific fowling trips to more distant areas of the landscape. Several key species exploited through time and space (such as gannet and guillemot) would more have been acquired from dangerous areas of terrain such as cliffs. These targeted avian species demonstrate that fowling was part of a wider picture of mobility and interconnectivity in marine resource use that involved moving around the seascape and to different island landscapes. Changes are seen in the exploitation of locally sourced taxa resulting from preference, seasonality, and species populations (including sustainability issues as evidenced in the great auk’s decline and extinction). The creation of unique fowling 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 fowlers of St Kilda characterise the duality of isolation and connection in these island locations and their historical economic networks.

Beyond the bones: a multi-strand approach to past perceptions of avian associations

Author: Dr. Best, Julia, Bournemouth University, Bournemouth, United Kingdom (Presenting author)
Keywords: Avian Archaeology, Material culture, Zoocarchaeology
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 Sologestoa, Idoia, The University of Sheffield, Sheffield, United Kingdom
Co-author(s) - Dr. Corbino, Chiara, The University of Sheffield, Sheffield, United Kingdom

Keywords: Britain, Duck, Goose

Presentation Preference - Oral

Gooses and ducks have been used in Britain from late prehistory up to 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. In the past the human trade in the domestic forms became more common than wildfowling, when selective breeding started to occur, and when these animals started being exploited for very specific economic and cultural reasons.

This paper discusses the changing use of these birds from the early Roman period until the post-medieval 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. Taphonomic analysis of eggs is also presented and the relative frequency of incubated and not-incubated spots. This could possibly have a taphonomic origin. It is for this reason that we're now looking to see beyond just the bones, to better understand the complex relationships between birds and humans.

THI-01 Abstract 14

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

Author - Sichert, Benjamin, Universities of Basel (Switzerland) and Freiburg (Germany)(Presenting author)
Keywords: antiquity, archaeozoology, eggshell

Presentation Preference - Oral

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

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 Ober-Olm showed signs that could indicate incubation, these alterations were not uniform and did not fit into a single type of periodic pattern. The resulting structure demonstrates the difficulty of interpreting the assemblage.

This poster explores examples of hatched eggs and reveals a complex 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.

THI-01 Abstract 15

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

Author - Dr. Iborra Eres, María Pia, Iborra Eres, María Pia, Universidad de Alicante, Alicante, Spain (Presenting author)
Keywords: bird bones, bird figures, symbolic role

Presentation Preference - Poster

The term Iberian Culture, is used to define the group of people who inhabited the eastern strip of the Iberian Peninsula roughly between the 6th-2nd century BC. Iberian society was highly urbanised and socially stratified (Bonet and Mata 2009; Ruiz 2000; 2003; Ruiz and Molinos 1995). The society was still predominantly agrarian, with agriculture and livestock husbandry constituting the basis for subsistence. However, the area was already incorporated in the Mediterranean trading routes in order to participate in these trading networks mainly with Phoenicians and Greeks (Bonet and Mata 2009; Sammarti 2009). This world was structured into a variety of territories characterised by a complex pattern of hierarchical settlement. The main population nucleus was the oppidum, a large site of around 10-15 hectares and the capital of the political area. The other settlements were smaller, and, depending on their size, are categorised as small towns, hamlets, farmsteads, hillforts or military establishments. Ritual sites, mainly sanctuaries and cemeteries, have also been found (Grau 2002; Ruiz 1996; 2000; Vives Fernandez 2013).

Bird bones are normally recovered in the sites, sometimes as waste from daily life and other times as resultant 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 domesticus), partridge (Alectoris rufa), golden eagle (Aquila chrysaetos), vulture (Gyps fulvus), mallard (Anas platyrhynchos), little bustard (Tetrax tetrax), pheasant (Columba livia), little owl (Athene noctua), barn owl (Tyto alba), Eagle owl (Bubo bubo), white stork (Ciconia ciconia), guil (Larus sp) and Cory’s shearwater (Calonectris diomedea). Some birds are hunted and the bones used to create musical instruments (Iborra 2004; Iborra and Pérez Jordal 2013; Iborra, 2016; Cancho 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 other materials such as ceramic, sculpture and metal craft.

The role that birds play in these scenes is still subject to discussion, and the meaning and value of this subject is still far from being understood. The poster explores examples of depiction and use of birds and value its symbolic role in the Iberian Culture.

THI-01 Abstract 16

To what extent are birds important in Roman gardens?

Author - Mgr. Uramov, Valénia, Institute for Classical Archaeology, Prague, Czech Republic (Presenting author)
Keywords: birds, Roman garden, aviary, mosaic, frescoes

Presentation Preference - Poster

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

PETRIFICATION PROCESSES IN (PRE )HISTORY

Thursday, 1 September 2016, 14:00-18:30
Faculty of Philosophy, Room 201
Author: Huelig, Sophie, Newcastle University, Newcastle upon Tyne, United Kingdom (Presenting author)
Co-author(s): Gramsch, Alexander, Roemisch-Germanische Kommission, Frankfurt am Main, Germany
Keywords: Hierarchisation, Petrification, Standardisation
Presentation Preference - Regular session

Processes of consolidation and structuring, in nature or in culture, in space or in time – which lead to something more permanent, 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 is change and thus 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.

TH1-02 Abstract 02

Petrification: a concrete comprehensive diachronic concept for past process comparison

Author: Dr. Huelig, Sophie, Newcastle University, Basel, Switzerland (Presenting author)
Keywords: early medieval stone building, materialism, theory
Presentation Preference - Oral

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

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

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

TH1-02 Abstract 03

When did eternity end?

The so called downfall of Linear Pottery culture

Author: Dr. Biermann, Eric, Köln/Cologne, Germany (Presenting author)
Keywords: Linear Pottery culture, Standardisation
Presentation Preference - Oral

The Early Neolithic “Linear Pottery Culture” (LBK) could be called a ‘petrified’ society. For at least 30-50 generations, it prevailed over wide parts of Europe. Its ‘classic style’ describes a uniform pottery decoration. Moreover, also standardisation of the house shapes, stone tool traditions and probably also ritual practices unified this culture. While ceramic decoration styles changed, many other aspects survived into the so-called ‘Middle Neolithic’ period. This lecture wants to address the question, if changes in only one aspect of material life should really serve as evidence for the end of a social system and lifestyle community.

TH1-02 Abstract 04

‘Petrified’ societies? An Egyptological survey

Author: Dr. Wasmuth, Melanie, CH-Basel University, Rheinfelden, Germany (Presenting author)
Keywords: Ancient Egypt, Histriography, Petrification
Presentation Preference - Oral

Ancient Egypt is renowned for its monumental pyramids, temples, and tombs as well as the stability of its kingship concepts, and the continuity of artistic display. Though perishable materials and transient traits are studied as well, stone features and longterm standards remain the major attraction in antiquity as well as today. Ancient Egypt therefore provides an exemplary case to study the potential of the concept of petrification: It not only stresses the need to differentiate between ‘active’ and ‘passive’ petrification, but also of a direct – i.e. building for eternity in stone – vs. a more figurative meaning of the concept: the ‘petrification’ of ancient concepts and techniques to promote their perdurability. In addition, the approach encourages the question to which extent this undeniable inherent characteristic is only one side of ancient Egyptian society and its cultural output. It strongly highlights the discrepancy between contexts aiming at imperishability and others in which the concept is irrelevant or perhaps even revoked: even for the royal sphere, every-day life in ancient Egypt has to be reconstructed to a large extent from sacrificial and funeral sources. Is this due to lack of preservation or the deliberate usage of unenduring materials for finite aspects of life?

The approach has a further dimension when applied to past research: To which extent do the preserved ‘petrified’ monuments and social concepts trigger a stereotype academic approach to ancient Egyptian societies and their remains? The contribution will present a selection of sources exemplifying these issues.

TH1-02 Abstract 05

The hardness and the eternal: petrification of human images and social contradiction

Author: Dr. Marina Gallinaro, Marina, Rome, Italy (Presenting author)
Co-author(s): Vanzetti, Alessandro, University of Rome “La Sapienza”, Rome, Italy
Keywords: Human figurines, Society, Trans-Mediterranean perspective
Presentation Preference - Oral

The formalization of human images as figurines can be seen as a relevant act of selfrepresentation, reflecting an idea of the human being and possibility of the sacred. In fact, as we may be experiencing even today, Iconoclastic attitudes are important in affirming, or denying, space for peculiar representations, and the human one is a core problem in that sense. Anyway, when we can observe human representation to take place, we can easily recognize differences in materials implied, and in the size and context of the representation.
The quantitative analysis of the observable materials can suggest different attention was played in setting figures 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 figures and statues. The use of different materials can also underline different strategies of dissemination of information, of its personal use and of “democratization” of the impact of the underlying message. The case can be raised of contradictions in the social context of message transmission. The theoretical situation and a model of analysis will be explained through cases involving a trans-Mediterranean perspective (i.e. both in Africa and in the Near East and in Mediterranean Europe), during the Neolithic and up to the Bronze Age.

TH1-02 Abstract 06
The temporality of stone: communities and early sculptural traditions in late prehistoric Iberia

Author - Dr. Díaz-Guardamino Uribe, María, University of Southampton, Southampton, United Kingdom (Presenting author)
Keywords: Iberia, Later Prehistory, Sculpture
Presentation Preference - Oral

Stone is regarded as “external” 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 “solidification” of social structures and institutions. Indeed, if compared to human temporality, stone has the potential to work across much longer-lasting temporal frames. However, while stone persists it is not eternal neither static nor stable. Stones are in constant flux. They transform as they interact with a broad variety of agents, from air, water, and acids, to living organisms, including microorganisms, animals, or people. And as they interact, stones engage in the crafting of complex meshes of social relationships with varying temporalities (and spatialities).

This paper seeks to explore the temporality of stone and its role in the late prehistoric communities of western Iberia through the analysis of their sculptural traditions. Western Iberia is home to an extraordinary collection of stone steleae 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 steleae 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 immersion.

TH1-02 Abstract 07
Genetics, Migrations and Language Dispersals: Re-theorizing mobility and the formation of culture and language among the Corded Ware Cultures in Europe

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

We are now finally in a position where migrations can be documented rather than debated. This has lifted an interpretative burden from archaeology, in much the same way as CH4 dating did when it was introduced. The new freedom can instead be invested in properly theorising and interpreting local processes of migration, integration and assimilation, which has been an underdeveloped field of research. By integrating recent results from archaeology, isotopic tracing and historical linguistics this will in turn allow us to formulate better-founded models for the interaction of invading and 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.

TH1-02 Abstract 08
Tracing “petrification” in prehistoric architectural processes

Author - Dr. Romaniewicz, Tanja, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)
Keywords: architectural analysis, prehistoric architecture, Scottish roundhouses
Presentation Preference - Oral

Even ephemeral archaeological remains of prehistoric buildings can be studied as evidence for architectural processes. In this definition, these processes started with thinking and shaping prehistoric space via a structure, but did not stop once this structure was built. Prehistoric architecture was also transformed by unplanned events during construction, use and abandonment of the buildings. Architectural analysis reads these deliberate and fortuitous processes from pits and postholes, from 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 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 architectural responding to the activities and energies proscribed from form, seems, however, unrelated to the building materials as such practices can also be recognised in roughly contemporary Scottish stone houses. Yet by the Iron Age, external shape and form seemingly had solidified. The paper will map such developments of architectural concepts through time and space, from organic and dissolved plans to stable and 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.
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 ethnarchaeological investigations will enabled the role of these structures within the upland landscapes to be inferred.

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

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

Keywords: archaeology of urban centres, Greek colonization, urbanism

Presentation Preference: Oral

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

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

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

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

Keywords: material culture, mobility, play

Presentation Preference: Oral

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

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

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

THI-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

Presentation Preference: Oral

Medieval British park landscapes are often discussed in terms of aristocratic leisure and the prestige associated with ownership and use of such impressive feats of monumental architecture. As hunting grounds, these enclosures offered social venues for
Ludic space in the late Middle Ages cities on the south Baltic coast

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

Keywords: amusement, space, toys

Presentation Preference - Oral

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

THI-03 Abstract 06

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

Author - Hall, Mark, Comharke na mEan Eilean Siar, Isle of Benbecula, United Kingdom (Presenting author)

Keywords: cultural transfer, mobility, play

Presentation Preference - Oral

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

Considering board games within the framework of mobility raises some key issues around their social significance: how and why did they spread? Movement is, of course, essential to games (as it is to play) both for the games to work - they are at the core of the ‘capacity to move’ that is the definition of its mobility in its Latin origin - and for them to spread across cultures and between peoples. Like other forms of play they allow the individual to perceive their existence through performance, containing physical, sensory emotional reactions with mental agility and strategic thinking. At their most successful they can produce a feeling of flow. Reflexively they allow an escape from the world as a means of re-defining it (including re-locating the individual within it). Board games speak to the mobility of people - physically, intellectually and spiritually. They help to refit 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!

THI-03 Abstract 07

The Mystery of the Shield-Biting Warders.
Reconstructing Chess in Medieval Northern Europe

Author - Teichert, Matthias, Goettingen University, Goettingen, Germany (Presenting author)

Presentation Preference - Oral

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

The paper’s second goal is to reveal how the two early Scandinavian chess versions and the autochthonous game of finnebball interacted in order to produce such marvelous artifacts like the Lewis Chessmen.
This paper concerns Scandinavian gaming pieces from the Vendel and Viking periods (c. 550-1050 CE). The main focus is on the raw materials used but also on questions of chronology, typology, and distribution. Gaming pieces can be made of a wide variety of exclusive or eye-catching materials, such as glass, amber, ivory, walrus tusk and horse teeth. Most commonly, however, gaming pieces are described as being made of unspecified bone or antler. A recently conducted study has made clear that a majority of these are in fact made from whalebone, which also could be considered to be an exotic and scarce product.

The aim of this paper is both to shed some light on the vast number of gaming pieces in Swedish museums, and also to discuss what implications the study of the raw material has for our understanding of medieval gaming culture.

There are also considerable implications for our understanding of the use of resources and the importance of coastal landscapes during the period in a broader sense. It is most probable that the whalebone gaming pieces were traded from the north Norwegian coast to large parts of central Sweden and beyond. The large geographical distribution of whalebone artefacts bears witness to developed 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 Stempień, Agnieszka, Poznań Archaeological Museum, Poznań, Poland (Presenting author)
Keywords: Archaeology, Games, Chess, Objects
Presentation Preference - Oral

The chess defined as ‘Sandomierskie’ were unearthed on the stand no 7 in Sandomierz on the Old Town Hill. According to the tradition passed over by Jan Długosz (polish chronicler: 1415-1468), this place is considered to be the oldest part of this town. From the year 1598 on through the period of 10 consecutive years systematic archeological works were carried out on some other parts of the Hill. On October 9, 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 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 interesting finds on the territory of the Early Middle Ages Europe. The area then examined, not widened due to the requirement of finishing the works, allowed to determine the place of the discovery as a small, modest half 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 undug 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 not and to determine the context of the appearance of the Chess of Sandomierz in this area. During the two research seasons (2014-2015) many artefacts connected with the elite culture were registered within the area the hut occupied. The exclusive character of the items uncovered both in the hut with the chess and its neighbourhood seems to confirm the above mentioned interpretation of this contact as the presence of a mansion house rather than an ordinary dwelling place. The discovery of a vast homestead or a mansion 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 - Wiołocha, Ewa, Inowrocław, Poland (Presenting author)
Keywords: board games, game pieces, medieval games
Presentation Preference - Poster

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

TH1-04
THE INVISIBLE CONSTANT. BUILDING NEW FRAMEWORKS FOR AN ARCHAEOLOGICAL UNDERSTANDING OF MIGRATION AS CULTURAL BEHAVIOR

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

Author - Acconcia, Valeria, Università “G. d’Annunzio” di Chieti-Pescara, Rome, Italy
Co-author(s) - Gori, Maja, University of Heidelberg, Heidelberg, Germany

Presentation Preference - Regular session

Migration is a constant of human existence. In the past as well as today, changes in material culture, subsistence strategies or language distribution cannot be fully understood without postulating the movement of people amongst the factors responsible for cultural variability. However, migrations are very difficult to trace. Archaeological evidence is often too ambiguous to discriminate the transfer of cultural traits due to migration from other mechanisms of dispersion such as trade or demic diffusion (e.g. Burmeister 2005). The invisibility of migratory movements in the archaeological record and the overall difficulty in discerning different patterns of human mobility have inevitably affected the way in which archaeologists approached migration. Whist much effort has been put into the development of more sophisticated methods for detecting migration (stable isotopes and NA analysis, pottery provenience studies, etc.), not as much has been done to embed such data into broader theoretical frameworks in order to gain a better understanding of migration as cultural behavior. Notwithstanding decades of research into the nature of migratory phenomena by anthropologists, sociologists and historians, the archaeological debate seems to still be polarized into two main arguments: migration occurred, and explains every visible change in the material record; or it did not occur and is therefore unimportant (Halsall 2011). As a result, the increasingly ample and complex data at our disposal are frequently read through fairly narrow frameworks. This session seeks to integrate different approaches to mobility to foster dialogue between archaeology, archaeometry, and anthropological and social studies aiming at exploring new frameworks for a more comprehensive interpretation of mobility. We particularly encourage contributions presenting case studies across Europe, the Mediterranean and overseas, representing the many dimensions of large and small-scale migration or more specialized forms of mobility, such as transhumance, eXogenuous mobility, trade, town-hinterland migration, raiding or forced migrations.

TH1-04 Abstract 01
Close encounters. Setting a new research agenda to understand migration beyond explanatory models
Author - PhD Revallo Lami, Martina, University of Amsterdam, Amsterdam, Netherlands (Presenting author)
Co-author(s) - Dr. Acconcia, Valeria, Università G. d’Annunzio di Chieti-Pescara, Chieti, Italy
Co-author(s) - Dr. Gori, Maja, University of Heidelberg, Heidelberg, Germany

Keywords: Ethnic identity, Migration, Mobility
Presentation Preference - Oral

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

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

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

Keywords: material imagination, mobility dynamics, traditions

Presentation Preference - Oral

Italian territory (peninsula as well as nearby islands) is a very peculiar area where to carry on research for past and also recent human migration events.

By interdisciplinary analysis on engraved and painted signs on stones of Italian territory we try to reconsider people movement and human-environment interaction around 12.000-10.000 BP. The analysis of decorative technologies (e.g.: engraving, pitting, piercing, painting, sticking) helps to understand and to trace styles/traditions, methods and ability, the analysis of mineral and of organic materials used as decorative medium help to explore and to trace substance provenance and to better focus in what is a “local” tradition about the use of a substance and what is not.

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

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

Author - Templer, Michael, Neuchâtel University, Enges, Switzerland (Presenting author)
Co-author(s) - Van der Wilt, D., Neuchâtel University, Enges, Switzerland

Keywords: Mesolithic, Neolithic, Transition

Presentation Preference - Oral

Archaeology is often governed by national boundaries or focussed on particular cultures. The evolution of the Neolithic is seen as a multifarious process occurring over many millennia in several formative zones of Anatolia, the Levant and Cyprus, and its study is only partially governed by national boundaries. The spread westward of the Neolithic is imperfectly understood, with numerous archaeologists attempting to draw the “big picture”, often supplying or endorsing one or several “models” to explain the process.

The spread of the Neolithic into Western Anatolia and Europe occurred over several millennia, involving migrants as well as local players. The reasons for the spread are complex, as are the manner in which the spread occurred. In the Central Mediterranean Basin, the first archaeological evidence for Neolithic attributes goes back to 9000 BC in the Aegean Basin, and at the head of the Adriatic the Transition to the Neolithic is completed by 4500 BC in the Trentino-Alto Adige.

Why so early and why so late?

What happened in between in time and space?

Who were the players?

If archaeology is the means by which to write prehistoric history, we need to visualise the players in their environment, and try to understand their lifeways, motivations and evolution over many generations to pretend to grasp the extent of the Transition from a life lived in symbiosis with nature to one in which nature is controlled, and which, unbeknown to the players, heralded the legacy of explosive demographic growth.

In this paper we will present some of the possible reasons for the spread of the Neolithic, and how some of the autochthonous populations responded, using a few case studies from the 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.
Interpreting the Archaeological Record

We use the gallery grave at Torbjörnarps as a model site for investigation of mobility. Here the individuals analysed all date to around 1850 BC, 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 isotope results can be used for discussing mobility patterns.

Using the combined knowledge gained from archaeology, isotope analyses 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, Miia, University of Heidelberg, Heidelberg, Germany (Presenting author)
Co-author(s): Recchia, Giulia, University of Foggia, Foggia, Italy
Keywords: Adriatic, Early Bronze Age, Mobility
Presentation Preference: Oral

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

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TH1-04 Abstract 09

(Invisible) traces of the exogamous mobility in Late Bronze Age? Interpreting Unfurnished cemeteries

Author: Skvor Jernejcic, Brina, Freie Universität Berlin, Berlin, Germany (Presenting author)
Keywords: cemeteries, exogamous mobility, Unfurnished 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 (Br D - Ha A) cemeteries from south-eastern Alpine region and Northern Carpathian area. In the end of Middel and in the beginning of the Late Bronze Age, first cremated graves were documented in the south-eastern Alpine region (excluding the graves from Copper age). We know of some other individual graves or smaller cemeteries containing several tens of graves. On this basis, we presume that these cemeteries were intended only for certain deceased members of specific 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 burnt cremations. Cemeteries from Northern Carpathian area are in this period on the other hand more numerous and they contain some hundreds of graves.

According to our analysis we can state that the best analogies for several grave-goods from the cemetery in Lubljana (Slovenia) can be found in the objects (specially urns) from distant archaeological sites, pertaining to Piliny and Suciu de Sus culture in the northern Carpathian basin. These analogies, not only in grave-goods, but also in burial rite (cremation in an urn), grave stone constructions and social practices (hording of special objects in a special manner) point to very intensive, probably direct, contacts between the areas in the beginning of the Late Bronze Age. Taking into account that urns, which contained the ashes of the deceased, acted as representations of the human body, it is interesting to emphasize that in both research areas special types of vessels (jugs, cups) were used as urns only in female and children graves. Beside the similarities in the archaeological finds between two research areas, we observe also the similarities in the stone grave constructions. Both in Ljubljana and in Radzovce 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 Unfurnished Culture), we can argue, that we cannot interpret these similarities in the archaeological record as simple result or effect of exchange. According to the data, we can presume, that they reflect directions of the migration of individuals or smaller groups. Which were the motives and mechanisms for these intensive contacts in this particular period? How can we interpret this archaeological data as traces of an exogamous mobility of women in Late Bronze Age?

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TH1-04 Abstract 07

Signs of migration in the megalithic graves of Western Sweden?

Author: Dr. Svensson, Emma, Uppsala University, Uppsala, Sweden (Presenting author)
Co-author(s): Blank Bäcklund, Malou, Göteborgs Universitet, Göteborg, Sweden
Co-author(s): Simeon, Luciana, Uppsala University, Uppsala, Sweden
Co-author(s): Munters, Arielle, Uppsala University, Uppsala, Sweden
Co-author(s): Storå, Jan, Stockholms Universitet, Stockholm, Sweden
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Keywords: ancient DNA, isotopes, Neolithic
Presentation Preference: Oral

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

Immigration from various regions has been proposed as an explanation for the geographic distribution of megalithic burials in western Sweden, another alternative is that the tombs were used by populations from different areas. However, osteological and archaeological research suggests that the graves were used by local family groups. Earlier research suggests that 25% of the migrants arriving in Scandinavia in the late Neolithic were from non-local birth. In the Late Neolithic there was an increase in human mobility and about 60% of the buried individuals were non-locals. It is interesting to investigate the genetics over time in this area. Are there any traces of population shifts while still maintaining the same burial practices?

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

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

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

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

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

Firstly, I focus on the pottery with cord decoration from two tell-settlements Ezero and Dyadovo with favorable stratigraphic context. In the latter, I will take two different approaches. The first is petrographic analysis, which identifies kinds of rock and mineral in the pottery with cord decoration. The second is chemical analysis, which measures the chemical components of the matrix of the pottery using EDXRF by a fundamental parameter (FP) method. As a result of these analyses, the pottery with cord decoration, as well as plain pottery and pottery with the other types of decorations, in both tell settlements will be classified into local and non-local types. Adding the chronological view to them, the analyses indicate transition and variety of the pottery with cord decoration in the Upper Thracian.

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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) - Jacobsen, Jan Kindberg, Ny Carlsberg Glyptotek, Copenhagen, Denmark
Co-author(s) - Motta, Giorgia Paola, University of Groningen, Groningen, Netherlands
Co-author(s) - Saxejaer, Sine Grove, 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 Euboean presence is detectable in the western Mediterranean, including Northern Africa, Spain and Italy. The Euboeans settled in the Sibaritide, where Greek-indigenous coexistence emerged in the settlement of Timpeo della Motta in the first half of the 8th century BC. This coexistence entailed a shared and mixed cultural framework at the site, which is visible in the pottery production as well as in the production of textiles taking place within the sanctuary at the site. In late 8th century BC, the Sibaritide witnessed another Greek migration, that is, the Achaean migration, which most famously led to the foundation of the socalled colony of Sybaris.

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

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

Author - PhD candidate Raumino, Anna, La Trobe University, northcoast, Australia (Presenting author)
Co-author(s) - Testor, 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 “Ialisosisation”, 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 end of the 8th century BC new pottery types, evolving and imitating Greek models, appear in indigenous Sicilian graves as a consequence of these cultural changes. The archaeometric analysis allows us to recognize different clay fabrics, to distinguish Greek imports, Sicilian copies and adapted designs as well as entirely new Sicilian forms. The archaeometric method permits us to recognize different cultural material objects. The results will be extremely advantageous in tracking indigenous activities, adaptation and adoption and elucidate how the Greek immigration impacted Sicilian societies and local culture. The goal of this study is also to look beyond the cultural material, in order to understand the technology of pottery production and the possible coexistence of imported and local fabrics within a given chronological horizon. In this specific archaeological context, the application of archaeometry, in combination with anthropological and archaeological methods, is a successful method to understand the social, ideological and material interactions of the indigenous Sicilian community of Monte Finocchito with the Greeks.

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

Author - Bobina, Bogdan, County Museum of History and Archaeology Maramures, Baia Mare, Romania (Presenting author)
Co-author(s) - Saxkjaer, Sine, The Danish Institute in Rome, Roma, Italy

Keywords: mountain passage, paleolithic, post Roman, trade route

Presentation Preference - Poster

Beginning with 2012 a region in the Eastern Carpathians of Northern Romania was systematically surveyed for the first time. The focus of this research is, to this date, the study of the mountain passage ways between two historical regions, that of Maramureş and Bukowina. The field survey carried since 2012 and their results so far indicate at least two main routes, 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 archaemetric 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 Steleae

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

Keywords: Kurgan, Nomads, Stele

Presentation Preference - Poster

Kurgan steleae, also known as babas (Russian: камень дядя, Polish baby kamienie; Kyrgyz: баба) 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 Euryan Great Steppe and surrounding areas. This custom is in practice from the Eneolithic to almost Modern Times. The term babal came from a turkic word meaning “ancestor” or “grandfather”. The earlier examples of these statues are associated with Sredny Stog and Yamna (Pit Grave) cultures and dated to the 4th millennium BC. Although this custom existed incessantly on many various territories from the Eneolithic to Modern Times, however it was extremely popular in scythian culture, Turkic Kaganate and among Cumans (Kipchaks). Usually these objects were memorials honouring the dead, but there were some exceptions. For most periods kurgan steleae represent mostly males, however in the Kuman Period female steleae were very popular. Babals commonly depict warriors holding weapons and drinking horns or bowls. There might also depict so many other items like bells and tools. Probably from babals may derive other kinds of stelae, for example: deer stones, Balkhlarion tombstones and stone rams and horses from Azerbaijan.

The purpose of my poster is the introduction to evolution and development of kurgan steleae and show differentiation this kind of artefacts and provenance of the investigative methodology of babals.

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

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

Keywords: Alps, neolithic, pastoralism

Presentation Preference - Poster

This poster will present the first results of the zooarchaeological analysis of several neolithic settlements located in the upper part of the Rhone Valley in Switzerland and in the Northern French Alps and dated between 5500 and 2209 cal BC.

The study of the bone remains shows that domestic animals, especially caprines are predominant in the swiss region in contrast to the French Alps where cattle seem to be more common.

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 herd to seasonal pastures. Through a comparison of these two regions, we try to gain a better understanding of the renewable and economic organisation of these alpine communities.

TH1-04 Abstract 15
Migration through artifacts – recent researches in the Prislop pass, Eastern Carpathians (Romania)

Author - Bobina, Bogdan, County Museum of History and Archaeology Maramures, Baia Mare, Romania (Presenting author)
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TH1-04 Abstract 16
Origin and Development of Balbals Steleae

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The purpose of my poster is the introduction to evolution and development of kurgan steleae and show differentiation this kind of artefacts and provenance of the investigative methodology of babals.
Interpreting the Archaeological Record

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): Van Leusen, M.H., University of Groningen, Groningen, Netherlands
Co-author(s): Van Gorp, W., University of Groningen, Groningen, Netherlands
Co-author(s): Sevink, J., University of Leiden, Leiden, Netherlands
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Presentation Preference: Poster

During the Early Bronze Age, a giant eruption of Mount Vesuvius (Italy) buried a flourishing landscape of villages and fields in the plains to the north and east of the volcano under more than a meter of ash. Inhabitants of the closest sites such as Nola ('the Bronze Age Pompeii') could barely escape with their lives. Italian archaeological research since the 1980s has conclusively shown that the population of the Campanian plain did not fully recover for several centuries after this so-called 'Avellino Event'.

Given the topography of central-southern Italy, the most likely refuge area will have been to the north, in the wetland coastal plains of Latium Vetus: the Fondi basin and the Pontine Plain. In these areas, long-standing Dutch research programs have recently been able to find the Avellino volcanic ash layer, which can be used as a chronological marker.

This means that archaeological and palaeoecological observations of the necessary high chronological resolution and quality can be made to identify changes occurring immediately after the eruption. A joint research program between Groningen and Leiden universities, in collaboration with Italian geologists and archaeologists, aims to demonstrate and document any significant impacts that would result from the presence of the postulated Early Bronze Age refugee population in South Lazio. Because we feel that only the combination of different data can provide reliable answers, a careful design strategy has been built. This includes a detailed landscape and environmental reconstruction, by means of geological and palaeoecological 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.

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, Kuyak, etc.) and burial grounds (Sintashta, Krivoe Ozero, Kameny Ambar, Stepanov VII, Bolshekarakangry 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 1970-1990s Sintashta complexes were investigated in the burial grounds of New Kumak, Ishkinovka II, Gerasimovka II, Bulanovo cemetery (Berezovaya mountain). New monuments of the beginning of 2nd millennium BC were studied in recent years by Orenburg archaeological expedition.

In 2012 the multilayered settlement Maloyuldashevo I was investigated. The materials of excavations contained the triple burial, accompanied by numerous metal implements and pottery.

The funeral ceremony (not typical for the Late Bronze Age position of the buried, the subordination of the two forcibly sacrificed people to the "main" skeleton) reflects the interaction of different cultural traditions - Yamnaya and Catacomb cultures, Sintashta culture and monuments of the Potapovka type. Pottery has many analogies in the Sintashta ceramics. The original rectangular vessel is an indicator of preservation of Catacomb traditions in Sintashta society. Metal artifacts such as knife, bracelets, rings, awls, beads are typical for Sintashta culture.

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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 type-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 nearly concentrated on gender specific topics such as the importance of costumes in relationship to age-groups, regional identities and social standing. Sumptuous female graves are however rarely thematized systematically.

In this paper I will examine ostentatious graves of women in a wide chronological as well as geographical scope in order to ask under which conditions sumptuous female burials occur, how they relate to contemporary male burials in quantitative as well as qualitative aspects and why in some cases they seem to be absent in the archaeological record. I will focus on case studies ranging from Western Europe to the Eurasian steppe. In particular, we are interested in combinations of vibrant theoretical frameworks and methodologies that have great potential to tease out more nuanced information regarding the mortuary practices of Western Europe to the Eurasian steppe. Of course, this method necessitates estimating value of each grave (grave good but also architecture and location), and so applying an emic approach especially to develop a gender approach and a characterization of social structures and their evolution on a long term perspective.

TH1-05 Abstract 02

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

Author - Dr. Trémoulet, Caroline, UMR 8125 Trajectoires, LYON, France (Presenting author)

Keywords: Bronze and Iron Ages, Hierarchies, Methods

Presentation Preference - Oral

During the Late Bronze Age to La Tène B, in north-alpine societies, we see a multiplication of elite’s graves. These ones, characterized by an impressive funerary hoarding and so-called “princely graves” ask a lot of questions about hierarchisation, status of those individuals and social structures. These questions are supported by a key issue: how deal with the funerary data to express the wealth notion?

Such an approach needs to take into account the difficulties to 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 ranking funerary data, so as to detect social structures. This work is based on a database from more than 1000 graves with 721 elite’s graves, from Late Bronze Age to La Tène B, spread over north-eastern France, southern Germany, Austria 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 etic 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 etic, 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.
The Gravel is 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) - Hornbacher, David, University of Wisconsin-Milwaukee, Milwaukee, United States of America (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 frequent and that they occur in all regions in the Early Iron Age. 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 male/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 Heuneburg Hilfort.

TH1-06 Abstract 07
Barbarian chief's “secret” burials in the forest-steppe zone of Eastern Europe

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

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

TH1-05 Abstract 05
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) - Hornbacher, David, University of Wisconsin-Milwaukee, Milwaukee, United States of America (Presenting author)
Keywords: Iron Age, mortuary analysis, multiple burials
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 Don river and in left bank alluvial fan. At the same time periods D1 and D2 European chronology - 360 / 370-440 / 450 AD on the same area occur several extremely rich sumptuous complexes consisting of prestigious gold objects (brooches, bracelets, neck-rings), the Byzantine silverware production, gold-embroidered garments, ceremonial weapons and horse harness. Findings of individual objects belonging to a prestigious culture of the time are known too. These complexes are not associated with burials of Chernyakhov culture. They were found by chance and were considered hoards. Only one of them (Bol'shoi Kamenetz) was published by L.A. Matsulevich in 1934. The study how complexes have been discovered reveals that they are the burials. In Bol'shoi Kamenetz burial was in a stone crypt, built at the base of a high bank of a creek, which flows into the river Don. The survey of all finds indicates its exclusive relationship with the sources of large creeks flowing in deep canyons and at the same time associated with the watersheds of river systems. Discussed sumptuous complexes are very different from the burials of the Chernyakhov culture, even at its highest level examples. There are simple common explanations for this difference: 1. “Chernyakhov”, when the sumptuous burials attributed to later Hun period (the period D3, qte, 450-470 / 480’s AD), when the Chernyakhov culture no longer exists. 2. “Ethnic” Both of these explanations are not satisfactory: 1. Late burials at Chernyakhov cemeteries in the area between the Donner and Don rivers dated to stages D1 and D2 of European chronology. The presence of glass cups (as seen for the least) 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 Hunnic time polychrome decorations. Rather we can speak about a direct link with the Late Antique Bosphorus whence come the closest analogues of prestigious weapons, harness and silver vessels. Discussed find 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, moreover, beyond the ordinary general cemetery in protected, perhaps a sacred place. The exceptional volume and value of inventory corresponds to the rank of the deceased in his lifetime. The concept of “center of power” is applicable to the single “princes” and “military chiefs” burials.

TH1-05 Abstract 06
Discernable Traces in Textil Archaeology

Author - Dr. Band-Burgess, Johanna, Landesamt für Denkmalpflege, East Germany (Presenting author)
Keywords: mortuary ceremony, princely grave Hochdorf-Eberdingen, Textile Archaeology
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 kurgan burials. The GIS database of the Talgar sites also includes valuable information such as the natural hydrological system, dated geological terraces, and other important topographic features. Our goal is to model a socio-natural system that describes the Iron Age socio-economic-agro-pastoral system and its demographic components. In addition to understanding the relationship between the natural-physical landscape and a mortuary and settlement landscape, we also wish to set the foundation for understanding social hierarchy and the nature of commoner-elite relations.

The mortuary landscape, often robbed in antiquity and destroyed by Soviet agriculture, lacks information on individual burial inventories or skeletal material. Therefore our model relies upon kurgan size dimensions, locations, and density counts in order to model the ancient demography of the Talgar region and its surrounding environs. Future research in Talgar and neighboring alluvial fans will test demographic models for: (1) population pressure on farming and herding resources; (2) territorial boundaries that 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 interacting and ritual landscapes that cross-cut diverse regions through an aesthetic known as ‘animal-style’ art.
more importantly sensual, 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 disassembling and reassembling of grave good assemblages, mound construction, and mortuary landscapes. Utilizing data gleaned from a modest population of mounds and burials 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.

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**TH1-05 Abstract 10**

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

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

*Presentation Preference*: Oral

Several thousand of burial sites of the Eurasian steppe dating to the Scythian epoch are associated with a number of archeological cultures of the Scythian type. Their funeral rite has been examined in a number of special papers and monographs, which were largely based on a comparative study of kurgans between each other in terms of their particular parameters. The present paper proceeds from a comparative study of all graves and other elements within one and the same mound in terms of their depth and arrangement to each other, as well as in terms of their orientation, according to the cardinal points, on the mound map, i.e. their planigraphy. To my knowledge, this is the first attempt of this kind. The undertaken analysis of the planigraphy of the kurgans is based on the data concerning every component of a mound hearth such as walls, tunnels, bridges, stone embankments, etc., as well as every grave of one and the same kurgan, including central and secondary burials, horse interments and those of servants, servants and human sacrifices. Such complex earthwork structures, as well as numerous central and secondary burials are to be found only in the case of kurgans of the royal class, hence these are of major importance for planigraphical analysis. The graves locations 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 or orientation in terms of cardinal points. Importantly, the regional differences in the spatially shown on the kurgan planigraphic profiles seem to be associated with the spatial arrangement of the entire burial constructions in terms of cardinal points. Moreover, if these are taken into consideration, it is no longer possible to maintain the idea of the Scythian-Siberian unity of the archeological cultures of the region, where in fact one deals with two distinct cultural communities. Also, as the present work has shown, there is a logistic association between the spatial arrangement of the monumental earthen constructions and the ideas the ancient populations held 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.

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**TH1-05 Abstract 11**

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

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

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*Keywords*: borderlands, Eurasia, Silk Road

*Presentation Preference*: Oral

Much has been made of the social and economic exchanges across the Silk Road, from Afghanistan in the west and China in the east. In the late first and early second millennium CE, literary sources at both ends of the route document impressions of the ‘other’ as different from themselves – the residents of dominant state level societies. Material remains certify that the exchange was significant economically, but also culturally. Surely the most visible evidence of the value of that interaction was captured in the form of exotic artefacts. Artefacts of these polities, where material evidence existo to the local region surrounding and shraddled the elite. This paper will consider what message the assorted choice of non-local or non-loctly inspired grave deposits, arroyed 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 eccletic and intercultural character of those expressions were the grave goods deposited in the six excavated tombs at Tylia 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.

Granularity, innate and towsey/tow textile technologies were imported into the region from Western Asia and China. At the far eastern edge of this indirect traffic of goods and technologies, in the late Han Dynasty Protectorate of the Western Regions, anothet set of burials, known from the excavations of Guoxi, and particularly the tomb of Cheshi, at Baihequeo, Xinjiang, display a similar mixture of goods and practices. There artifacts included gold appliques and ornaments with granulation and loops that made clear western Asian connections as well as a preference for more easily burial practices and items from dynastic China.

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

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**TH1-05 Abstract 12**

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

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

*Keywords*: Bronze Age, Eurasia, Multivariate Statistics

*Presentation Preference*: Poster

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

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

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

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**TH1-05 Abstract 13**

**Origin of the Polychrome Style Jewellery**

*Author*: MA Janik, Paweł, Antiquity of Southeastern Europe Research Centre University of Warsaw, Legnionowo, 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 which the glass or gemstones were set in compartments of soldered strips of metal foil, separated with wire, over a strip of metal foil. The polychrome style is used in ornamenting dress accessories, horse equipment, diadems, weapons, jewellery and other things. Many researchers have divergent opinions about provenance of this jewellery style. According to popular opinion, the polychrome style was not typical only for European Barbaricum like Carpathian Basin, West Europe or Black Sea region, but it existed also in Central Asia, north-west modern China and even Korean Peninsula. Moreover the polychrome style not occurred first time during the Migration Period, but much earlier. There are also some polychrome decorated artefacts from East Europe (Sarmatian culture) and Central Asia (Saka-Iouan culture and Kairou culture) dated to period between III century B.C. and I century B.C. These artefacts are very similar to the polychrome style ornamented objects from the Migration Period. Some scholars (Arminius 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 (Schmuhler 2002: 257-58) affirm that polychrome style evolved from the heulierte jewelry traditions. The problem is that there are some polychrome decorated artefacts from Iran and central Asia dated to Achaemenid Period! My poster consist of my investigations of the origin and development of the polychrome style jewellery.
Breaking and making the ancestors.

Making sense of the inconspicuous 99% of urnfield graves

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

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

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

But are the 99% of urnfield graves really that different from the conspicuous chieftain’s graves? These chieftain’s graves tell us interesting stories about how people thought about their famous dead as ancestors: how these needed to be equipped with objects and which part of their complex social 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

Vanity or Hygiene? Combs and mirror frames in the Vilnius Lower Castle

Author: Dr. Puišienė, Rūblė. National Museum the Palace of Grand Dukes of Lithuania. Vilnius, Lithuania (Presenting author)

Co-author(s): Kaminskaitė, Irlė. National Museum the Palace of Grand Dukes of Lithuania. Vilnius, Lithuania

Keywords: Archaeology; History of hygiene; Late medieval period

Presentation Preference: Oral

The complex of Vilnian 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 its 8 meters thick in deepest places. The late medieval layers at the bottom are saturated with ground water and are rich with preserved organic artifacts and wooden infrastructure objects. Over 3000 wooden or 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 lenticel 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.) H. Karst) and three – from the wood of fir (Abies alba Mill.), which is not native in Lithuania. One mirror frame had two sockets on opposite surfaces and was made of a cross-section of lime (Tilia sp.) round wood. This frame was decorated with carbon-black triangles. No traces of reflecting plates were found in any case but adhesive paste made of chalk and animal glue was detected in three frames. Fragments of tin used for decoration and also for undefined purpose were found.

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

The use of space at the castles of Östergötland province, Sweden

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

Keywords: Iron nails, Klaipėda 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 of Klaipėda castle. This is one of 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 Klaipėda castle, and also city historical development.

The use of space at the castles of Östergötland province, Sweden

Author: - Dr. Rundkvist, Martin. Umea University, Saltjöbaden, Sweden (Presenting author)

Keywords: Castles, Medieval

Presentation Preference: Oral

A Fief Holder’s Castle.

Case study of Häme Castle in Finnland in the beginning of the 16th century

Author: - Hockman, Tuula. University of Tampere, Finland (Presenting author)

Keywords: Häme castle, Tott family, written sources

Presentation Preference: Oral

This paper is a case study on the significance and value of a castle for a fief holder’s life – using as an example the era of the Tott family in the Finnish castles, especially the fiefs of Lady Ingeborg Åkesdotter Tott (fief holder of Häme Castle 1497/1504–1507) and of Åke Jöransson Tott (fief holder of Häme Castle 1508–1520).

A fief holder’s duties were administrative and military on the level of the realm (as a member of the council of Sweden), as well as the level of the administrative district as in the castle. To be able to take care of their duties, the medieval fief holders also lived in their castles.

The paper is based on the written sources, the letters which are published e.g. in Diplomatarium Fennicum and SDHM (even if the building itself gives inspiration). The aim of the paper is to examine in which way the castle and the life in it is mentioned in the correspondence of Ingeborg Åkesdotter and Åke Jöransson.
**THE SELECTIVE DEPOSITION OF METALWORK IN THE BRONZE AGE: A PAN-EUROPEAN PHENOMENON?**

Saturday, 3 September 2016, 09:00-18:30

**Abstract 01**

**Introduction. The selective deposition of metalwork**

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

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

**Presentation Preference:** Oral

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

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**Abstract 02**

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

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

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

**Presentation Preference:** Oral

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

Among these finds we find a well-preserved wooden stool with Bronze Age carvings from Høstad outside Trondheim, found together with wooden platters and cups probably used in a ritual meal. Although there are differences in how the various objects were treated and deposited, they all seem to follow the same distribution in time, with significant peaks in the late Neolithic/Early Bronze Age (c. 2350- c. 1500 BC) and at the end of the Bronze Age (c. 900-500 BC). Thus, they seem to represent related practices.
TH1-07 Abstract 04
Early Bronze Age metalwork depositions in Denmark
Author - Väser, 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 hoards, on dry land and in burials. However, Denmark is a nomo-metano 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 ideological meanings exists in the area, going back to early archaeologists from the 19th century and their interpretations. Another research tradition distinguishes different categories of non-religious hoards, for example metalworkers’ hoards and traders’ hoards. However, these rigid classifications fail to fully explain these deposition practices.

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

TH1-07 Abstract 05
Horse harness in Late Bronze Age hoards in southern Scandinavia and the southern Baltic area
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 phalerae were in situ on the leather straps allowing a reconstruction of parts of the bridle. Apparently, a similar tradition of deposition took place in a large area corresponding to Southern Scandinavia and the southern Baltic area.

TH1-07 Abstract 06
The metal hoards practice in Central and Western Europe: a statistical and geographical approach
Author - Dr. Bittka, Hildegard, PARI, France (Presenting author)
Keywords: Bronze Age, Hoards, social practice
Presentation Preference - Oral

During my PhD I was able to study and to characterize the hoard practice of five European regions during the Bronze Age. These areas were chosen according to their high number of hoards and their affiliations to different cultural complex or their strategic position. The study focused on: Western Carpathians, the Mitteleste-Balea-Gebiet (central Germany), Denmark, the Burgundy doors (Belgium, Eastern France, south-eastern Germany) and the Amorcan 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 in order to get a picture on the evolved and fragmented objects. However, this fragmentation is relatively marginal since very few hoards have a high level of fragmented objects (the median of the hoards 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 like in the Burgundy doors where they have been deposited in the soil at the top of old springs. Some very spectacular and famous finds have been found in central and northern France, like the Thunholm Sun Chariot and the bronze lures. A strong tradition of interpreting these finds in terms of religious and ideological meanings exists in the area, going back to early archaeologists from the 19th century and their interpretations. Another research tradition distinguishes different categories of non-religious hoards, for example metalworkers’ hoards and traders’ hoards. However, these rigid classifications fail to fully explain these deposition practices.

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

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 undoubtlessly valuable items, thousands of them were deposited under the ground and never picked up again. In this presentation we are going to discuss possible interpretation of these hoards as votive offerings or merchant’s hoards. Attention will be paid also to the chronology and technology of artefacts found in Early Bronze Age hoards.

![Image](https://via.placeholder.com/150)

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. Šumberov, Radka, Institute of Archaeology of CAS, Prague, Czech Republic

*Keywords*: Bronze Age, hoards, Landscape

*Presentation Preference* - Oral

One way to answer questions concerning the selective deposition of metalwork in the Bronze Age is the detailed analysis of the place where metalwork assemblages were deposited. A territorially and chronologically defined sample of such assemblages – hoards – was deliberately selected. We assume that if hoards had differing functions in different periods and/or territories in the past, the data obtained through a single analysis of a de facto heterogeneous set of objects would affect the quality of the final interpretation. Our chosen method, the targeted analysis of a closely-defined set of objects, helps eliminate this risk, and allows the subsequent testing of the newly-obtained data on an ever wider set of objects that seem to show identical features, but have different territorial or chronological ambits. We therefore focused on 31 Urnfield Period hoards recorded to date in the West Bohemia region. For our questions, it is important that 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 landscapes, watercourses and ravines. The connection of West Bohemian bronze hoards to such features indicates their sacral function, likely as votive offerings.

![Image](https://via.placeholder.com/150)

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 study of Bronze Age metalwork in Hungary has a long history; however, it has focussed mostly on typological and chronological issues, within a traditional cultural-historical interpretative framework. The famous hoards of the Hajdú-Istenes, Tolnánmedi
TH1-07 Abstract 15
Late Bronze Age metal deposition practices on the southern outskirts of the Carpathian Basin

Author: Hvoje, Katalin, Institute of Archaeology, Zagreb, Croatia (Presenting author)
Co-author(s): Barkóczy, Péter, Miskolc University, Miskolc, Hungary
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 metallurgy intensified new social practices such as depositing metal objects. The Carpathian Basin is a region with a high density of metalwork hoards present throughout all the phases of the Bronze Age. Its southern edges, the Sava and Drava River Basins, see the peak of bronze object deposition in the Late Bronze Age.

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

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

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

Author: Dr. Kiss, Viktória, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary (Presenting author)
Co-author(s): Barkóczy, Péter, Miskolc University, Miskolc, Hungary
Co-author(s): Majó, Dóra, Eötvös Loránd University, Budapest, Hungary
Co-author(s): Szabó, Gábor, Wosinsky Mór Museum, Székesfehérvár, Hungary
Keywords: Bronze Age, hoards, selective depositions
Presentation Preference - Oral

The standardised structure of the content of the so called Tolnánemedi 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 Tolnánemedi 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 this period suggest another model. We would like to present the reinterpretation of the mentioned hoards concerning the results of statistical analysis of the jewellery types from burials and hoards, examinations of the microstructure of metal finds, and the study of a recently found clay human figurine of the same period with the depictions of the ornaments concerned.

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

Author: Matau, Florica, 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 (LBA). This calls for the analysis of hoards and single finds found in the region in terms of content, treatment, and context of deposition which may later on involve the interpretation of the underlying cycles of activity and the motivation behind deposition.

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

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

Author: Kobal, Josip, Transcarpatian regional museum, Uzgorod, Ukraine (Presenting author)
Keywords: Bronze Age, Metaldeposition, Ukraine
Presentation Preference - Oral

Characteristic feature of the European continent population in Bronze Age is metal works deposition in form of “hoards”. Upper Tisa Region (UTR) is one of the richest in Europe on the finds of “hoards”: nearly 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, N婿eg 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-Füszarabony 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.

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

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

As the title of this session proposes, the deposition of metalwork is one of the defining characteristics of the European Bronze Age. Superficially, certain types of objects were seemingly deposited in similar ways across supra-regional areas, suggesting widely shared socio-ideological practices. 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 the Atlantic Europe in the Metal Ages' to highlight a few of the key patterns
in metal depositional practices between 2600 and 800 BC. From Scotland in the north to Spain in the south, there is marked diversity, but also some striking similarities, in the nature and types of deposition. This will be demonstrated through focusing on specific artefact selections and associations, object biographies, contexts of deposition and their wider landscape relationships. The extent to which transformations in metal deposit refection the fluctuating and volatile nature of metal demand and supply throughout Atlantic Europe during the Bronze Age will also be considered. The intensification or fragmentation of networks of interaction had ramifications on metal flows, and thus also upon the underlying metalwork depositional traditions and the ways in which metal was thought about, used, recycled and deconstructed. A more integrated approach will be adopted to help fine-tune several of the pertinent questions this session wishes to address.

TH1-07 Abstract 20
Structures and function of Bronze Age deposition in Ireland
Author: Dr. Becker, Katharina, University College Cork, Cork, Ireland (Presenting author)
Keywords: Bronze Age, Deposition, Ireland
Presentation Preference - Oral

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

TH1-07 Abstract 21
Creative Destruction - Early Bronze Age deposits in the broader Middle Rhine Valley
Author: 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 depostions. The aim of this research is to identify a potential cogniscible correspondence between the rise and fall of river depositions and dry-land hoards and to reveal if communities in the Middle Rhine Valley shared the same ideology in the practice of deposition.

TH1-07 Abstract 22
Selective Deposition of Metalworking Remains in Bronze Age Britain
Author: Dr. Adams, Sophia, University of Bristol, Bristol, United Kingdom (Presenting author)
Co-author(s): Dr. Wedley, Lao, University of Bristol, Bristol, United Kingdom
Keywords: Bronze Age, Deposition, Metalworking
Presentation Preference - Oral

A range of archaeological records provide evidence for the production of metal objects in Bronze Age Britain, from the extracted ore to the finished objects. This paper focuses on the deposition of the material in between, the copper and bronze artefacts used for and derived from melting, casting and finishing the metal objects: ingots, moulds, casting debris and tools. Just as patterns are visible in the placing of complete and deconstructed objects so too are patterns present in the deposition context and selection processes behind metalworking. By combining the results from a range of collection processes including archaeological excavation and metal detecting surveys 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.
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
Co-author(s): Monteiga Brea, A., Laboratório de Paisagens, Património e Território (Lab2pt), Guimarães, Portugal
Keywords: Bronze Age, Metal hoards, Minho

Deposition of metal artifacts during the Bronze Age is a wider phenomenon attested all over the Europe. Occupying a western end position rich in mining minerals, the North-eastern Iberian Peninsula also witnesses these kind of past societies manifestations during the mentioned period. The present work aims to explore the archaeological remains of those practices in a narrowed part of the Iberia, specifically, in the Atlantic fringe of the North-western Portugal (between the basins of rivers Ave and 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.

Presentation Preference: Oral

The Iberia, 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.

Selective deposition due to ritual intentions has in the last years been identified as a key-concept governing the formation of Bronze Age metalwork assemblages. Especially in regions like the Carpathian Basin, where the transmission of metalwork depends heavily on deliberate decisions on the inclusion of certain object classes in hoards and the exclusion of others, severe repercussions for the interpretability of the archaeological record can be expected. Although widely accepted on a theoretical level, until now the full consequences of selective deposition have not been explored for the southeastern European Bronze Age archaeological record. The present contribution aims to highlight the far-reaching implications of formation processes for dating the earliest appearance of object groups and technological innovations, using the earliest appearance of socketed axes in southeastern Europe as a case study. Socketed axes seem to appear at all once in a hoarding horizon parallelized with the central European phase Bo D. It is argued that selective non-deposition of socketed axes reflects 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

HOarding metal objects is an important ritual practice during the Bronze Age, both in Europe and in the ancient Near East. Yet, context and places of depositions are entirely different. While in the European tradition, remote places near water bodies are preferred, metal objects in the Near East were predominantly deposited within ritual spaces, buildings or real sanctuaries. The Caucasus mountain range is the border between both traditions. This presentation will focus on the different ritual environments of 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 BC) 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 depositions 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 at all once in a hoarding horizon parallelized with the central European phase Bo D. It is argued that selective non-deposition of socketed axes reflects 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 Gilarave-the Mycenaean influence in Kosovo

Author: Prof. Luçi, Kemajl, Museum of Kosovo, Pristina, Kosovo (Presenting author)
Keywords: Necropolis, The middle Bronze Age, the Mycenaean influence in Kosovo

Presentation Preference: Poster

Kosovo’s favorable geographic position in the central Balkans has enabled its connection with neighboring and farther territories, thus making the influence of various cultures possible from the earliest periods. The development of early prehistoric cultures in Kosovo has been sufficiently explored through systematic work. Nonetheless, there is insufficient knowledge on the development of the Bronze Age in Kosovo. With the finding and excavation of the necropolises in Gilarave, important new steps have been made to complete this gap. Excavations in Gilarave have provided the most precise data for solving important problems of the Bronze Age in Kosovo, as well as for the development of period as a whole. Two necropolises have been identified marked as Gilarave 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-rural 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 Gilarave necropolises shows that the Middle Bronze Age in Kosovo had a developed culture with significant influences from, and ties to, Mycenae, as an important social, economic, and political center. Swords, axes, and various types of knives point to the connections with production centers in Epirus and Albania from where the Mycenaean influence expanded through the Drin valley and Vardar depression. Excavations in Gilarave have also given evidence to the beginnings of a stratified society in the area, the formation of a ruling class, and the formation of the Illyrian Dardan “tribe” in the Central Balkans. Thusly, the Bronze Age in Kosovo becomes and important stage in the formation and development of Pale-Balkan peoples, their culture and society.

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
“Multiiessential” 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

“Multiiessential” concept is a model of ancient population worldwide. It was building on Iron Age archaeological sources from Central Asia, especially on so-called “offering” contexts.

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 at all once in a hoarding horizon parallelized with the central European phase Bo D. It is argued that selective non-deposition of socketed axes reflects 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 31
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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)
Keywords: Buildings archaeology, Methodology, Netherlands
Presentation Preference: Oral
Archaeological settlement research in the Netherlands can traditionally be characterised by its coverage of large excavation areas, often yielding substantial numbers of house-plans. This picture is amenable to the Pleistocene sandy soils, where poor preservation conditions enable quick and fairly straightforward documentation of postholes and other, mostly negative soil features. Over the years, numerous typologies have been built up with which to explain regional ground-plan variability and their development through time. But this conventional typological approach has recently been criticised for not having moved beyond basic data classification. Theoretical interpretations, on the other hand, may be said to push forward our understanding of past societies beyond what currently can safely be established on the basis of house-plans alone. How did people truly regard the space under the roof and in what way did their views on sensuality, privacy, teaching, life and death affect the occupants’ choices as architects and interior designers? In this session we seek papers that explore the knowledge about past peoples as they spent and shaped part of their lives in the protected space under the roof. We seek a discussion on the archaeological evidence and the reconstructions of those spaces and how to maintain a sense of academic objectivity throughout the research process. Perhaps an even more ambitious question: through credible architectural reconstructions and our understanding of past home spaces, can we inspire the design of family architecture in a sustainable future?

TH1-08 Abstract 01
Building on buildings: creating a solid foundation for the contextualisation of building remains
Author - M.A. Postma, Daniël, Groningen Institute of Archaeology, Lelystad, Netherlands (Presenting author)
Keywords: Buildings archaeology, Methodology, Netherlands
Presentation Preference: Oral
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TH1-08 Abstract 02
Hands build a house but what makes a home?
Populating space in an Anatolian Early Bronze Age village
Author - Dr. Piccione, Paola, Rome, Italy
Keywords: Anatolia, Early Bronze Age, Householder archaeology
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 the behaviours of the inhabitants, their movements in and out of the houses, and over and under the roofs, imagining smells and noises, evaluating human and animal productivity, understanding uses of space during the snowy winters and hot summers, in an effort to analyse family and community life spaces, commonality and privacy, and the sense of homeliness.

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 tumulus in Kleinklein. Since the publication of the tumulus cemetery by Claus Dobiat in the 1980s and the latest publication of the princely tumulus Küköllög by Markus Egg and Dietther 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 organization. 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 meters length and with still visible architectural elements, the almost complete stamped clay floor under the ruin of 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 for the first time an 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 2014, and put them into the context of the Burgstallkogel settlement.
Interpreting the Archaeological Record

TH1-08 Abstract 04
Creating a home. Ritual practice related to houses in a terp settlement in the northern Netherlands
Author: Dr. Nieuwhof, Annet, University of Groningen, Do Punt, Netherlands (Presenting author)
Keywords: human remains, Northern Netherlands, Ritual practice
Presentation Preference: Oral

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

Ezinge became famous because of the well-preserved remains of 85 longhouses, dating from the 5th century BC until the early middle ages. The lower parts of wooden buildings often were still preserved in situ, revealing the structure of these 3-storied, two-partite houses with busy interiors.

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 bones (probably the remains of the dead which were collected after a process of excavation) were both used that way.

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

TH1-08 Abstract 05
Construction, function and interior design of sunken floor huts in Middle Eastern Sweden
Author: Ekund, Susanna, SAU, Uppsala, Sweden (Presenting author)
Co-author(s): Celini, 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 huts, ground level 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 about 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 dump, constructions, some researchers have argued that these buildings must have been almost unbearable to endure and others think they been inhabited by trolls. The question is, 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, loams, etc. Another study deals with what activities that has taken place in the pithouses. Archaeological analysis combined with osteology and taphonomic analysis have helped us reach further in our interpretations.

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

TH1-08 Abstract 06
The Dark Ages? Light and its absence in medieval domestic spaces
Author: PhD student Qviström, Linda, Stockholm University, Stockholm, Sweden (Presenting author)
Keywords: Buildings, Darkness, Light
Presentation Preference: Oral

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

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

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

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

TH1-08 Abstract 07
Long-houses in east central Sweden during Late Bronze Age
Author: Magnusson, Reidar, Stiftelse Kulturmiljövärds, Upplands Väsby, Sweden (Presenting author)
Keywords: Interpretation, Late Bronze Age, Long-houses
Presentation Preference: Oral

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

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

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

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

TH1-08 Abstract 08
The use of architecture as cultural and socially discriminators in Iron Age Denmark
Author: PhD Hawe, Niels, Historical Museum of Northern Jutland, Aalborg, Denmark (Presenting author)
Keywords: Buildings, Community organization, Settlement
Presentation Preference: Oral

Most of the Iron Age Houses in Southern Scandinavia shows an invariable construction that only allows minor differences in the architecture of the individual house. The houses are three-aisled, east west oriented and divided into a stable in the east and living area in the west. However, in rare occasions the alignment and the interior design of the house is fundamentally different. This paper will address whether these differences should be explained by functionally or economically patterns, or rather as a deliberate discriminator in a social-cultural and ideological context? The paper will present how architecture was used to express and manipulate identity and social groupings in the settlement, and discuss what the consequences of the “distorted” space within the house could have.

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

Author - Dr. Nylander, Nials Aligned, Museums of South West Jutland, Ribe, Denmark (Presenting author)

Keywords: Domestic activities, Iron Age, Settlement Archaeology

Presentation Preference - Oral

This paper will discuss the evidence of domestic activities in the Early Iron Age (500 BC - 150 AD) farmsteads of Western Denmark. The Danish evidence of daily life and domestic activities can roughly be divided into two: Evidence from well-preserved settlements with preserved cultural layers excavated in the 1920s to 1950s and evidence retrieved from settlements leveled out below modern day plough soil. The former has the advantage of in situ evidence of daily activities on the preserved floors while the latter 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 generalised 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 stabling livestock. However, during the Early Iron Age some activities, both specialized crafts and to some extent food preparation are moved into nearby outhouses and the fenced of interior of the farmyard as the farmsteads grow in size.

During the period under consideration the reappearance 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 entrances, decorated hearths and fenced of farmyards. Individual househoulds may through a more elaborate use of these architectural traits and votive deposits have created a sense of homelessness 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 Silchester, UK

Author - Dr. Banerjea, Rowena, University of Reading, Reading, United Kingdom (Presenting author)

Co-author(s) - Fulford, M. G., University of Reading, Reading, United Kingdom

Co-author(s) - Clarke, A. S., University of Reading, Reading, United Kingdom

Co-author(s) - Bamfield, 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 subject to re-use as super-structure components can often be ephemeral as these properties have timber or earthen walls, which are frequently subject to re-use as super-structure components. Moreover, the re-use of building materials is a widespread phenomenon in Roman 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 closely spaced rooms 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).

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 highlight the difference made to 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 closely spaced rooms 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.

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

Author - Dr. Magureanu, Andrei Mircea, Institute of Archaeology Vasile Parvan, Bucharest, Romania (Presenting author)

Co-author(s) - Dr. Ciuperci, Bogdan, History and Archaeology Prahova County Museum, Ploiești, Romania

Keywords: Early middle age, family space, community space, house, settlement

Presentation Preference - Oral

The archaeological discoveries from 5th-10th centuries from the Lower Danube Region are numerous enough to sustain a discussion about what is family space and what can be considered the community space. This discussion is based on two concepts: house and settlement/village.

The problem is what can we interpret as a house and what we can consider a settlement. Generally, the archaeological reports described only similar constructed structure, settlements from this time frame seem 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 habituated 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
how those can help us to understand the family space? can we definitely separate this space from the community one? where those spaces interact and where those are divergent, if they are? architectural differences between the structures of the same village can suggest if there are some parts of different spaces? are still important and, in our paper, we intend to propose some possible responses.

TH1-08 Abstract 14

Beyond the cone: possibilities for exuberant buildings

Author - McCullogh, Roderick, Historic Environment Scotland, Edinburgh, United Kingdom (Presenting author)

Keywords: architecture, evidence, reconstruction

Presentation Preference - Oral

Taking inspiration from the recent discovery of “painted” walls on Neolithic buildings at two sites in Orkney, this paper argues that buildings could be “traditional” and functional but on occasion, exuberant. A casual view of the reconstructed architecture of Th1 would see an homogeneous dominion of the conical roof. This may represent the best fit of technology to need and circumstance but in many other aspects of life, seen through preserved archaeological fragments, we can see an exuberance of design and masterful display of skill.

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

TH1-08 Abstract 15

Reconstruction of Neolithic dwellings.

On the materials of North-West Russia (Smolensk region)

Author - Khristaleva, Irina, The State Hermitage museum, Saint-Petersburg, Russian Federation (Presenting author)

Keywords: Dwellings, Graphic reconstruction, Neolithic

Presentation Preference - Poster

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

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

The appearance of settlements and dwellings largely determined by the type of economy. This involves determining number of inhabitants of the settlement and each dwelling, the location of settlements in places that were convenient for fishing, the necessary raw material production (stone, flint, clay, etc.), hunting, grazing, etc. This also explains the functional differentiation of settlements, both settlements of fishermen, hunting camp, etc. and buildings (household, living and industrial). In addition, domestic production activities (ceramic production, bone 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 justifications of the constructions remains on the archaeological site is a difficult goal to achieve; it's necessary to define the features that can distinguish the remains of objects. The first feature includes structures which can be defined as area of the cultural layer different from the surrounding space. The differences may be in color of the cultural layer, in the presence of bone, stone, wood remains or decay laying in an order; remains of hearths and fireplaces. Specific set of tools can be an indicator of unpreserved 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 of settlement situated in sandy sediments is in the absence of organic materials. The pits are determined because of their darker filling, different from the color of the surrounding cultural layer. Fireplaces and hearth are detected due to their structures (for example, plates of stone), and caltared sand, characterized by reddish or grey ash interlayer.

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

TH1-09 Abstract 01

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

Author - Dr. Oikonomou, Artemios, University of Nottingham, Nottingham, United Kingdom (Presenting author)

Co-author(s) - Dr. Oikonomou, Artemios, University of Nottingham, Nottingham, United Kingdom

Keywords: Epidos, Greece, Hellenistic glass, scientific techniques

Presentation Preference - Oral

Dodona Sanctuary was the major religious centre of north-west Greece, in the Epirus region, connected with the cult of Zeus Dodonias 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, particularly Alexandria in Egypt, is well attested both archaeologically and historically. Our presentation will focus on glass found in the excavations of Pythianae and Vouleutirion which were the major political buildings at the Dodona Sanctuary.

Our primary research objectives were: (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. In order to achieve these aims we combined both classical and modern analytical techniques, such as chemical analysis (conventional microscope, inverted microscope, visible spectroscopy) and other instrumental methods (scanning electron microscopy, Raman spectroscopy, X-ray diffraction).

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

According to the chemical analyses, the glass from Dodona is a typical soda-lime-silica type with added mineral salts (natron) as a flux. Its chemical compositions are homogeneous. Small differences in various major, minor and trace elements appeared in the 3rd cent. BC: the glass bracelet, a cultural and temporal landmark of the Iron Age (La Tène) civilisation.

The multiplicity 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, ethnoarchaeology and archaeometry as well as technological or spatial studies.

TH1-09 Abstract 08

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 - Shenery, Simon, University of Nottingham, Nottingham, United Kingdom (Presenting author)

Co-author(s) - Shenery, Simon, University of Nottingham, Nottingham, United Kingdom

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 civilisations to European societies, a trade with glass beads and, later on, also with glass vessels and raw glass was set up. Glass-working developed in the Hellenistic world and also in the Iron Age Europe. A new object appeared in the 3rd cent. BC: the glass bracelet, a cultural and temporal landmark of the Iron Age (La Tène) 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, ethnoarchaeology and archaeometry as well as technological or spatial studies.
TH1-09 Abstract 02
An Eye for an Eye bead: Early Iron Age glass from Lika, Croatia

Author - Franjo, Ana, University College London, London, London, United Kingdom (Presenting author)
Co-author(s) - Freestone, Ian, University College London, London, London
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 laurecuses, an Iron Age group inhabiting the area from Central Croatia to the Una river valley in Bosnia and Herzegovina.

So far, laucadean material culture has been studied in the cultural-historical manner, with the focus predominantly on chronology and typology. Production, technological networks and glass use have received little discussion apart from conjectures that these beads must have been of local production due to their perceived basic production requirements, their abundance in various local regions, and no analogous productions in the neighbouring regions. This study builds on the typological analysis (and a few AAS measurements by Braun in 1983), tests the hypothesis of local production, and evaluates prior conclusions about the manufacturing conditions of 43 sampled beads by looking into their chemical composition with SEM-EDS and EPMA instruments.

The study shows how archaeometry can assist in providing a clearer picture of prehistoric production, use and trade of prestige materials. The prior hypothesis about the vitreous material is largely disproved: rather than being glass paste, the beads are in fact a transitional phase between glass and faience, and the yellow decoration is not painted on but made of true glass. The two types of glass, and the raw materials used for their production, are very different: the yellow glass is probably imported as ingot, while the cobalt blue possibly indeed locally produced. Furthermore, the archaeological context allows a discussion of the beads’ meaning and use. Their distinct appearance was intentional, possibly in order to reinforce the identities of the laucadean group. Although the laucades were importing glass from their well-known glass-producing neighbours of the Lower Carroila group, they still held on to this particular type of bead.

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

Bibliography:


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

Author - curator Dirmir, Ivo, Archaeological museum in Zagreb, Zagreb, Croatia (Presenting author)
Co-author(s) - Franjic, Ana, ICL, 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 laucades in Lika, Croatia, and the Lower Carroila 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 have been properly documented in their context during the 2015 excavation of the Pogorelac site, situated at the right bank of the river.

The glass artefacts will be presented according to their typological and chronological parameters, and manufacturing techniques. In order to gain further insight into the use and trade of prehistoric glass in Slavak, 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 (strawberry eye beads, globular translucent light green beads, dark opaque beads with linear decoration, barrel-shaped and conic core-shaped beads with protruding decoration, blue globular beads with wavy linear decoration) and bracelets (all blue in colour, but of various shapes: with smooth D cross-section, with three ribs, with five ribs – the 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 (Halstatt) as opposed to the Late (La Tène) Iron Age, as well as the differences in the chemical compositions of glass beads and bracelets. Bracelets appear in this area around the third century BCE and are connected with the arrival of Celtic groups, which could potentially signal 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, Praha, Czech Republic (Presenting author)
Co-author(s) - Dr. Schäfer, Andreas, University of Bamberg, Bamberg, Germany (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. Schaefer, Andreas, University of Bamberg, Bamberg, Germany (Presenting author)
Co-author(s) - Dr. Schäffer, Ian, University College London, London, London
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 carried out on the largest sample of bracelets and beads so far 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 Manching 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 backscatter 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 Roland, Joëlle, UMR 8215 - Trajectoires, University of Paris 1, Nanterre Cedex, France (Presenting author)
Co-author(s) - experimentations, LA-ICP-MS, La Tène Glass
Keywords: experimentations, LA-ICP-MS, La Tène Glass
Presentation Preference - Oral

These results are promising for the question of the transfer of knowledge and technology in the Hellenistic world but also for the local evolution of glass production in the Eastern La Tène Culture Province.
Romano-British glass bracelets: where La Tène continental technology meets Iron-Age British design

Author - Dr. Ivleva, Tatiana, Newcastle University, Newcastle upon Tyne, United Kingdom (Presenting author)

Keywords: glass bracelets, Iron Age technique, Roman Britain

Presentation Preference - Oral

The aim of this paper is to bring the 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 stand out in the Continental La Tène bracelet production technique compared to bracelets made on the Continent. The start of the production of the seamless glass annulars in Britain corresponds with the decrease in the circulation of these glass adornments on the Continent. In the late first century BC, the Continental glass bracelets gradually stopped being produced, yet the craft reappeared in Britain, which had no history of glass bracelets’ production prior to the Roman invasion of Britain in AD 43. The presentation attempts to answer the question as to where the inspiration and skills for the British glass bracelets came from by discussing their production technique.

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

The paper presents, therefore, a case-study for the interaction between craftspeople 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.

Presentation Preference - Oral

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

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

Keywords: glass, Ireland, Iron Age

Presentation Preference - Oral
Sandwich gold-glass: elitist glass production in Hellenistic Mediterranean

Author - Cesarin, Giulia, Universität zu Köln - Archäologisches Institut, Cologne, Germany, Castoria di Strada, Italy (Presenting author)
Keywords: Hellenistic glass, Mediterranean, Sandwich gold-glass

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

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

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

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

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

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

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

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

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

The recognition of the workshops location on archaeological basis, also through the comparison with other contemporary productions (such as silverware, faience, pottery), remains difficult. Nevertheless, the presence of few highly-specialized workshops in the Eastern Mediterranean basin (Alexandria, Aegaean, Syria-Palestine) seems the most reliable hypothesis. The particular lavishness and rarity of these vessels and their meaning as status-symbol allowed also an analysis of the socio-economical dynamics, related to the diffusion and consumption of these luxury items, expression of an extremely restricted elite.

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TH1-10 Abstract 02
Between the forest and the river: hunting and fishing in the Danube Gorges in the Mesolithic

Author - Znajdelij, Ivana, Laboratory for Bioarchaeology, Belgrade, Serbia (Presenting author)
Co-author(s) - Dimitrijevic, Vesna, Laboratory for Bioarchaeology, Belgrade, Serbia
Co-author(s) - Stefanovic, Sofija, Laboratory for Bioarchaeology, Belgrade, Serbia

Keywords: Fishing, Hunting, Mesolithic Danube Gorges

Presentation Preference - Oral

Ever since the discovery of the site of Lepenski Vir, it was recognized that fishing had an important role in the settlement of the Danube Gorges during the Mesolithic. The importance of wild game hunting has also been confirmed by the analyses of animal bones and emphasized ever since the first published archaeozoological reports. The issue of the role of terrestrial vs aquatic resources in the diet has been addressed from the perspective of stable isotope analysis, with somewhat contrasting results. The analyses of stable carbon (δ13C) and nitrogen (δ15N) isotope ratios have suggested that the Mesolithic inhabitants of the Danube Gorges consumed considerable amounts of fish, with gradual broadening of the dietary spectrum to include terrestrial resources at the onset of the Neolithic (Bonsall et al. 1997; 2000; 2004; Grube et al. 2003; Bond et al. 2004), whereas the analysis of sulphur (δ34S) has suggested that there were significant inter- and intra-site variations in dietary practices (Nehlich et al. 2010). However, this issue had not so far been addressed in greater detail from an archaeozoological perspective, mainly due to great difficulties and biases in cross-referencing quantified mammal and fish remains, but also due to the fragmentary nature of faunal assemblages from some of the sites. Although assessment of the precise proportion of wild game meat vs fish in the diet is elusive, particularly owing to the differences in mammalian and fish skeletons, and biases affecting their survival and recovery, we have attempted to address this issue by estimating their dietary contribution and nutritional potential on the basis of the sum of average weight of the minimum number of individuals for both mammals and fish. In addition, we estimated the proportion (size and number) of the economically most important fish (pimponds, Wels catfish and acipenserids) in the assemblages from the sites of Lepenski Vir, Vlasac and Padina. Even with methodological biases concerning recovery techniques employed during the old and new excavations, and different areas of the sites they encompassed, we found that fish species composition on the three sites varied to some extent. Given the site locations, their short distance from one another and similar landscape and environmental conditions (vicinity of cataracts and large whirlpools), this propensity towards fishing particular kinds of fish could suggest that the sites functioned as specialised fishing centres, and held different species of fish in special regard.

TH1-10 Abstract 03
Mesolithic boar tusk processing in the Iron Gates: a typological and experimental approach

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Keywords: Mesolithic, Sus scrofa, tusk

Presentation Preference - Oral

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

* This work was supported by a grant of the Romanian National Authority for Scientific Research and Innovation, CNCS – UEFISCDI, project number PN-III-P1-2016-0128.

TH1-10 Abstract 04
Icoana revisited: an archaeozoological perspective

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Keywords: Mesolithic, archaeozoological remains, food refuse

Presentation Preference - Oral

The first study of the archaeozoological remains from Icoana was made 40 years ago by Alexandra Bolomey. The importance of this settlement led us to re-examine all the faunal material using methods such as slaughtering curves, ageing and sexing, biometry, cut marks, butchery patterns and palaeoethnics. This has resulted in a new interpretation of the local fauna and of Mesolithic hunting activities. All the remains are interpreted as food refuse, with high fragmentation ratios. The list of taxa identified includes molefuscus (11 species), fishes (1), reptiles (1) and mammals (16). The assemlage is dominated (93.5%) by wild mammals, with over 4300 identifiable specimens. Sus scrofa (wild boar) dominates, followed by Cervus elaphus (red deer) and Capreolus capreolus (roe deer). By weight, deer remains are the most important, followed by wild boar. Other taxa represented are Rupicapra rupicapra (chamois), Bos/Bison (aurochs/bison), Ursus arctos (brown bear), Canis lupus (wolf), Vulpes vulpes (red fox), Meles meles (European badger), Lutra lutra (European otter), Martes sp. (marten), Felis silvestris (wildcat), Lynx lynx (lynx), Castor fiber (European beaver), Lepus europaeus (European hare). The dog (Canis familiaris) is the only domestic mammal present in the site. Cut marks identified on the bones show that dog contributed to the food supply, which was also observed in the archaeozoological levels at Lepenski Vir, Vlasac and Padina.

* This work was supported by a grant of the Romanian National Authority for Scientific Research and Innovation, CNCS – UEFISCDI, project number PN-III-P1-2014-9680.

TH1-10 Abstract 05
Operational strategies, animal environment of the Low Povolzhye last hunters and first breeders

Author - Vlbomor, Aleksandr, Samara State Teachers University, Samara, Russian Federation (Presenting author)

Keywords: cattle breeding, hunting, Low Povolzhye

Presentation Preference - Oral

The Low Povolzhye 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 steppic 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 lance and segment shapes were used as arrowheads. Fish bones, including carp, pike-perch, pike and sturgeons, were found at individual sites near the river.

There are solitary records of turtles. The only domestic animal was dog. Hunting and fishing took place all year round. Huntiocity 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 of 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 Khvalynsk culture mammal remains (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.

* For the project 33/195: 2014 K.

TH1-10 Abstract 06
Use of beavers and bone industry in the Late Mesolithic – Early Neolithic site of Zamostje 2

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Keywords: beaver exploitation, bone industry, Mesolithic

Presentation Preference - Oral

There are solitary records of turtles. The only domestic animal was dog. Hunting and fishing took place all year round. Huntiocity 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 of 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 Khvalynsk culture mammal remains (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.

* For the project 33/195: 2014 K.
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 for fishing. The site of Zamosc 2 was located in the centre of a wide lake plain in a former glacial basin. Cyclic fluctuations of the palaeolake level and a gradual change of the landscape did not influence subsistence strategies of ancient inhabitants greatly, in spite of the appearance of pasture raising technologies. Basal hunting always occupied an important place in the subsistence activity of the Zamosc 2 inhabitants. The bone industry includes hundreds of implements made from beaver jaws and incisors, used as woodworking tools, as well as ornaments and pendants. In spite of pronounced changes in cultural traditions over more than 2000 years, the main principles of production and the shaping and final use of the tools made from beaver jaws remained the same. This is, as well as some other specific types of bone tools, typical of the Upper Volga region, raise the question of how an ecological niche influenced some aspects of human activities and the rational use of natural resources.

TH1-10 Abstract 07

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

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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, muflos 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 ornament, etc. Furthermore, a certain diversity among different Early Neolithic communities may be observed, especially in the ratio of antlers; in some sites, antlers are represented, whereas in others they are almost completely absent. To some extent, this is related to the immediate environment, but also is connected with differences in economic activities and local cultural preferences.

TH1-10 Abstract 08

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

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Presentation Preference - Oral

The contribution of animal domestication to the socio-economic changes in the Iberian Peninsula during the spread of the Neolithic in the first half of the Holocene is indisputable. Animal domestication was a transcendental turning point in the management of animal resources. Among the domesticated species, pigs were an important food source. However, it is difficult to discriminate between domestic (S. hispanica) and wild (S. scrofa) species in the faunal assemblages of this period. Several methodological approaches have been applied to address this issue, the most common being based on morphological and biometric criteria. Stable isotope analysis of bone remains can also provide valuable insights into human–faunal interactions, while offering new perspectives on animal domestication. Here we present the results of an integrated study involving carbon and nitrogen stable isotopes, slaughter pattern, morphometric and biometric analysis of wild and domestic pig assemblages from the northeast Iberian Peninsula, dated between 5700-4800 cal BC. This multidisciplinary approach aims to (i) evaluate changes in pig management and exploitation strategies, and (ii) assess the broad social and environmental implications during the Early Neolithic in the northeast Iberian Peninsula. Our results indicate that the diet of S. 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.

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)
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Presentation Preference - Oral

Regularly, aurochs were present in the Central Balkans during the Late Pleistocene, as can be judged from the faunal remains from Palaeolithic sites and alluvial deposits. The steppe bison, another large bovid of comparable size and ethology, was more frequent. Its prevalence is documented both by the number of sites where its presence has been confirmed, and by the ratio of bison and aurochs remains at sites where both species were found.

TH1-10 Abstract 10

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

Author - Ritchie, Kenneth, ZBSA, 8ast, Denmark (Presenting author)
Co-author(s) - Cooper Age, fishing, Romania

Keywords: Cooper 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 renascent exploitation of wild animals in the subsistence economy (although domesticated animals continue to be important). Since 2002, excavations at the site of Pietrele, Romania (on the floodplain of the Danube River) have produced abundant evidence of the exploitation of fish and other aquatic animals both in the form of faunal remains and some of the technologies used to procure them. Although examples of very large catfish and cyprinids are common in the assemblage, wet sieving of soil samples has also revealed the presence of numerous bones from very small fish, indicating a very intensive exploitation of aquatic resources by the site’s occupants. Understanding the fishery is essential to understanding how the settlement was provisioned and to questioning why wild resources once again became so important at some locations during the Copper Age.
TH1-11 Abstract 01

Emergence and Downfall of Viking Towns:
The Concealed Phases within the Archaeological Record

Author - Dr. Kalmring, Sven, Centre for Baltic and Scandinavian Archaeology (ZBSA), Schleswig, Germany (Presenting author)

Keywords: Concealed Phases, Urbanisation, Viking Towns

TH1-11 Workshop

BETWEEN LANDING SITE AND VICUS - BETWEEN EMMORIUM AND TOWN. FRAMING THE EARLY MEDIEVAL URBAN DEVELOPMENT

Saturday, 3 September 2016, 09:00-18:30
Faculty of Philology, Room 118

Author - Kalmring, Sven, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany

Co-author(s) - Tyn, Dries, Free University of Brussels, Brussels, Belgium
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Co-author(s) - Crabtree, Pam, New York University, New York, United States of America

Keywords: early medieval, urbanisation

Workshop

Urban development is one of the most pressing topics within Early Medieval archaeology. Among scholars there is heated debate about how to think about and study these urban places before the emergence of “proper” High Medieval towns. Strategies range from analyses of Latin vocabulary from contemporary historical sources, to the application of Polanyis’ concept of “ports of trade”, to the use of neologisms such as “early towns” or “proto-towns” or lately the simple designation of “Viking-age towns” or “towns of the age”. However, apart from a few exceptions (e.g. the works of R. Hodges or J. Calmer), discussions soon turn into debates over terminology rather than on the actual nature of these sites, and most studies have fall in one declarative way: the sites under discussion are treated as monolithic entities instead of dynamic environments with distinct development phases and different characteristics over their often considerable periods of existence.

Archaeologically, this misconception is often predicated on the mid-phase of an urban development, which has been taken as representative for the site as a whole. Being covered by metres of cultural layers, a search for these settlements’ spatially limited roots can literary turn into a quest for a needle in a haystack. The latest Early Medieval developments on the site will be framed in wider discussions of landing places and urban settlements in northwestern Europe. This will be done in reference to the dynamic coastal landscape in which this site was located, which during the period under consideration developed from a remote barrier island in the Scheldt estuary, backed by an inhospitable tidal marsh, to the dune belt of a large island rich in sheep-grazing grounds. It will be argued that the site’s occupation history, in particular its final phase and ultimate disappearance, was determined to a large part by regional socio-political developments, in turn tied to much broader cultural and political changes in the North Sea area.

TH1-11 Abstract 02

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

Author - Dr. Deckers, Pieterjan, Vrije Universiteit Brussel, Etterbeek, Belgium (Presenting author)

Presentation Preference - Oral

Walichrum, situated near the present-day town of Domburg (Netherlands), is often referred to as one of the later 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 defined some of its early significance as a trading site from this. Similarly, the site’s subsequent decline, the falls down the Carolingian rule, from the second half of the 9th century onwards, has been neglected. Previously, it was thought that the site was abandoned in the latter 9th century, a few decades after a recorded Viking raid in AD 837. However, the re-evaluation of the evidence brought to light late 9th- to 11th-century material attesting to continued activity. This, in turn, necessitates a renewed assessment of the relationship with the nearby ringfort of Domburg. Previously the fort was thought of as a successor to Walichrum, the refuge of the latter’s inhabitants in the politically unstable post-Carolingian period.

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

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

TH1-11 Abstract 03

Bypassing monolithic entities: diachronic and spatially informed approaches to early medieval towns

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Keywords: early medieval, geoarchaeology, urbanisation

Presentation Preference - Oral

The settlement areas of early medieval towns have in the past been subject to generalisations interpretations of their character, layout and function. Changes in the towns’ dynamics over generations of town dwellers have not 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 spits, while an opposite reflex is necessary to produce a clearer phasing of each separate case. Before comparisons are made, the individual life trajectory of each town should be understood to its fullest.

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

With current geoarchaeological methods, it is possible to record and interpret separate phases of each town in more detail, to collect finds accordingly and source dating materials more securely. It is also possible to add information about well-dated but unclear phases of the towns, such as in the case of homogeneous deposits, so-called dark earths. The latter often occur precisely at the beginning and perceived end of early medieval towns, making their interpretation a challenging endeavour. Not every single layer is present - or nuance is captured by geoarchaeological 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 interpretative value, and, if integrated into the research project design from the very beginning, provides a way to contextualize 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 Leonards, Australia (Presenting author)
Keywords: early medieval, settlement patterns, urbanism
Presentation Preference - Oral

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

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

How did Venice’s urban landscape look in the 9th century? Venice suffers from its own legend. The materiality of the rising Venice has been generally perceived as sites without time and space, where a fully established myth describes the origin of the city. The Venetian lagoon, in fact, was the place where the noble Romans sought refuge from the barbarian hordes: they had been forced to move to unwelcoming areas along the mainland to be free and safe. In the islands the newcomers were able to rebuild a place that - according the historic narratives - was ideologically and materially comparable to the old Roman sites. The uncoined wooden structures of the early medieval houses, for example, have been described as a poor reaction to a sudden demand for an important archaeological assessment, on the contrary, has shown how these buildings were comfortable and perfectly designed for the lagoon environment. Clay foundations and wood structures were technically appropriate for a cold and humid setting. The choice of the lagoon itself was not forced. The settlement patterns were not extraordinary, but followed precise social and economic designs. The settlement followed the movements of the lagoon and the river mouths: the first Venetians tried to occupy the more distant inlets in order to control both the maritime and the riverine sailing routes. Artisanal productions (glass goblets, parchments, metal crafts) were not subsistence economies: the emporia layout of the sites allowed the circulation of raw materials, techniques and skilled people. Venice was a proto-capitalistic site. A large part of the production (shipyard, timber industry, glass and metal productions, etc.) was made by labour forces with a status very similar to slaves. Probably, also, slaves were one of the most valuable goods, which the Venetians traded with the Islamic world. But slaves, dirty workshops or labour class issues are not good ingredients for the myth of the origins or for the official history of a superpower state. Venice proudly defined itself from the very beginning as a democracy and a free republic: Venetians needed a respectable and glorious past, and they made it up, reshaping also the “idea” of the early city. The idea of the early Venice, moreover, cannot be separated from the present. Traditional archaeology, instead, has studied it as phase of the previous roman past. The archaeological study of its urbanism should be considered in the counter light of the fluid social negotiations that took place around a very specific environment, creating polylocal sites, which will be cities in the following centuries.

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

Venice was one of the most important cities in Europe in the late Middle Ages and the Modern era, when it formed an independent state which controlled trade across the Mediterranean and towards the Levant. A myth of Venetian uniqueness has been cultivated by local historians and international specialists which has always attributed to the town the lagoon an innate and unique vocation for political autonomy and trade. This in fact is only partially based on historical facts. Although some exceptional elements are observable - such as the local government of the Venetian public assembly (placitum) and the amphibian nature of the settlement - the economic role of Venice has been overestimated at least as far as the Early Middle Ages is concerned. In the 9th and 10th centuries the apparently novel appearance of Venice on the Italian political scene and the associated emergences of the Venetian public assembly probably over by the dux has numerous parallels in other parts of Italy where several urban communities, mostly represented by their oasis claims to act as social and political entities at the same time. In addition, the region around Venice demonstrated its own economic vitality with other towns competing for the control of the Adriatic sea well before the 9th century by engaging in maritime and artisanal activities remarkably similar to those of other settlements in Northern Europe, which archaeologists such as Chris Loveluck and Wil Bowden usually call emporia. Moreover, some recent reconstructions suggest that the rapid growth of Venice in the 8th and 9th centuries can be explained by the conjunction of the contemporary success of the Carolingian empire which increased demand for luxury goods with Venice’s special location on the sea near a great river delta (the Po). Although it is likely that the convergence of both these factors had played a major role in the sudden development of the city, it is often forgotten that Venice shared the same ecological position and the same economic system with many other trading towns at least in this earlier period.

These facts pose other challenges to the traditional triumphalist explanations. Why did Venice enjoy a more durable success in a 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 exceptionality in terms of population size, accumulation of wealth and socio-economic development.

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

A huge archaeological material testifies that the origins of urbanization in Western Siberia should be associated with the formation of ancient fortified settlements - fortresses which appeared on this territory in the Bronze Age and protocities formed in the early Iron Age. The first simple fortifications in the form of stockades or fortified dwellings in the forest-steppe zone of Trans-Urals are fixed on the materials of the Bronze Age monuments (the II millennium BC). During this period their number was insignificant, the bulk continued to be unfortified villages. Increase in the number of fortified settlements was greater in the transition period from bronze to iron (the 2nd quarter of the 1st millennium BC). They were round-oval in shape towns with area up to 4 hectares. There were major and minor around them. The circularity of the place was pretty fortified fences. The appearance of first fortifications is connected with the destabilization of the political situation in the region as a result of the influx of migrants from the North of Western Siberia. Then the strengthening of the village with a palisade or a fence was not defensive but probably ideological in nature. The aim was to preserve the In the early Iron Age the middle of the 1st millennium BC - the middle of the 1st millennium AD) the number of settlements increases. In the forest-steppe zone of Trans-Urals they number more than 100. One-third of excavated settlements are multicultural, from 15 to 20 fortified settlements belonged to carriers of certain traditions. Within this period the dynamics of formation is well tracked. Fortification of early stage continue the tradition of the transition from bronze to iron time. Archaeologically they are fixed in the form of small grooves on the perimeter, holes for posts, charcoal and traces of burnt wooden structures in the embankment of the earthen rampart. They are reconstructed as a hedge of stockade fence around the residential area. Most of them could not perform a defensive function. Already at that time there is specialization of fortified settlements as centers of metalworking, import, exchange, cooperation of multicultural population. By the 5-3 centuries BC increasing complexity of fortifications is recorded. The number, height and power of the earthen ramparts with wooden fortifications in the form of the palisades, fences, walls, towers and surrounding ditches are increased. There is not only a general tendency to strengthen the fortifications, but also to the complexity of their structure: double-, triple area settlements are emerging. The search for new forms, combinations of known elements and structures to enhance the overall defense capability is noted. The materials of some fortresses are perfectly designed for the lagoon environment. Clay foundations and wood structures were technically appropriate for a cold and humid setting. The choice of the lagoon itself was not forced. The settlement patterns were not extraordinary, but followed precise social and economic designs. The settlement followed the movements of the lagoon and the river mouths: the first Venetians tried to occupy the more distant inlets in order to control both the maritime and the riverine sailing routes. Artisanal productions (glass goblets, parchments, metal crafts) were not subsistence economies: the emporia layout of the sites allowed the circulation of raw materials, techniques and skilled people. Venice was a proto-capitalistic site. A large part of the production (shipyard, timber industry, glass and metal productions, etc.) was made by labour forces with a status very similar to slaves. Probably, also, slaves were one of the most valuable goods, which the Venetians traded with the Islamic world. But slaves, dirty workshops or labour class issues are not good ingredients for the myth of the origins or for the official history of a superpower state. Venice proudly defined itself from the very beginning as a democracy and a free republic: Venetians needed a respectable and glorious past, and they made it up, reshaping also the “idea” of the early city. The idea of the early Venice, moreover, cannot be separated from the present. Traditional archaeology, instead, has studied it as phase of the previous roman past. The archaeological study of its urbanism should be considered in the counter light of the fluid social negotiations that took place around a very specific environment, creating polylocal sites, which will be cities in the following centuries.
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 Sarnk-belaya Veshcha, Pravobebrzheznoy Tsarninskoye gorodishe (urban development), and Semkarakorskoye gorodishe. Numerous urban developments in the adjacent areas of the foreststeppe Podorone (the Don basin valley) and Prilezhevoye (the Dniepr basin valley) dating to the Chasarian epoch and later (the Sarmatian and the Heracleian epoch) also produce evidence of the material culture of the Don Alan, Bulgar, Oguz, Pecheneg, and Slavs. Those of the Crimea and the Northern Caucasus associate with the culture of local sedentary populations who were agrarians. Only those sites that are located between the Don and the Volga belonged to the Chasarian Kaganat proper, hence it is these urban developments that can be related to ethnic Chasarians. The last decades saw simultaneous discoveries of several sites of the Chasarian Kaganat in the Volga–Don steppes. In the late 1990s at a kilometer distance from the Pravobebrzheznoy Tsarninskoye gorodishe an urban development was opened, which contained the ruins of a house and a gate in a fortification wall. One of the stone blocks displayed a tanga of a typically Chasarian shape. The new fortress got the designation of Sarkel-3 as a part of the whole agglomeration complex that includes also Sarkel and Pravobebrzheznoy Tsarninskoye urban developments. At the same time a Chasarian epoch tower was opened under the layers of the Golden Horde urban center on the site at the village of Samoselkha in the Volga estuary. According to the archaeologists that led the excavations, the geographical position and the character of the constructions of the Samoselkha tower layer suggest that these may be the remains of the town of Illit. In 2008 followed the opening of the Bashanta gorodishe that contained the ruins of constructions made of white clay shell stone and tile fragments parallel to those found in late Chersoneseus on the Crimean peninsula (Jacobson, 1958, 1964). One of the Stone blocks also had a tamba cut out in it. According to two radiocarbon dates (620-655 at 68.3% and 600-662 at 95.4) and (672 - 782 at 90.6%), resulting from the analysis carried out by Libnitz Laboratory of the Kiel Institute of Archeology, Bashanta turns out to be the earliest of the urban developments in the East European steppe dating to the time of the Chasarian Kaganat. The excavations of 2000-2005 of a number of late medieval urban centers and developments in the Lower Volga, undertaken by the Khalilov Institute of Archeology of the Tartarstan Academy of Sciences, resulted in discovering cultural layers dating to the late medieval period. As a number of the recovered finds show, the time of the most complex cultural layers lies in the time of the Chasarian Kaganat. Thus, further effort along the lines will contribute to an understanding of early medieval urbanism in the archaeology of Europe.
TH1-11 Abstract 12

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

Author - Prof. Þóra Þ. Hallgrímsdóttir, Gáisar Íslands, Reykjavík, Iceland (Presenting author)
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Keywords: Iceland, Medieval, Trade

Presentation Preference - Oral

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

TH1-11 Abstract 13

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

Author - Dr. Mägi, Marika, Tallinn 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 two present-day Eastern Baltic capitals, Tallinn and Riga. Both of them were founded as towns in the first quarter of the 13th century; however, it is at first glimpse the two cities’ differences that stand out. Quite a number of 12th-century archaeological remains have been uncovered in Riga, while in Tallinn no pre-13th century archaeological layer has been demonstrated below streets and walls of the Old Town so far, despite of numerous archaeological excavations. However, settlement remains were recorded a couple of hundred meters away from the Old Town of Tallinn. A closer look also reveals other similarities in the natal phase of Tallinn and Riga, e.g. adjacent hill-forts and the vicinity of probable cut-places. Their similarities also include topographic location of the those accompanying sites, and their place in an overall culture historical context. It depends on one’s research methods, favourite theoretical schools and later history how to interpret the sites under present-day Tallinn and Riga. Looking around in the Baltic Rim, parallels can be found for the development of these sites, while comparisons to similar settlements with somewhat different later history may be drawn on Eastern Baltic coasts. Ideas of the origin and development of prehistoric Riga and Tallinn will accordingly be presented in my speech, placing them in a broader international context.

TH1-11 Abstract 14

Hot beds? Manure pits in medieval Ackerbürgerstädte

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Keywords: agrarian towns, hot beds, late medieval

Presentation Preference - Oral

Dutch urban archaeology has uncovered hundreds of pits dating from the thirteenth to fifteenth century containing animal manure mixed with bedding straw. On occasion an array of manure of pits has been uncovered. The traditional explanation is that they were used to store manure for agricultural use. This explanation is questionable given that manure requires aerobic conditions and frequent turning for it to be transformed into useful fertilizer. A dung heap rather than a manure pit would be expected. Historical texts dating from the seventeenth and eighteenth centuries describe a method of hot beds that might help explain the manure pits. Horse manure was spread on the bottom, and once fermentation had begun, a layer of soil was spread on the steaming manure, ready to be planted with cucumber, radish and melon. The heat produced by the manure guaranteed that vegetables could be planted months earlier than if a hotbed had not been used, and then also harvested earlier. The main question in this presentation is whether archaeological manure pits can be designated as hot beds. If so, this would reveal a form of urban market gardens. The preliminary results of the multi-disciplinary manure pits research group will be presented.

TH1-11 Abstract 15

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

Author - Dr. Nicosia, Cristiano, Université Libre de Bruxelles, Bruxelles, Belgium (Presenting author)

Keywords: Medieval Archaeology, Urban development

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 (Charruadas, 2011).

Of course the question should be raised whether there are any archaeological data supporting this hypothesis. Despite many interventions taking place in the centre of Brussels, no remains of farms have been recovered. But archaeologists did 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 geoaarchaeological (including soil micromorphology and physico-chemical analyses) and archaeobotanical studies. These studies highlight that several human activities can be hidden behind complex formation processes, some related to the development of an agro-pastoral system (Devos et al., 2009, 2011, 2013, 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:

TH1-11 Abstract 16

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

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

Keywords: Medieval Archaeology, Urbanisation

Presentation Preference - Oral

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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 of Odense's early development history 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 assemblages. With an extensive finds assemblage and well-preserved structures such as booths, houses, byres and stables, latrines, paths, roads, fences, manureheaps and much more the site data forms the basis for addressing the question if certain features can be distinguished as agrarian or urban and how these features change over time.

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**TH1-11 Abstract 17**

Craftspeopple in emporia - the original cast.

Non-ferrous metalworkers in eighth century Ribe

**Author** - Prof. Sindbæk, Søren, Aarhus University, Højbjerg, Denmark (Presenting author)

Co-author(s) - Neiss, Michael, Uppsala University, Uppsala, Sweden

Keywords: 3D laser scanning, Crafts, Urbanism

Presentation Preference - Oral

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

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**TH1-11 Abstract 18**

Multimetal smithing - An urban craft in rural settings?

**Author** - Svensson, Andreas, Lund University, Lund, Sweden (Presenting author)

Keywords: Complex metalworking, Multimetality, Urban package

Presentation Preference - Oral

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

The thesis project “From Crucible and onto Anvil” started in 2015 and focuses on sites housing remains of multimetal craftsmanship dating primarily from 500-1000 AD. Within the project a comprehensive survey of sites will be used to evaluate the presence of multimetal craftsmanship in the landscape. Sites in selected target areas will also be subject to intra-site analysis focusing on workshop organisation, production output, metalworking techniques and chronological variances. A key aim in the project is to elucidate the conceptual aspects of complex metalworking. The term multimetalty is used to analytically frame all the societal and economic aspects of multimetal craftsmanship. Through this inclusive perspective both the craftsmanship and the metalworkers behind it are positioned within the overall 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.

The survey has already revealed interesting aspects concerning multimetal smithing and urbanity. Although the multimetal sites do cluster against areas of early urban development there are also other patterns emerging. Multimetal craftsmanship - both as practice and concept – was well represented in both rural peripheral settings and urban crafts-milieu. This means that the role of multimetalty 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 multimetal smithing part of an “urban package” that spread into the rural landscape? Did the multimetalty differ between urban and rural crafts-milieu? How does early urbanity relate to the chronology of multimetal craftsmanship? This paper aims to counter these questions using examples from the survey of multimetal sites conducted to counter the thesis project. A comparison between selected sites will be presented. The purpose of this is to evaluate the role of multimetalty within the “urban package” and discuss the role of complex metalworking in the establishment of urban areas of interaction in Late Iron Age Scandinavia.

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**TH1-11 Abstract 19**

The trajectory of the Productive Limfjord Region AD 600-1100 - Exploring Changing Economic Patterns

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

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

Presentation Preference - Oral

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

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**TH1-11 Abstract 20**

No town is an island

**Author** - Jørgensen, Mads Dengj, National Museum of Denmark, Kbh. K, Denmark (Presenting author)

Keywords: Architecture, Aristocracy, Production site

Presentation Preference - Oral

The current paper aims to highlight the differing strata of localities on which the establishment of the network of Viking Age towns rested. This is to be understood as the possible 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. This paper aims to explore the potential of a new dataset from the recently excavated site of Tollum Nøge, Denmark, which will be presented as case in point, and the special features that have been registered here will be discussed. In particular the conspicuous architecture will figure prominently; a very sturdily 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 privy.

The site of Tollum Nøge is a direct contact with an excavated larger pit-house cluster of more the a 100 units, and placed in the vicinity of two conjuring 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 an and centralization behind the buildings and the activities pertaining to the site in general. The topic of commercial control and what type of influence the aristocracy had on the early development on these types of sites will be included. Furthermore, the structural fluctuation of the site at Tollum Nøge, 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.
TH1-11 Abstract 21

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

**Author:** Tighe, John, Trinity College Dublin, The University of Dublin, Castletown, Co. Mayo, Ireland (Presenting author)

**Keywords:** Church/Sacral, Economic development, Trade

**Presentation Preference:** Oral

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

These include sites such as Doonoughough, a coastal site where exchange happened in the eighth century. The primary mode of the production of crops is thought to have been by buying in the grain, as there is a lack of evidence for on-site production with the grain samples excavated being entirely free of chaff. The site, and 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 sailing season for much of Europe.

This form of exchange may have been brought into fruition as increased specialisation of production coupled with increased opportunities to exchange. This may have had a direct impact on the decline of the importance of the cow can be seen as a move away from the type of economy, widespread in pre-Roman Europe, where an item’s value was bestowed upon it not because of its intrinsic value, like that of the silver economy which the Vikings helped to develop, but in its cultural value. The silver bracelets found at places like Cluainmór, 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 ‘cathair’ to describe sites such as Kildare, has smuggled 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 delimit the boundary of the secular and the ecclesiastical. The role of the church in providing centres of production and manufacture cannot be doubted, especially in the unstable and fragmented political milieu of early medieval Ireland.

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

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TH1-11 Abstract 22

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

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

**Keywords:** diversity, Low Countries, Research

**Presentation Preference:** Oral

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

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TH1-11 Abstract 23

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

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

**Keywords:** Iron processing, social practices, urbanity

**Presentation Preference:** Oral

Classical ways of defining urbanty 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 urbanty 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 urbanty through social practices in the first phases of the developing town of Copenhagen, Denmark. One of these areas concerns crafting, specifically iron processing. Through four areas of study I analyse the material remains of social practices undertaken on the site of Town Hall Square c. AD 1050-1300. This paper will discuss the two questions: What can the study of social practices connected to the iron processing activities, in combination with technical analyses, reveal of urban development, of people and networks involved in the iron handling? And what can the role of iron processing have been for the early development of Copenhagen?

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TH1-12 Abstract 01

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

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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 Boslian and the Quemintia 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 - UEFISCDI, project no. PN-II-PT-PCCA-2013-4-2302.
Funerary garment of the first woman (coffin No. 9) was the silk, long apron dressed on linen shirt, which cuffs was decorated with ribbons. Apron was made of 26 pieces (simple textile with plain weave 1/1) having different sizes and shapes (rectangles, triangles). At the lower edge of the apron was silk 90 mm wide. Apron was seen with silk threads. Repeated use of that garment confirm the tight seams connecting the individual elements. Costume was completed with long, silk, knitted gloves and shoes with textile uppers. Upper shoes were made of patterned fabrics and decorated with ribbons. Second woman's garment consisted of a silk dress with a complicated cut and numerous haberdashery. This dress consisted of a bodice with long sleeves and seen into it, heavily a gathered waist long skirt. The dress was seen a dense, carefully stitch. Bodice consisted of 12 elements, two at the front (front left and right), the two at the arms (constituting mirror images of each) the eight at the left and right rear portion (also constituting its mirror image).The skirt consists of 7 elements: two located on the left front, two on the right front, and a central single rear portion considerably elongated. Left side is a mirror image of the right side. Fabric used to sew a dress has an area approximately 5 square meters. The head of the dead woman was laid on a pillow with a silk pillowcase. Pillowcase was made from a single piece of fabric (front and rear portion are of the same shape), but in the course of many years, the bottom portion has been destroyed, so archaeologists recorded two separate portions. Pillow shape is similar to a quadrilateral with rounded corners. The maximum height is 470 mm, the maximum width is 510 mm. Around the edges either the front or rear portion is silk ribbon. The band is now a dark brown color. In addition, between the edges with the ribbons was seen decorative fiII.

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, types of accessories and manufacturing technology used fabrics.

TH1-12 Abstract 07
Attire of the 19th century: the main historical stages:

Author: PhD Zhilina, Natalia, Institute of archaeology RAS, Moscow, Russian Federation (Presenting author)
Keywords: adornments, attire, stages
Presentation Preference - Oral

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

Natural attire originated during primitive era, its elements were preserved in ethnographic suit. Adornments were made of available natural (plant and animal) materials, but artificial materials (ceramics, glass, textiles) were beginning to be used. Adornments mainly decorated the body, their forms correspond to its parts: head, neck, whole body, hair dress, belt, bracelet. The joining between adornments made by wrapping, tying, stringing, piercing. Variegated colors were used, images of the natural world were reflected. Sacred and aesthetic functions were in unity.

Heavy-metal attire has existed since the era of metal (Eneolithic, Bronze Age) and during early Middle Ages. Heavy and numerous adornments of non-precious metal produced by forging and casting, fastened and kept draped clothes on the body uniting with it into a single structure. The attire of Finno-Ugric peoples fully represented this stage. Some things played the role of hard case (spiral and holder) or of supporting framework (head hoops), others cover cloth with metal layer (sewn and hanging plates, interwoven spirals).

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

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

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

Jewelry items are linked together structurally and stylistically, their connection with clothing is typological. Silver bell-shaped pendants and back head net complemented Russian compound headdress (“kichka”). Gold diadem in cloisonné enamel complemented head headdress.

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

The accessory attire is characteristic to the New time and modernity. Adornments are made from the variety of materials and in every possible techniques, exist and even become not required. Items are linked stylistically and with color harmony. They complement the suit, can be replaced and changed, they are rather independent from the structure, style and typology of the suit.

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

The main function is aesthetic. The attire is becoming more individual and formed by concrete person. The report is accompanied by examples of the hat and costume jewelry.

TH1-12 Abstract 05
Annull brooch in the context of the late mediaeval costume and worldview

Author: Dr. Belaj, Juraj, Institute of Archaeology, Zagreb, Croatia (Presenting author)
Keywords: annular brooch, clothing function, symbolic function
Presentation Preference - Oral

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

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

In that sense, the annular brooch from Gora will be placed in the context of the costume complex. We shall also contextualize it within the process of changes in the fashion that brought about this type of outfit in the first place, which spread from Byzantium in the 12th century to countries in Western Europe, and subsequently also throughout Europe, reaching also the Near East with the Crusaders. Annular brooches remained in use until the 15th century, reaching the heyday of popularity in the 13th and 14th centuries.

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

Based on historical and illustrative sources as well as archaeological sites, the paper will show the correlation between the styling and the cultural, economic, and social context of the costume of the time. The paper will also discuss the construct of how costume itself is a meaningful sign suit related to specific events and subcultures.

TH1-12 Abstract 06
The variety of female textile funerary equipment from nineteenth century (Biała Rawaska - Poland)

Author: MA Majorek, Magdalena, Nicolaus Copernicus University Torun Poland, Torun, Poland (Presenting author)
Keywords: female garments, funerary equipment, textile in 19th century
Presentation Preference - Oral

Female textile funerary equipment can take very different forms and functions. They include both woven and knitted fabrics, dresses with intricate cuts as well as simple shirts, coffins upholstery or clothing accessories (ribbons or shoes).

Presentation Preference

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

Author: MA Majorek, Magdalena, Nicolaus Copernicus University Torun Poland, Torun, Poland (Presenting author)
Keywords: female garments, funerary equipment, textile in 19th century
Presentation Preference - Oral

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

Funerary garment of the first woman (coffin No. 9) was the silk, long apron dressed on linen shirt, which cuffs was decorated with ribbons. Apron was made of 26 pieces (simple textile with plain weave 1/1) having different sizes and shapes (rectangles, triangles). At the lower edge of the apron was silk 90 mm wide. Apron was seen with silk threads. Repeated use of that garment confirm the tight seams connecting the individual elements. Costume was completed with long, silk, knitted gloves and shoes with textile uppers. Upper shoes were made of patterned fabrics and decorated with ribbons. Second woman’s garment consisted of a silk dress with a complicated cut and numerous haberdashery. This dress consisted of a bodice with long sleeves and seen into it, heavily a gathered waist long skirt. The dress was seen a dense, carefully stitch. Bodice consisted of 12 elements, two at the front (front left and right), the two at the arms (constituting mirror images of each) the eight at the left and right rear portion (also constituting its mirror image).The skirt consists of 7 elements: two located on the left front, two on the right front, and a central single rear portion considerably elongated. Left side is a mirror image of the right side. Fabric used to sew a dress has an area approximately 5 square meters. The head of the dead woman was laid on a pillow with a silk pillowcase. Pillowcase was made from a single piece of fabric (front and rear portion are of the same shape), but in the course of many years, the bottom portion has been destroyed, so archaeologists recorded two separate portions. Pillow shape is similar to a quadrilateral with rounded corners. The maximum height is 470 mm, the maximum width is 510 mm. Around the edges either the front or rear portion is silk ribbon. The band is now a dark brown color. In addition, between the edges with the ribbons was seen decorative fiII.

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, types of accessories and manufacturing technology used fabrics.
Jewelry: decoration or a detail of construction? Theory and practice

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

Archaeologists, having found ancient jewelry in the burial monuments, most often regard it as a decoration element, classify and typologize it according to the shapes and ornamentation. Mostly only the metallic decoration details remain from all 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 – laps of the blouse, sides of the coat, corners of the cloak; pins with pendants and chains tell us the style of the women dresses; the shape of the 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 clothes; decoration details found in the area of the head give 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 being the works of art, they had another, much more important function – the formation of the costume, the connection and fastening of its details.

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

Costume of deads or costume of livings?

Author - Dr. Ciupercă, Bogdan Ioșif, 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-midle, 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 certitude] of the costume of certain community/group/ethic. Discoveries from settlement where never taking into consideration as a relative source for such debate. But there are epoxhes when we do not have cemeteries and archaelogist prefer 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? Or of a group? Of an era? Or of the other, non-era? Of the dead? Of the living? Of the image of the buried person? Of the image of the family? How can we interpret the very same object discovered both in a settlement and in a cemetery from those questions point of view? It is an expression of the dead ascribed to the living space, the so called “closing objects”? or can be ambivalent? We intend to provoque 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 A.D., a region and epoch of dramatically changes in the hole Europe.

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 landlords. Among these works of arts, those with representations of landlords, their wives and workers draw particular attention. The hierarchy of African provincial population between the end of 2nd and the beginning of 6th century AD is clearly visible on these mosaics. Moreover, they are very important documents of everyday life of different social groups in Roman Africa.

The aim of this paper is to analyze the representation of jewellery on mosaics from Roman Africa. Through comparing them to artefacts found in the area of Roman Empire, it is possible to observe traditions in Roman jewellery and changes happening over the years, as well as discover local trends and their relation to Empire-wide patterns. The richness of landlords and their wives is emphasized by clothes and jewellery which they wear, aiming 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 far way back in time than the existence of the Roman Empire, for example the representations of chets for jewellery (pyxides) which are known status symbols already on Classical Greek grave-stones.

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

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

Presentation Preference - Oral

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

This report will propose six major reasons for the emergence elite men’s suit with the Zupan in the sixteenth century. Among them it will be noted that rich, celebratory men’s suit was born with changes in the world of the gentry class in Polish-Lithuanian Commonwealth, the desire to emphasize its own peculiarities among European Community. There will be also 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 XV and XVI 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 revot 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 intelligentsia costume during family (weddings), and corporate events.

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

Author - Grupa, Dawid, Institute of Archaeology, Nicolaus Copernicus University Torun Poland, Toruń, Poland (Presenting author)
Keywords: child clothes, copy, reconstruction

Presentation Preference - Oral

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

Detailed analyses of clothes fragments enable to identify various children clothes’ forms by descendants of the elite up to 2nd half of 18th c. Many family portraits present repeatable fashionable of depicting fathers and sons dressed in identical man attire or mothers and daughters, which dresses were smaller variations of models worn by mothers. Similar references can be observed in child burials, where 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 them healthy 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 traditional of dressing children in copies of their parents’ clothes.
Late Bronze and early Iron Age costumes in the Southern Baltic: unknown and unexplored

Author - Dr. Szusarska, Katarzyna, University of Gdańsk, Gdańsk, Poland (Presenting author)
Keywords: female/male costume, LBA/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 in inhumation graves, rare representations of human figure or fortunately survived pieces of clothing. But still we cannot be sure that what we are dealing with is not every-day or ceremonial outfits.

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 cremation left very little evidence for studies on costumes, but barely complete absence of human figure representation in the Bronze Age makes almost impossible to speculate about the clothes that were worn at that times at any occasion. The situation changes a bit during early Iron Age with the emergence of face um tradition and human figure representation when at least in funeral sphere we can observe the emergence of welldefined set for men and women.

The main aim of this paper is to analyse the late Bronze Age and early Iron Age data from nowadays Poland for potential proxy data for identification of the elements of 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 Sudzial Opole

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

Presentation Preference - Oral

In 2007-2010 the Institute of archaeology of the Russian Academy of Sciences has conducted the archaeological investigation of the Migration period necropolis Bolshoy Davydovskoye 2 in Sudzial Opole. 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.Belotserkovskaya, 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.

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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 anthropological literature dresses have long been recognized as an indicator of group affinity. The paper 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 limitations. 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 hypothetical 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 Ludmila Duchiwa and George Shtykhova 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 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 circuit (cosmorphic images of the horse, crescent). They have evolved and entrenched in artisan products XII-XIV century. Borderlands allows materials to demonstrate a certain stage of coexistence of eastern European tribes, exposure to stress by means of a mutilithic features of the northern land of Polotsk culture. Rings and brooches with Maslavaich, as the embodiment of motion, equally characteristic aesthetics Baltic or Slavic dress. They show a wide existence of Slavic ideas in this habitat. Museums show and attribution complementary archaeological items and actualizing artefacts of Belarusians.

TH1-12 Abstract 19
Jewellery workshop in the medieval Smolensk
Author - Murunova, Tatiana, 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 jewelry production middle – 2nd half XI century was found. In the fill of the pit contained many fragments of smelting crucibles, and also some almost entire instances. In addition, were found metal objects associated with jewellery production. The report provides a description and analysis of all 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, Emm, Sarvarka Archaeological Institute, Reserve Park “Ulytau”, Karaganda, Kazakhstan (Presenting author)
Keywords: Ancestral relic, Andronovo culture, Headdress
Presentation Preference - Poster
Female’s costume attributes of Andronovo culture consist of jewelry, woven fabrics fragments and leather, mainly belonging to the head decorations. Andronovo community is assembling of steppe cultures of Inner Eurasia belonging to the Bronze Age dated to 2500 – 1300 BCE. Thus far, approximately 30 burial sites have been investigated that contained preserved remains of female’s headdresses (Ural-Kazakhstan zone). Two types of head adornments have been identified: headdresses 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 diseased. A headdress with the minimal degree was belonged to girls under 10 years old, while richly decorated headdress 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 burial have been penetrated post-bural in order to remove the headdress: backbones have been found without the skull or with a partially destroyed skull. It is possible that the headdress was an ancestral relic which passed on from generation to generation; in some cases it was left in the graves, in others removed.

TH1-12 Abstract 21
Peruvian textiles in Warsaw National Museum
Author - MA Kosowska, Dominika, University of Warsaw, Otwock, Poland (Presenting author)
Keywords: Paracas, textiles, Peru
Presentation Preference - Poster
Four fragments of pre-columbian textiles are part of Warsaw National Museum’s collection. Two of them are colorful embroideries depicted flying creature characteristic to Paracas culture (late Nazipólis: 500 B.C - 200 C.E.) and other two are tapez 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 one material. Analogical fragments are part of collections of Metropolitan Museum of Art in New York. These types of embroideries were depicted on the big blankets - mantle, which were part of the fardos - funeral bundles. Two tapez 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 Novodevichi Convent (Moscow)
Author - Elksna, Ilna, Institute of Arheology of RAS, Moscow, Russian Federation (Presenting author)
Keywords: 17th century, collar, Novodevichi Convent, Costumes complex (clothes and its attire)
Presentation Preference - Poster
During the archaeological work in 2014 under the leadership of L.A. Belayev in the settlement of Novodevichi 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 trapazoid, 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 bead, pomegranate flower, typical for the Turkish fabrics of the 17th century. Phelonion (a sleeveless vestment) had high solid collar of trapazoidal shape. Trapazoidal 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 Krakovany - Straže (Slovakia)
Author - Mgr. PhD Danova, Miroslava, University of Trnava, Department of Classical Archaeology, Trnava, Slovakia (Presenting author)
Co-author(s) - Krupa, Vladimir, Balneological Museum Piešťany, Piešťany, Slovakia
Keywords: decorative techniques, goldring, Krakovany
Presentation Preference - Poster
The Balneological Museum in Piešťany (Slovakia) acquired goldring from grave of noble person in Krakovany – Straže (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.
TH1-12 Abstract 24

Burying parishioners at Köyliö, Finland – Aspects on attire and burial habits

Author - Doc. Lipkin, Sanna, University of Oulu, Oulu, Finland (Presenting author)
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Keywords - Early medieval, Field conservation, Gainsford, Leather

Presentation Preference - Poster

Once separated textile conservators continued the excavation and conservation of the jacket by cleaning and flattening the different pieces and fragments. As previously predicted the leather was in a much degraded state. However, some typical features were exposed and a pattern was traced and then constructed. References pertaining to the jacket place it in the fashion of the second half of the 16th century.

In the period from the late 5th to the early 18th century, which was marked by political, cultural, social and economic changes, funerary complexes between northern Gaul and Pannonia buried their dead in large cemeteries (‘Reihengräberfelder’). The complete tombs and extensive features of the dead in the grave – this includes jewelry 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 the dissertation 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 customs 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 textiles (such as brooches and buckles) or jewelry (particularly bracelets and earrings) can be taken into consideration. Apart from some additional separate depositions the corpse was dressed in gender-specific clothing.

This is also reflected in the late grave 25 (to 670/80). The young woman wore a fine spunpatterned 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, glass and amber beads, silver plate cylinders and disc-shaped gold pendants. Representative for male graves should be grave 368 with extensive weaponry (sword, scrimaax, shield and spear) and multipart belt fittings. Under the belt the deceased wore a tunic-like garment made of diamond twill, while further textile was found together with feathers (perhaps a lining or feathers scattered loosely).

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

TH1-12 Abstract 25

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

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

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

Presentation Preference - Poster

During 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 leather; that seemed to be primarily concentrated around the upper body. The leather was much degraded and a decision was made to develop a strategy for the retrieval of the objects. Both conservator and archaeologist worked together to isolate the presence of the leather on and around its lower extremities. The project’s on-site conservator was able to identify the leather, and could therefore instantly have revealed a rare number of artefacts or clothing features. 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 sample includes two elderly women, one 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 floor, we may both read biographical 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.

TH1-12 Abstract 26

Selected examples of funeral costumes from the Merovingian burial ground of Rommerskirchen

Author - Baumann, Nadine, German Archaeological Institute, Frankfurt, Germany (Presenting author)
Keywords - funeral costume, merovigian, textiles

Presentation Preference - Poster

In the period from the late 5th to the early 18th century, which was marked by political, cultural, social and economic changes, funerary complexes between northern Gaul and Pannonia buried their dead in large cemeteries (‘Reihengräberfelder’). The complete tombs and extensive features of the dead in the grave – this includes jewelry 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 the dissertation 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.

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TH1-12 Abstract 27

Clothing in figural decorations on Lusatian culture pottery

Author - master of arts Przysrońska-Szczuka, Magdalena, Institute of Archaeology Nicolaus Copernicus University 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 Rajdowa, site 1, and the second is form Weneja Góra, 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 Gapaowa, 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 ornamentations and it is possible to use them in reconstructions of clothes of Lusatian culture.

TH1-12 Abstract 28

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

Author - Wilson, Kelvin, Kelvin Wilson, Robinreek, Netherlands (Presenting author)
Keywords - Costumes, Paleolithic, Women

Presentation Preference - Poster

A female figurine scratched onto a small stone found in 1961 near Gidrop in the Netherlands, and dated to around 9,000 BC, shows her dressed in a kniccloth 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.
Interpreting the Archaeological Record

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

Author: Dr. Sabatini, Serena, Gothenburg University, Göteborg, Sweden (Presenting author)
Co-author(s): Bergbronnt, Sophie, Gothenburg University, Göteborg, Sweden
Keywords: sheep-husbandry, society and economy, wool production
Presentation Preference: Oral

This paper aims at discussing the significance of wool production in the European Bronze Age. The focus is on discussing which processes regarding raw materials and their processing, textile techniques, textile tools and equipment, the organisation of textile production and the dynamics of its specialisations, cross-cultural and cross-craft interactions, and changes in the textile craft in relation to socio-cultural transformations of the past societies.

TH1-13 Abstract 02
Manufacturing Traditions in Textile Archaeology

Author: Dr. Band-Bünsgens, Johanna, Landesamt für Denkmalpflege, Esslingen, Germany (Presenting author)
Keywords: Manufacturing Traditions, pile-dwellings, Textile Archaeology
Presentation Preference: Oral

Research results of the past 20 years have made it possible to recognise traditional manufacturing techniques of textile production from the Neolithic to the Iron Age, representative of the significance of textile products in prehistoric Central Europe. This significance displays a degree of appreciation which goes beyond the ideas we would associate with textiles from a modern standpoint. Within the scope of a large exhibition in 4000 years of pile-dwellings, on display in Baden-Württemberg from 16.04 to 9.10.2016 (www.pfalhbauten2016.de), a key textile find from Pfäffikon-Irgenhausen (ZH) has been analysed and reconstructed. The patterned textile fragment has been radiocarbon-dated to the Early Bronze Age. It occupies a key position in the textile production between the Neolithic and the Early Iron Age. While correctly identified as brocade in research of the 1930s, more recent publications arrived at erroneous identifications of the technique employed in the manufacture of this piece of fabric. New analyses and a reconstruction of the piece of fabric attest to a combination of weaving techniques which demonstrate the immense significance of textile manufacturing traditions in prehistoric textiles; manufacturing traditions, which did not reduce the textile to a mere carrier of decoration, but which instead recognised appearance and manufacturing technique as a unity.

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

Author: Dr. Bistau, Stefan, University Kiel, Kiel, Germany (Presenting author)
Keywords: Bronze Age, Central Europe, Textile impressions
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 impressions 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. Great findings of web weights illustrate this. This contribution’s intention is also to examine the value of textiles in general.

TH1-13 Abstract 04
Innovative or traditional? Diachronic approach to weaving technology in Bronze Age Greece

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

Weaving in Bronze Age Greece has been acknowledged as highly advanced technology resulting in greatly valued products of supreme quality and high importance to local economies and external trade. Because of the notable time-consuming character of the textile craft and its overall complexity, it is assumed that even slight changes in textile technology (including weaving) must have had a direct impact not only on the properties and presumably the aesthetic qualities of textiles, but also (by effecting the amount of the necessary workload) on economics and social life of past societies. Traditional and innovative elements in the weaving craft throughout the Bronze Age are not easy to understand based on the archaeological evidence. They may be grasped in presumably progressive changes in the forms of textile tools (yarmloom weights) and their distribution which may have reflected the transfer of technical novelties, 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 search of gradual development and ground-breaking novelties of the Aegean Bronze Age weaving technology.

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

Author: Dr. Stenitska, Malgorzata, University of Copenhagen, København S., Denmark (Presenting author)
Keywords: Aegean, Bronze Age, textile production
Presentation Preference: Oral

The manufacture of textiles and garments had a long tradition in the Aegean already prior to the beginnings of the Early Bronze Age. Numerous textile tools, especially spindle whorls and loom weights, are preserved from the Neolithic to the Early 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. Great findings of web weights illustrate this. This contribution’s intention is also to examine the value of textiles in general.
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.

Despite the dynamic 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 Pekonnesse.

TH1-13 Abstract 06
Comparing the incommensurates?
MBA textile tools from Aegina-Kolonna/GR and Çesme Baglararası/TR
Author - Vefers, Melissa, Klassische und Frühgrippische Archäologie, Salzburg, Austria (Presenting author)
Keywords: Aegina-Kolonna, Çesme Baglararası, Middle Bronze Age textile tools
Presentation Preference - Oral
Investigating textile technologies in the Middle Bronze Age (MBA) Aegean has often focussed more on the impact of Minoan-type implements and techniques than on local craft traditions. Especially discoidal, Minoan-type loom weights attaining to the use of warp weighted looms have been characterised as an important component of material culture reflecting processes of Minoanisation on several sites spanning the Greek mainland on the west and the coast of Asia minor on the east. On the other hand, terracotta spools with longitudinal perforations are implements that are widely distributed on the Middle Helladic Greek mainland but are scarcely found at sites, where Minoan-type loom weights are present, and probably represent a western, Middle Helladic, textile tradition using horizontal instead of warp-weighted looms. This paper compares Middle Bronze Age textile tools from two settlement sites located on opposite coasts of the Aegean Sea: Aegina-Kolonna and Çesme Baglararası. The fortified settlement of Aegina Kolonna in the Argo-Saronic Gulf is known as a major hub of commerce and pottery production in the first half of the second millennium BCE (Gauss and Kleeberger-Gauss 2015). Late Middle Bronze Age occupation layers in Çeşme Baglararası, a port town on a promontory feature an affluent harbour town with very early evidence for wine production (Şahhoj 2015). Evidence of textile tools and production from both sites comprises mainly terracotta spindle whorls, numerous centrally pierced spools and a number of discoidal, Minoan-type loom weights as well as horizontally pierced spools and several bone artefacts. The paper discusses what types of tools were involved in textile production at both sites during the Middle Bronze Age, what kind of textiles could be produced with the available tools and if specific chains of operations of textile production can be reconstructed via contextual analyses. How was textile production organised spatially and socially and do the textile tools allow us to make inferences about transfer of textile technologies and about communities of practice?

References:

TH1-13 Abstract 07
Beyond textiles: alternative uses of twisted fibers. Evidence from Akrotiri, Thera
Author - Dr. Vakirtzi, Sophia, University Of Crete, Athens, Greece (Presenting author)
Co-author(s) - Dr. Goarma, Fragoula, Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Corfu, Corfu, Greece
Keywords: Aegina-Kolonna, Middle Bronze Age, Bronze tools
Presentation Preference - Oral
Fiber crafts are among the oldest technological practices of mankind. Although commonly associated with textile manufacture, twisted fibers in the form of threads have always had a wider use in everyday life. Strings and ropes constitute a humble but essential category of fiber products deriving from the same technology and organic matter as threads. Due to their organic nature, however, they rarely survive in the archaeological record, unless special environmental conditions occur. This paper discusses the alternative uses of twisted fibers in the Bronze Age Aegean, with particular reference to the settlement of Akrotiri in Thera. The primary focus of the paper lies on impressions of threads, strings and ropes preserved on objects made of clay and on wall paintings. We will attempt an examination of the technical properties of these products on the basis of their impressions and we will consider their use for a variety of purposes. Our observations compare to another set of data, namely the actual strings and ropes that have been exceptionally preserved and published from the same site.

TH1-13 Abstract 08
Does anybody still wear that?
Notes on (representations of) Minoan female dress in Mycenaean Greece
Author - 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 ‘Ariadne’s 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 selectivity on the part of the mainlanders and that it can be associated with ritual or festive occasions and possibly only with wearers 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 in the Argolid. These include, at least one and perhaps 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 unshodden question in the proposed paper.

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: dying, 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 the site of the Late Cypriot city of Domotyma Vatizia. Due to a large territory that the settlement could have occupied the archaeological research has been divided into smaller areas. The exploration started, in the so called Area B, in the 70’s of the 20th century. At that time, the director of the excavation was a Swedish professor Paul Åström. At the end of the 80’s of the 20th century, works at the site have been suspended for some years. The excavations started again in 2010 within a project “New Swedish Cyprus Expedition” led by prof. Peter Fischer and it included Area B in the northern part of the site.

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

Additionally, two stages of site occupation have been discovered. Stratum I 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 dyeing in the city. Out of five most common dyeing agents, namely madder and other rubricaceous plants, insects, the flavonoid dyes, the galotannins 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 Cypriot II in the Domotyma Vatizia area.
TH1-13 Abstract 10

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

Author: Doctorandia Ruiz de Haro, María Irene, Escuela Internacional de Posgrado-Universidad de Granada, Almuñécar, Spain (Presenting author)
Keywords: innovation, Linum usitatissimum, spinning bowl
Presentation Preference - Oral

This paper will discuss two basic concepts in addressing the archaeological documentation of a new technological element, in this case the spinning bowl documented in the Castrejón 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, Malgorzata, Nicolaus Copernicus University in Toruń (NCU), Toruń, 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 Toruń were exceptionally interesting when it turned out that they were made of woolen fibres in spinning technique, while the other part imitated, known in later ages, so called gauze, made in weave 1/1. Technological analyses of the fibres proved their high quality. However, having very few examples of this type of textiles in Poland, we are not able to answer the basic question: is it an import or local production? Information collected from Europe suggest the imported material, but here another question arises – from which direction?

TH1-13 Abstract 12

Biconical ceramic spindle whorls from Maleva mogila near Vesešínovo 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 Vesešínovo 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) - Pázmáni-Széke, Judit, University of West-Hungary, Hungary
Co-author(s) - Kolacs, Gabriella, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary
Co-author(s) - Stevendy, 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 whorls, weights, spools and needles) from the Bronze Age, textile production – although a key social and technological element of society in this period – has been a profoundly neglected topic in Hungary.

As part of a recent multidisciplinary research project (“From bones, bronzes and sites to society: Multidisciplinary analysis of human mobility and social changes in Bronze Age Hungary (2500–1500 BC).”, http://thl.mta.hu/eng/long-term-08) launched this year by the Hungarian Academy of Sciences Momentum research programme, our study focuses on local textile production and consumption during the Early and Middle Bronze Age in the Carpathian Basin. The primary goal of our paper 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 southern Estonia until the Migration Period. The aim of this study is to gather and systemise all pieces of information concerning Bronze Age pottery with textile impressions, with the focus on differentiating technological variability and pointing out traditional and innovative elements.

TH1-13 Abstract 15

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

Author: Młos Szamska, Joanna, Polish Academy of Sciences, Łódź, Poland (Presenting author)
Co-author(s) - Antosik, Łukasz, IAE PAN, Łódź, Poland
Keywords: bi-ritual cemetery, Hallstatt Period, Textiles
Presentation Preference - Poster

Textile production during the Hallstatt period was an integral part of everyday life of societies living on Polish territory. However, discoveres of fabrics are very rare. Textile remains from this period, survived primarily in the skeletal bi-ritual graves in Silesia and 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 Świbie, Gliwice district.

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

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

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

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

Keywords: Pomeranian culture, vertical loom

One of the most characteristic decorative motifs, appearing at the facial urn from Pomeranian culture, are combs. Those most schematically shown in its simplest form, a few vertical lines engraved from the horizontal line. A more realistic had singled handle, circle suspension and sometimes also the details of ornamentation. Combs images were placed on the central parts of urn, on its upper or lower part. Among the researchers any ideas of several vertical lines are interpreted as combs. In this poster I want to draw attention to another possible interpretation of ornamentations on urn of Pomeranian culture from 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 located halfway up the three horizontal lines that bring to mind three heddle bars. These elements of the vertical loom for making a more complex patterns.

CHILD’S LIFE - BETWEEN PLAY AND WORK

Thursday, 1 September 2016, 14:00-18:30
Faculty of History, Room 332

Author - Blaževičius, Povilas, National Museum - Palace of the Grand Dukes of Lithuania, Vilnius, Lithuania (Presenting author)

Co-author(s) - Romanowicz, Paulina, Instytut Archeologii I Etnologii PAN Szczecin, 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.

TH1-14 Abstract 01

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

Large number of children in early agricultural paleopopulations 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 Khuwan), 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.

TH1-14 Abstract 02

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

Author - Šiauliskienė, Žydrūnė, Vilnius University, Vilnius, Lithuania (Presenting author)

Keywords: Baltic Sea region, children, enamel hypoplasia

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 bioarcheological studies.

The aim of the study was to analyze the prevalence of localized primary canine hypoplasia of subadult individuals in selected archeological samples, based on different chronology and subsistence: the Stone Age sample (7500-2650 BC, represented by Zヴjeziδjë site, Latvia), the Iron Age sample (5-6th c.c., represented by Plinkaigalio, Lithuania) and medieval sample (16-18th c.c. represented by selected sites from Vilnius and Trakai, Lithuania). Medieval sample was subsequently divided in three groups, based on different social status of individuals. In total, 134 individuals (336 teeth) were included in the study. All primary canines were visually scored for presence or absence of the defect. The highest prevalence of hypoplasia was found in the Stone Age sample: 38.8 % of primary canines (50 % of individuals) were affected. Children from the Iron Age sample and medieval sample had statistically lower frequency of LHPC (21.1 % and 25.4 % of teeth, respectively, p<0.05). Results also revealed differences in the prevalence of LHPC, according to social status. Children of the highest social rank had lower frequency of hypoplasia compared to children from lower social strata (32.0 % 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.

TH1-13 Abstract 16

Interpreting the Archaeological Record
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: UHN growth, human bioarchaeology, work
Presentation Preference: Oral
The relation between child growth, development and children's ability to perform work is explored to facilitate inferences on children's work in past societies. Current knowledge pertaining to physical effects of work on the immature body is examined. In particular, the understandings reached are brought to bear on the question of Anglo-Saxon children and work. As part of this endeavor, cross-sectional growth data from the immature skeletal remains from Anglo-Saxon mortuary populations of 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 cribra orbitalia and porotic hyperostosis is high in the Blackgate individuals delayed in growth. Behavioural abilities are more closely related to skeletal age than chronological age, which dental age is seen to approximate. Thus, when discussing children's capabilities, particularly in relation to work, the use of skeletal age is 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, Sanna, University of Oulu, Oulu, Finland (Presenting author)
Keywords: burials of children, nurture and education, play and textile work
Presentation Preference: Oral
Researching children's daily life in Pre-Roman central Tyrrhenian Italy is challenging, as there is minimal archaeological material indicating the presence of children in settlement contexts. The existing evidence on children consists mostly of infant tombs dated between the final Bronze Age and Archaic period. Considering the high child mortality rate, the amount of child burials at necropolises is very low, and the burials of the youngest children (less than four years of age) are mostly missing. However, in Latium and Rome, many infants and fetuses have been found buried at settlement sites. Current research implies that different burial practices may be regarded to have represented different stages of human development children were considered to have, and thus the funerary material offers 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 archaeoological 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. Socialization through gender roles is also visible through examination of funerary attire. 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 prove that even small infants had been bestowed important status within their families, and their enculturation was already in process prior to their death. Socialization through gender roles is also visible through examination of funerary attire.

TH1-14 Abstract 05
Childhood interrupted: infant burials on Colonia Iulia Emona's northern cemetery
Author: Zupane, 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 consistant group exhibiting similar characteristics in terms of burial rituals and grave construction. Grave goods, when present, often include apotropaic objects, such as phallic amulets, crepuscula and nails, connected with mors immutat.

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, Jõelähtme) and comparing the findings with other researches conducted in the largest European cemeteries (e.g. Otto 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
Weapony 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
Weapony (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 ages of children, starting with a 1-2-years-old. So how can we analyze and interpret these findings - were they used only as symbolic representation of gender/social status and therefore in some cases could be found already with 1-2 years old boys? Or axes and spears within juveniles or adolescents boys’ burials an 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 weapony 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.
The social construction of childhood through Roman artefacts: finger-rings and their motifs

Author: Dr. Swift, Ellen, University of Kent, Canterbury, United Kingdom (Presenting author)

Keywords: artefacts, Roman, social identity

Presentation Preference: Oral

This paper examines the relation of children and animals, as illustrated by animal-shaped objects used as toys or grave goods, as well as animals used as pets by children from infancy onwards, or as 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 “unshaped” members of society, children, as part of their upbringing and their training into their future social and gender roles. The main sources of evidence are depictions on Greek vases, mainly Athenian of the Classical period, in which daily scenes become very popular, supplemented by figures of animals used as toys, as well as works of sculpture, such as funerary reliefs, showing children playing or fighting with animals. Animal-shaped toys, such as rattle, held by either toddlers or their nurses to dull 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 figures 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 only occasionally with cats, of the Abyssinian breed that was imported to Athens, as well as exotic felines, such as cheetahs. 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 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 had to work 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 day for the orphans. The work plan to 1710 has been preserved which shows the expected workload per day for the orphans. The 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. 

The children of medieval and post medieval Copenhagen

Author: Jark Jensen, Jane, Museum of Copenhagen, København V, Denmark (Presenting author)

Keywords: burial, child labour, children

Presentation Preference: Oral

The children of medieval and post medieval Copenhagen are often quite invisible in the archaeological material for many reasons - the (few) toys have disappeared or can no longer be identified; children’s bones are more fragile and perish faster than those from adults from burial sites. With the aim to give nuance to the lives of children in past society, this paper will present the evidence of children living in historical Copenhagen through different unique findings of artifacts, a cemetery and an example of child labour. The Metro excavations in the city centre have given a lot of new evidence of the presence of children in Copenhagen. Well preserved finds of toys made of organic materials were excavated from the moats of the fortification surrounding the city. These unique toys reflect play and fun, but also some of them must have been a means of preparing the children for adult lives. Along the 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. The proportions and size justify that this must have been deng by children under horrible circumstances.
Glass ornaments from a girl's grave in Bytom Odrzanski

Very expensive, which rarely appears in graves. 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, not only a child. The fusion of archaeological and biological points of view will allow describing children and households. An interdisciplinary research on this type of data allows obtaining 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 dependent on the child's age.

Children in Vilnius potteries

In Medieval times, the 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 dependent on the child’s age.

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CHARTING OTHERWORLDS: CEMETERIES AS CULT SITES

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

Author: Dr. Sanmark, Alexander, 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 'u' (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 of ' sacred site'), however, suggests that burials were present in these locations. In this paper, a selection of these cult sites will be examined through detailed study of archaeological features, topographic features, as well as some written sources, above all Eddic poetry. The overall aim is to investigate how these sites facilitated rituals and ceremonies in terms of movement, acoustics and location of audience and performers.

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

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

Keywords: Burial, Exhumation, Magic

Presentation Preference - Oral

Vendel and Viking Period burial places in Scandinavia have long been seen as likely sites for cultic activity, indicated archaeologically both through their widespread conversion to Christian places of worship and by sporadic but persistent finds of evidence for offerings at graves. Burials of this period were often also re-entered and disturbed. High profile re-openings like that of the Oseberg mound in Norway are part of a much wider pattern of re-opening and re-working burials. Such re-opening practices have frequently been linked to supernatural beliefs, usually on the basis of written sources, and in particular involving communication with the dead. This paper reviews the evidence for disturbance of later pre-Christian burials in Scandinavia, arguing that reopening here cannot be seen as a single phenomenon: it was carried out on a variety of timescales and in different ways. However, a consistent theme throughout the archaeological evidence is the focus of 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.

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

Author: - Wenn, Camilla Cecilie, Museum of Cultural History, University of Oslo, Oslo, Norway (Presenting author)

Keywords: grave, ritual, Viking Age

Presentation Preference - Oral

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

The cemetery is highly interesting in two particular aspects, which will be contextualised with similar and/or contrasting examples. Firstly, it covers the very last part of pagan burial custom, at a time when surrounding regions had converted, and show mostly Christian burials. The religious shift in society seems to some extent to be reflected in 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.

TH1-15 Abstract 04
Positioining 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 lesser material evidence. However, even in the absence of ostentatious display of wealth, the corpse in the grave was heavily implicated in the early medieval mortuary theatre. The funerary body was progressively constructed and articulated through its positional arrangement, clothing, and other accompanying features. This paper discusses the ritual significance of corpse positioning in early Anglo-Saxon inhumations, bringing together corpse-positional data from over 2000 graves from 33 cemeteries across England. Patterns of recurring corpse postures demonstrate that positioning ritual was 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, locally as well as regionally. Addressing the role of the body in early Anglo-Saxon death rituals, this paper explores the belief and practice underlying the organisation of bodies in graves and attempts to unfold the hidden narratives behind the early medieval corpse.
In 2006 Klaipėda University in collaboration with Kaišiadorys museum started investigation of the Bajorai cemetery (Elektrėnai – Orāl). In 2013 Stefanuk Krukovskis excavated 22 barrows at Wysoke site (Vikaudins, dis. Varien) 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 Krukovskis 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 in the other burial mounds excavated at Wysoke 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.

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

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

Archaeology shows that material remains found in the sacred space of cemetery reflect cultural, religious and social diversity. On that basis we can discuss about multi-faceted relationships between groups of 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 (van Geenop 1909) and some kind of identity performance in order to consolidate community (Turner 1969).

On that account, cemeteries as the special space of transgression and communication between the living and the nether world should be perceived also in the context of its social function. The problem is that the Lower Lusatia region, as the area of Luboszyce Culture (Domalski 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-V c. AD) are difficult to archaeological interpretation. For instance, some barrows 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, Krinos Odrozniakowskie) – with the Weilbark Culture, due to lack of weapon and typically female costume elements in graves (Schuster 2011). In terms of cultural anthropological, the ancestor worship as an important element of religion of various barbarian societies (Cawley 1987) seems to be the key to reconstrust 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 borderland landscape, may have been resulted in creation of new patterns, including syncretic forms of funeral rites (Domalski 2010) and, perhaps, mythological narratives.

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

Author - Dr. hab. Rodzińska-Nowak, Judyta, Institute of Archaeology, Kraków, Poland (Presenting author)
Keywords: animal symbolism, funeral rite, the Przeworsk culture
Presentation Preference - Oral

On cemeteries of the Przeworsk culture many material traces of the diverse ritual behaviors are observed. Based on the results of recent studies, it is believed that a special role in the funeral rites of that culture in the Roman period was played by animals and related symbolism. Animal bone remains are relatively frequent in graves of people of both sexes, who belong to different age classes. Among them are represented the bones of mammals, both domesticated and wild.

A remarkable trait are the remains of Gallic genius. These finds are interpreted as traces of sacrifices in honor of the deceased or supernatural beings, or as gifts of food, but it cannot be excluded that they are relics of ritual feasts taking place during the funeral ceremony.

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

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

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

Ulów is a small village in Lublin Voivodeship (SE Poland) situated in the region of Middle Roztoce. The complex of archaeological sites in the woods of the vicinity of Ulów was found by searchers with metal detectors who were looking for military items from the World War II. Among sites recognized during the archaeological excavations, there are two cemeteries dated to the late Roman Period and the Migration Period (sites 3 and 7) and two contemporary settlements (sites 10 and 13), separated from each other by a deep valley of rivulet, now, intermittent. At the same time, it is a border between two zones – sacrum and profanum. On site 3, except the cemetery dated to the 4th century A.D. – to the middle of the 5th century A.D. evidences of much older settlement were found. They are associated with the Late Paleochitic, the Mesolithic, the Neolithic (the Lublin-Volynya, Funnel Beaker and Corded Ware Cultures), as well as the Bronze Age, the early Iron Age (the Trzcinica and Lasbian Cultures) and the Middle Ages. Three barrows of the Corded Ware Culture were also discovered and explored. They were closely connected with the arrangement of a cemetery from the Late Roman and early Migration Periods. Many aspects of the burial rites practiced at Ulów in all phases of the settlement is not an analogy in Polish lands. Therefore, the main question is why the people of so many cultures chose this place. Whether the settlement was associated with convenient geographical and geomorphologic conditions or with cultural tradition, or whether it was the random choice.

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

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

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

TH1-15 Abstract 14
Breclev-Pohansko – the cemetery around the rotunda as a place for a cult of the dead

Author - PhD Příchystalová, Renáta, Masaryk university, Brno, Czech Republic (Presenting author)
Keywords: Breclev-Pohansko, collapsing time, early medieval
Presentation Preference - Oral

The early medieval stronghold Breclev-Pohansko (southem Moravia, Czech republic) was important residential aggmentation of so-called Great Moravian Empire. In its north-eastern suburb Christian church with graveyard around was discovered. From years 2008 to 2012 there were found 152 graves. The various attributes of funeral features were explored there, for example the graves with presence or absence of funeral furnishing; with or without of wooden coffin; of interior stone construction and adjustment of the grave pits, the diversity in the cubage of grave pits or in the orientation of the deceased. The cemetery is dated to the turn of the 9th and 10th centuries. It is a time of the turbulent changes, the so-called Great Moravia was destroyed, the Christian identity organization was weakened and for a time “pagan” ideals of ancestors returned to power. In this time of uncertainty people buried their dead in this place. It is important to discover, how was this funeral space organized. The using of the usual archaeological analytical methods but also the application of multi-proxy methodologies (phosphat, isotopic, palynologic, parastalliong analysis etc.) help us to determine this knowledge.
TH1-15 Abstract 15

What can the cemeteries from 8th – 10th centuries from Lower Danube region tell us?

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Key Words: 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 that live on the Lower Danube? Did the differences between the way a grave was construct with all its architecture and goods can be viewed as arguments for seeing religious differences between groups or persons? Did the cremation and inhumation are antagonist or not?

Overall, we think we have arguments for a discussion not only about what is christian or what is pagan, but for a dipper one, concerning the main 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)
Key Words: 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, re-assessing the interest of such special cases where the deceased received noticable different treatment is just now forming systematic approach towards them. Recently the theme of deviant burials was reemphasized in European archaeology, sometimes creating very heated debate over it. Simultaneously, the increasing finds number of such untypical and strange character attracted significant interest from the media and the wider public on the matter, often turning the topic into academic grey area.

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

The paper will present the general conclusions at the current stage of the research and will illustrate the applied methodology and interpretations with certain case studies. The function of deviant burials in the increasingly complex legal culture of the medieval Bulgarian state 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)
Key Words: Aegean, burial, Performance

Presentation Preference - Oral

Death is one of the moments of transition in life. For the living it is important to effect 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 supernatural powers consist of food and blood sacrifice, libations, gifts of non-consumable material objects, prayer and the payment of respect. The present paper brings forward the ritual activities performed at selected Aegean Late Bronze Age cemeteries through the reflection of the material remains and the analysis of the structural components of the tombs.

TH1-15 Abstract 18

Phenomenon of multiple burials and its significance in the studies of Early Mycenaean elites

Author - PhD candidate Dutišk, Kataryzyna, Institute of Prehistory, Zalewsko, Poland (Presenting author)
Key Words: 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, Deendra, Lerna, Mycanae, Tyrins and Prosymna. The analysis focused on the formal nature of specified graves. Following preferences were provided with the MH III period (beginning of Mycenaean culture).

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

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

The Argolis cemeteries can be interpreted as a theatre of cultural changes. They indicate a desire to accent a strong significance of the blood ties role into a community and the role of the family as the basic social unit. They also indicate a means separate and designate for some groups of society. It could be interpreted as a performance of the elites’ 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 Valokšiënë, Šarūnė, Lietuvių literatūros ir tautosakos institutas, Vilnius, Lithuania (Presenting author)
Key Words: Grave goods, Interdisciplinary method, Symbolic meaning

Presentation Preference - Oral

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

Grave goods are valuable to determine and identify important data: dates and/or periods of graves and cemeteries, cultural migrations within a certain geographical area, the culture itself or even relevant changes of technologies. Often grave goods are broken down into different groups: by purpose e.g., as tools or ornaments, by whether they were belongings of the deceased or grave gifts, or by location of production i.e., whether they were locally produced or imported. In all these calculations and analyses, grave goods are treated like objects without particularly deep meanings.

It also seems to have been forgotten that funerals are a complex of symbolic actions, which archaeologists can perceive through material remains. To understand symbolical meaning of grave goods we can use interdisciplinary method. This gives a chance to see diverse view of artefacts. The main aim of this paper is to reveal the symbolic meaning of grave goods, using archaeology, ethnology, history and Lithuanian linguistics. To illustrate, five different artefacts have been chosen: needles, rings, sleigh bells, axes and swords.
LITHIC RAW MATERIALS IN PREHISTORY: SOURCING, NETWORK DISTRIBUTION AND USE

Thursday, 1 September 2016, 14:00-18:30
Faculty of History, Room 218
Author - Bonsall, Clive, School of Edinburgh University, History, Classics, and Archaeology, Edinburgh, United Kingdom (Presenting author)
Co-author(s) - Gurovska, Maria, National Archaeological Institute with Museum, Bulgarian Academy of Sciences, Sofia, Bulgaria

Keywords: lithics, prehistory, raw materials
Presentation Preference - Regular session

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

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

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

TH1-16 Abstract 01
Obsidian Use on Islands Big and Small: Sicily and others in the Central Mediterranean

Author - Tykot, Robert, University of South Florida, Odessa, United States of America (Presenting author)
Keywords: exchange, obsidian, sourcing
Presentation Preference - Oral

Starting in the Early Neolithic (ca. 6000 BC) obsidian from four island sources was acquired and distributed over great distances in the Central Mediterranean. In recent years, non-destructive analytical instruments, including portable X-ray fluorescence spectrometers (pXRF), have been used to determine the specific geological sources of thousands of obsidian artefacts from many sites throughout this region. Obsidian from the Aeolian island of 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 Usitica to the north. Small amounts of obsidian from sources on Sardinia and Palmarola made their way to southern Italy. Prior studies of the obsidian sources show multiple outcrops for each, with differences in visual and physical features (e.g. colour, phenocrysts, translucency, brittleness) as well as in quantity, size, and accessibility. Importantly, pXRF analysis can distinguish between these subsources, including Gabellotto and Canneto Dentro on Lipari, and Balata dei Turchi and Lago di Venere on Pantelleria. Consideration of these variables is critical not only to identify the possible sources 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 Michelbarga lithic procurement territories.

TH1-16 Abstract 02
Provenancing Archaeological Obsidian from Bulgaria

Author - Bonsall, Clive, Edinburgh University, Edinburgh, United Kingdom (Presenting author)
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Co-author(s) - Ganetsovski, Georgi, Regional Historical Museum, Vratsa, Bulgaria
Co-author(s) - Elenksi, Nedko, Archaeological Museum, Veliko Turnovo, Bulgaria
Co-author(s) - Ivanov, Georgi, National Archaeological Institute with Museum - BAS, Sofia, Bulgaria
Co-author(s) - Slanchev, 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 the 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, Konstantinos, CNRS-Lab. Trajectoires, Nanterre cedex, France (Presenting author)
Co-author(s) - Audry, Laurent, CNRS-Lab. Trajectoires, Nanterre cedex, France
Co-author(s) - Robert, Bruno, INRAP Lab. Trajectoires, Soissons, France
Keywords: Baratonian flint, sources, procurement, control, Neolithic, Michelbarga, routes, access
Presentation Preference - Oral

During the Middle Neolithic in the Aisne and Vesle valleys, the numerous sites dating to the Michelbarga Culture mostly exploit Upper Bartonian Tertiary flint (nbfl). 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 at Romigny/Lhery. The aim here was to address a number of issues. Is there a source of Bartonian flint closer than Romigny-Lhery with sufficiently large and good quality nodules for production of long blades? Are there any mine shafts of the kind known in other Michelbarga areas? Are ditched enclosures involved here in controlling access to raw materials? Is there is the case elsewhere in Michelbarga contexts, for example at Jablines, in the central Paris Basin, or Sparenne 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 Michelbarga 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 Palaesolithc, Neolithic, lithic raw material, flint, mining sites, workshops
Presentation Preference - Oral

High quality flint nodules (Baltic erratic flint), which are found in abundance on the ground surface and in the larger river and lake valleys in nowadays southern Lithuania were usually used for knapping by the Stone Age people. Furthermore, flint concretions in Lithuania are associated with Upper Cretaceous chalk / chalk marl blocks transported by glaciers and their outwash streams. The blocks of Pre-Quaternary rocks occur quite frequently in the southern and southeastern parts of Lithuania. Till now, the Final Palaesolithic flint mining sites and workshops had been discovered at 4 places in south Lithuania. Elymnias, Margioris, Titnas 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

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

Author - Gaspar, Rita, Porto, Portugal (Presenting author);
Co-author - Ferraia, 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 cherts and chalcedony are residual and have specific roles in the raw material economy. Work undertaken recently in the Sabor valley, northeast Portugal, brought to light several prehistoric assemblages (from Palaeolithic to Bronze Age) where a huge range of local and regional rocks were used. Dozens of different raw materials were identified and such diversity led to the creation of a regional raw materials reference collection, now in the Natural History and Science Museum of the University of Porto. Although several varieties of quartz dominate the assemblages, other local high silica content rocks were selected by prehistoric communities such as hydrothermal silicifications, opal, jaspers, myliths, mafic granulite, and greywackes among others. These had a crucial role in the economy of those human groups. Among all lithologies greywacke represents an important part since it was applied in several uses throughout times. It presents not only decent knapping aptitude but also a good thermal conductivity. With easy access it was used in the production of several lithic artefacts: hand axes, scrapers, cores, and flakes. Greywacke asblenses were also used in daily tasks. In this paper we will present the multiple uses of greywacke from Palaeolithic to Bronze Age, in a specific region and its significance for each human group.

TH1-16 Abstract 06

Differences in the raw material preferences in Polgár-Csoszhalom, northeast Hungary

Author - Ferádi, Nóri, Ethnológia és Ezenzeti Tudományok, 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-Csohzalom 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 (factual and profane) 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 different 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 on the material culture of the site. In some cases, no matter which role 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, I have undertaken a chaîne 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 quarrying, and, to some degree, the rock’s distribution. This, I demonstrate and interpret spatial and temporal variation in procurement practices. That is, some practices involved in lithic procurement were common cross-regionally, while others defined regions and/or time periods. In some situations, it seems to have mattered more how, from whom or where, you obtained your rock, than the type or the quality of the rock itself. Suggesting also an index of the intensity of quarrying, the different modes of lithic procurements demonstrate the variations of the role the various lithic extraction sites must have played in the prehistoric societies. Some extraction sites even became nodal points in the landscape, entangled in social and symbolic structures. Thus, when contextualised, quarry studies have the potential to provide insight into developing social relations and social-political strategies.

TH1-16 Abstract 08

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

Author - Nielsen, Søren, 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 southwestern 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 farming 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 subjected 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 southwestern 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 - Grużdź, Witold, 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 flint axes in western Poland. The main subject of our study is flint axes associated with the Funnel Beaker Culture, Globular Amphora Culture, and Corded Ware Culture. For the research presented in this paper, we combined raw material analysis with morphometric, morphologic, 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 western 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 lithic axes only near to the prehistoric flint mines and their goods were imported to the other territories, or they journeyed as specialists who distributed and repaired the flint axes.
TH1-16 Abstract 10
Banded flint from Central Poland – new discoveries, new questions
Author - Sadowski, Michal, University of Cardinal Stefan Wyszyński in Warsaw, Warsaw, Poland (Presenting author);
Co-author - Budzanowska, Janusz, University of Cardinal Stefan Wyszyński in Warsaw, Warsaw, Poland;
Co-author - Grydziuk, Włodzimierz, University of Cardinal Stefan Wyszyński in Warsaw, Warsaw, Poland;
Co-author - Jakubczak, Michał, Institute of Archaeology and Ethnology Polish Academy of Sciences, Warsaw, Poland;
Co-author - Radzińska, Katarzyna, University of Cardinal Stefan Wyszyński in Warsaw, Warsaw, Poland
Keywords: banded flint, flint mining, remote sensing
Presentation Preference - Oral

Prehistoric banded flint mines were discovered on the northeast margin of the Świętokrzyskie Mountains nearly a hundred years ago. Since then, they have been attracting the attention of several generations of Polish archaeologists. A special place in these studies was taken by a large and well-preserved mining field “Krzemioni” Intensive research on prehistoric banded flint exploitation began in the last quarter of the twentieth century was summarized during the VIIth International Flint Symposium. In recent years, one has returned to the research of flint mining using new technical possibilities. Geological survey showed the location of many kilometres of outcrops of banded flint in the southeast margin of the Świętokrzyskie Mountains. However, there is no evidence of its use in prehistoric times. Survey also located sporadic occurrences of secondary accumulations of banded flint in glacial deposits in southern Poland (near Cracow). Airborne Laser Scanning (ALS) make it possible to 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 site and status 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 final Neolithic and Bronze Age.

TH1-16 Abstract 11
Still in Prehistoric Times? The mined flint for production of high quality tools in Dynastic Egypt
Author - Butelawa, Sylwia, 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-Shahsh, Wadi el-Sajjar, Wadi Umm Habhab and in Western Thebes. These places attracted the attention of researchers since the end of the 19th century. However, none of them has been comprehensively examined. Only recently research has been resumed. In the area of the 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 no 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 in 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 (Bükk Culture), Slovakia
Author - Allard, Pierre, CNRS, Nancy, France (Presenting author);
Co-author - Klaric, Laurent, CNRS, Nancy, France;
Co-author - Honma, Nobuyuki, 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 Kášov-Cepegov I in eastern Slovakia. Excavations at Kášov were led by T. Basta during the mid-1990s. Excavations revealed one pit with hundreds of obsidian waste concentrations and associated decorated potsherds belonging to the Bükk Culture (BNEZ 1991). The exploitation and trade of obsidian is usually linked to the Bükk 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 knap operation of obsidian knapping at Kášov 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 Kášov can rather be interpreted as a domestic assemblage. The obsidian production does not suffer much from other blade productions made on limnoquartzite or radiolarite described on other Bősk sites. We believe that the blade debitage of the pit at Kášov 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 Oslo, Museum of Cultural History, Helsinki, Finland (Presenting author);
Co-author - Anttiroiko, Niko, Archaeological Field Services, National Board of Antiquities, Helsinki, Finland;
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Co-author - Tarakčov, Alexey, Karelian Research Centre, Russian Academy of Sciences, Petrozavodsk, Russian Federation
Keywords: Lake Onega, Mesolithic, Fennoscandia, Russia, lidite, shungite, lithic provenance analysis
Presentation Preference - Poster

Lidite is a low grade metamorphosed siliceous sedimentary rock consisting of quartz and approximately 5% noncrystalline shungite carbon. The rock has a conchoidal fracture but often contains internal flakes while the noncrystalline carbon gives it a pitch black colour. In Northeast 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 idrites 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 of the source of the Jokivarsi 1 artifacts we use dating and identification techniques, which indicate contemporaneous Late Preboreal human presence on the northern shores of the Onega Lake. In order to identify the raw material of the Jokivarsi 1 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 petrological methods, and 2) to develop a non-destructive method for identifying lidite in archaeological assemblages. The study was conducted and the paper prepared with support from the North Karelia Fund of the Finnish Cultural Foundation and the Russian Scientific Fund (grant 14-17-00766).

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 artifacts. Linearity-based 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 “chocolates” 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 were analyzed more than 1400 flint artifacts. 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 is Electron Probe Micro Analysis (EPMA). We analyzed several geological samples as well as artifactual artifacts 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 Linearity-based communities' exchange and distribution of siliceous rock. Acknowledgements: The investigations were funded by the National Science Centre in Poland (PRELUDIUM 2; UMO-2011/03/N/HS3/03973).
Local flint pebbles reduction strategies in the settlement of Sārnate

Author: Katrīna, University of Latvia, Riga, Latvia (Presenting author)

Keywords: Neolithic, pebble reduction strategies

Presentation Preference - Poster

This study is an analysis of local flint pebbles reduction strategies in the settlement of Sārnate. The site is located approximately 2.5 km from the present Baltic Sea shore on a former lakeshore on the Kurzeme Peninsula (western Latvia) and is dated to the Neolithic of the East Baltic. It was excavated between 1938 and 1959 by Edwards Strumi and Liččja Vanina. During excavations in the site, many separate dwellings were discovered. Therefore, in this site it is possible to analyse 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 flakes were removed from a pebble’s cortical surface of the pebble as well as used as a striking platform. In this group, flakes are produced from impact along the cortical edge of the pebble. Using this strategy, the dwellings’ inhabitants used quite thick and massive monopolar flakes. It is mostly present in the secondary flake group and used for bipolar technology as well. The secondary dwelling group consists of dwellings with the quality of a flint pebble that did not affect the reduction strategy. In these dwellings both poorer quality local flint pebbles and all kinds of imported flint pebbles were transformed and used as platform cores and irregular multidirectional cores. In these dwellings flakes from local flint were more than flakes from imported flint. A thinner and mostly with a flat striking platform. If the results of this study are compared with the results of the study of pottery in the Sārnate settlement by Valdis Bērziņš, then the first group of dwellings, where raw material quality affected the pebble reduction strategy, are mostly those where were used local pottery tradition: dwellings with Early Sārnate Ware and dwellings with Late Sārnate Ware, while in dwellings where raw material quality did not affect pebble reduction strategy, Typical Comb Ware pottery was mostly used.

Localisation of Sources of Obsidian Registered in Bohemian Prehistory (Czech Republic)

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Keywords: Bohemian, obsidian

Presentation Preference - Poster

The poster summarises the results of the first geochemical analyses of prehistoric obsidian artefacts from Bohemia (Czech Republic, Central Europe). The analyses focused on eleven samples with reliable find contexts. The majority of the samples come from the Neolithic period (Linear Pottery Culture: LBK; 5500–5000 cal. BC; Březová, Western Bohemia; 5000–4500 cal. BC). On the data obtained, it is possible to locate the raw material of nine samples to the Bohemian source called Carpathian 1b (Břevnov – Čejkov). However, the raw material of the two remaining samples dated to late periods comes from Hungarian sources, Carpathian 2b (Elsőbénye – Olaszliszka). It is therefore evident that in the Neolithic period, obsidian from the Hungarian source Carpathian 2b was used in Bohemia. Both sources are more than 500 km away from the site studied, which suggests that direct access to the sources is highly unlikely. There are two possible explanations. Either, the obsidian raw material was transported to the Bohemian territory with the primary aim of gaining the raw material as such (good quality, black color) disregarding its source. Thus, the final evidence of the two sources in the site is the result of a pure coincidence. The other explanation is based on the possibility that different societies (settlements) had different demands or exchange strategies.

Chocolate flint extraction points and workshops in Oronoso, Poland. Spatial and functional analysis

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Keywords: chocolate flint, Oronoso, Neolithic

Presentation Preference - Poster

Oronoso village and its region is located in the northeast part of the chocolate flint deposits (one of the most valuable raw materials of Poland), on the northeast Masovian margin of the Holy Cross Mountains and Radom Plain, in the Sieradz district, Masovian voivodship. The history of research in this area began in the early XX century, when J. Kruckowski discovered numerous sites connected with the exploitation of local raw materials that are dated from Late Palaeolithic to Early Bronze Age. During this research, the use of underground, mining methods there was also confirmed, and dated as early as the Late Palaeolithic and probably Early Bronze Age. All of the sites known from archival research (conducted also by other researchers until recently) have been collected in one database. This database contains several hundred sites that are classified by the northwestern part of the chocolate flint outcrops (about 60 km), extracted from chocolate flint deposits (about 60 km). This database contains several hundred sites that are classified by the chocolate flint outcrops (about 60 km), extracted from the chocolate flint deposit (about 60 km). This database contains several hundred sites that are classified by the chocolate flint outcrops (about 60 km), extracted from the chocolate flint deposits (about 60 km).
In order to conduct comprehensive morphology analysis of lithics, documentation and appropriate methodology are important. Options of various detailing morphometric methods were evaluated using 2D images and 3D models of the studied objects. Photogrammetric methods using images obtained with a Canon EOS 700D SLR camera, which were processed using software visualization. Accordingly, in the study were conducted experiments in which the 3D models of pebbles and lithic artefacts were corresponding methodology for archaeological research and that requires evaluation of morphometric methods in an appropriate studies conducted do not allow to evaluate the suitability of applied methods and point to fact that still there has not been shape features (e.g., size, certain proportions), thus, such data are not complete. Important contribution to improvement of archaeology mainly correspond to linear measurements, however, such data do not characterize shape, but refer just to some and spatial context. Moreover, morphology analysis of artefacts reflects also ancient men knowledge, skills and cognition. Ancient periods. Studies to date confirm the importance of morphology analysis not only for typology and classification, but also for tracing similarities, differences and transitions of shape characteristics comparing archaeological evidences in temporal and spatial context. Moreover, morphology analysis of artefacts reflects also ancient men knowledge, skills and cognition. Morphology analysis quantitatively can be carried out using morphometric methods. Traditional morphometric methods used in archaeology mainly correspond to linear measurements, however, such data do not characterize shape, but refer just to some shape features (e.g., size, certain proportions), thus, such data are not complete. Important contribution to improvement of morphometric methods has been derived by development of various geometric morphometric methods. These methods are not widely used in archaeology, and studies carried out so far mainly have demonstrated the benefits of certain applications that have been borrowed from other research fields where such methods have been adapted. In this respect, the number of studies conducted do not allow to evaluate the suitability of applied methods and point to fact that still there has not been determined an approach that would allow to characterize distinguished tools or tool types, mostly in narrow regional context often applied in case studies, but would be also used as a method for obtaining data for wider comparisons and determination of standard characteristics of artefact shapes. The mentioned indicates that it is necessary to develop a comprehensive morphology analysis that requires evaluation of morphometric methods in an appropriate context. Morphology analysis is based on precise and uniform documentation of artefacts and one of top approaches is 3D visualization. Accordingly, in the study were conducted experiments in which the 3D models of pebbles and lithic artefacts were created using Arcon Breuckmann smartSCAN 3D scanner and software OPTOGAT. As well the objects were visualized in 2D by photogrammetric methods using images obtained with a Canon EOS 700D SLR camera, which were processed using software Agisoft PhotoScan Professional and MeshLab. The studied objects had dimensions from 0.5-2.0 cm. Subsequently, application options of various detailing morphometric methods were evaluated using 2D images and 3D models of the studied objects. In order to conduct comprehensive morphology analysis of lithics, documentation and appropriate methodology are important. The study conducted reflects possibilities of accurate documentation in 3D, however, the solutions are resource intensive. The obtained data are more complete comparing with 2D documentation, however, dominant part of information can not be directly used for interpretation. Therefore, still the high-quality 2D documentation in representative projections of artefacts can be considered as sufficient and should be chosen as minimal requirement for artefact documentation. It allows also choosing items for further detailed research that would be useful to conduct using 3D visualizations.

Keywords:
- Seglins, Valdis, University of Latvia, Riga, Latvia
- Zarina, Liga, University of Latvia, Riga, Latvia (Presenting author)
- Kalnins, Marcis, University of Latvia, Riga, Latvia
- Co-author(s) - Kyrians, Marcin, University of Latvia, Riga, Latvia
- Co-author - Bērziņš, Valdis, University of Latvia, Riga, Latvia
- Keywords: 2D and 3D visualizations, morphometric methods, stone tools
- Presentation Preference: Poster

Traditionally, tools are regarded as indicative for characterization of ancient cultures and many of the prehistoric cultures have been distinguished mainly based on the characteristic shapes of tools and applied processing technologies. The relatively high level of preservation of stone artefacts determines their special value in prehistoric studies, especially regarding the most ancient periods. Studies to date confirm the importance of morphology analysis not only for typology and classification, but also for tracing similarities, differences and transitions of shape characteristics comparing archaeological evidences in temporal and spatial context. Moreover, morphology analysis of artefacts reflects also ancient men knowledge, skills and cognition. Morphology analysis quantitatively can be carried out using morphometric methods. Traditional morphometric methods used in archaeology mainly correspond to linear measurements, however, such data do not characterize shape, but refer just to some shape features (e.g., size, certain proportions), thus, such data are not complete. Important contribution to improvement of morphometric methods has been derived by development of various geometric morphometric methods. These methods are not widely used in archaeology, and studies carried out so far mainly have demonstrated the benefits of certain applications that have been borrowed from other research fields where such methods have been adapted. In this respect, the number of studies conducted do not allow to evaluate the suitability of applied methods and point to fact that still there has not been determined an approach that would allow to characterize distinguished tools or tool types, mostly in narrow regional context often applied in case studies, but would be also used as a method for obtaining data for wider comparisons and determination of standard characteristics of artefact shapes. The mentioned indicates that it is necessary to develop a comprehensive morphology analysis that requires evaluation of morphometric methods in an appropriate context. Morphology analysis is based on precise and uniform documentation of artefacts and one of top approaches is 3D visualization. Accordingly, in the study were conducted experiments in which the 3D models of pebbles and lithic artefacts were created using Arcon Breuckmann smartSCAN 3D scanner and software OPTOGAT. As well the objects were visualized in 2D by photogrammetric methods using images obtained with a Canon EOS 700D SLR camera, which were processed using software Agisoft PhotoScan Professional and MeshLab. The studied objects had dimensions from 0.5-2.0 cm. Subsequently, application options of various detailing morphometric methods were evaluated using 2D images and 3D models of the studied objects. In order to conduct comprehensive morphology analysis of lithics, documentation and appropriate methodology are important. The study conducted reflects possibilities of accurate documentation in 3D, however, the solutions are resource intensive. The obtained data are more complete comparing with 2D documentation, however, dominant part of information can not be directly used for interpretation. Therefore, still the high-quality 2D documentation in representative projections of artefacts can be considered as sufficient and should be chosen as minimal requirement for artefact documentation. It allows also choosing items for further detailed research that would be useful to conduct using 3D visualizations.

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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 Götaland 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 oldean Welsh versus English cultural identities based on false or irrelevant, modern, and thus constructive, historic time 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. Istrate, Daniela Veronica, Braov, Romania (Presenting author)

**Keywords:** buildings archaeology, medieval church, Transylvania

**Presentation Preference:** Oral

My paper will explore the region of central-western Romania, commonly known as Transylvania, in the first centuries of the second millennium. This region was part of the kingdom of Hungary, but was in fact located on a confessional and ethnic frontier, between Orthodox and Catholic Europe, and in an area of bewilderment ethnic and linguistic variety—both factors responsible for giving the region its distinct character of a borderland. One of its most significant forms of expression of that character was religion: pagans, orthodox and catholics settled this area and found specific ways of living and 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 complicated stratigraphic context, consequence of the use of the area during the last two thousand years. Prehistoric, Roman, post-Roman, Depot, and 8th-10th centuries’ habitation evidence, 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 grayeward and later by successive 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. Vilnijc, Josip, Croatian Conservation Institute, Svetvinčenat, Croatia (Presenting author)

**Keywords:** Development, Medieval fort, preliminary reconstructions

**Presentation Preference:** Oral

The Medieval fort Petrapilosa is situated in the northeast of the Istrian peninsula in the Republic of Croatia. It is one of the largest, and as historical sources indicates, one of the most significant feudal forts in Istria. Systematic archaeological researches of the fort area have been conducted in the last six years that confirmed the lengthy and very dynamic development of this fort. The results of the archaeological researches in combination with the detailed analysis of the preserved wall structure allowed us distinction of eleven phases of development that covers period from 11th till 17th century - a process that synthesizes both the stages of growth and development and episodes of destruction or degradation. These analyses allowed us a reconstruction of the appearance of the fort in its various developmental phases. Development of building structures was closely connected with different historical periods 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 Petra pilosa 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 Västgötland**

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

**Keywords:** Medieval churches, Medieval roof structures

**Presentation Preference:** Oral

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

It has been as-sumed that the Swedish material may consist of some hundred Romanesque roof structures and probably also a hundred Gothic structures. Until the conduct of above mentioned surveys our knowledge of the number of pre-roman objects was scarce and more or less random. In the present stand it seems that the early mediev-iol roof structures of churches in the landscapes of Götaland may comprise the largest preserved corpus of this kind in Northern Europe. This heritage is to attain its proper importance as a source for the dating of churches and for understanding the process 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 carved struts (often meeting the rafters and tie beam) with tenon seems to belong to the oldest ones, though these are only partly preserved in a few geographically concentrated churches. The most common type of roof trusses has cross struts, the most advanced of them boasts six and the most simple two. Some of these roof trusses have decorative features or mountings for liturgical bells, which clearly shows that the earliest stone churches in the diocese did not have ceilings or vaults. Four early medieval tower roofs have been preserved.

From the end of the 12th century up until the beginning of the 16th century, very few constructi-ons are preserved. Probably there never existed any great number because of the economic and political decline for Västergötland after the plague and agrarian crisis in the mid-14th century. Roof trusses from these centuries exist today in 13 churches.
This paper will outline the importance of examining the full range of buildings found at the medieval hospitals of England, and how they interact as part of a complex system, for understanding how these sites functioned, both physically and religiously. The medieval hospital of St. Mary’s was first founded in the 10th century, with two founded by Archbishop Lanfranc of Canterbury, and they lasted until 1547 when Edward VI passed the Charities Act, abolishing the practice of prayers for the souls of the dead. The four and a half centuries between these dates, the medieval hospitals were utilised by the charitable to cater to a range of people deemed worthy of Christian charity. Whilst poverty was an overwhelming concern, this often manifested in care for sufferers of leprosy or in sheltering poor wayfarers and pilgrims, and often attention has focussed on seeing how different hospitals cared for different people. Unfortunately this has often meant that examination of their underlying ideological foundation, especially architectural layout, is neglected. Previous architectural discussion of English medieval hospitals have focussed specifically on the infirmary hall and chapel, the most likely elements to survive as standing remains, and have otherwise noted little overall planning to the site, if the rest of the buildings, such as kitchens or dormitories, are studied at all. Archaeologically, despite the ever increasing number of excavations from across the country, there has only been limited synthesis, the most complete by Roberta Gilchrist in 1995. In both fields the great variation in the nature and form of these buildings across the county has been noted and described as random, but medieval hospitals acted within a form of spiritual economy that also included institutions such as monasteries, nunneries, friaries and chantries. Despite the overwhelmingly religious nature of these institutions, the underlying presence of a structure to their space has never truly been investigated.

New research has suggested that when looking at these sites as a whole a hierarchy of space can be seen that implies that at some level there was a unified conception of how these sites should look and function, with areas to the south and east being ideologically higher than the north and west. Utilising case studies from excavated hospitals across England these structured spaces will be explored, from the famous St. Mary Spital in London, to St. Bartholomew’s at Bristol, to small pilgrim cells such as St. Mary Magdalen at Patney, and suggest that the layout of English medieval hospitals was likely based upon religious ideology, social standing, and attitudes to gender. This paper will also highlight some of the implications this ordering of space may have had 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 the historical evidence on founding settlement, landscape and the human impact on landscape and nature.

The monastery of Rinchnach, located in the Bavarian Forest, is said to have been the first settlement in this region. Apparently, Saint Gunther, founder of the monastery, started the clearing of the forest and the building itself back in 1011 AD. How this historical date is to be analysed with various methods. The research on geoelectrical prospecting data, cores from swamps or colluvium 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 analyses like radiocarbon dating or archaeological reasearches, a chronological overview can be given.

However, in these works there is still progress, the presentation will only give an overview on 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 archaeologic and historic questions.

References:

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

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

**TH1-17 Abstract 09**

**Medieval Oslo’s Masonry Buildings Revisited**

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

**TH1-17 Abstract 10**

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

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

Keywords: Buildings, Landscape, Medieval

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 1276. This law regulated metalworking activities to the fringes of the town because of the risk of fire. The excavated building was destroyed in a fire, demonstrating the need for such regulations.

**TH1-17 Abstract 11**

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

Author: BA Aalto, Ilari, University of Turku, Turku, Finland (Presenting author)

Keywords: Buildings, Identity, Symbols

Presentation Preference: Oral

Late medieval brickmakers’ marks used in the Nordic countries are a poorly studied set of symbols used by master brickmakers to sign their production. The signs consist mostly of symbols that derive from the common medieval imagery – attributes of saints, apotropaic symbols and letters. In Finland the brickmakers’ marks can be mostly found in still standing masonry buildings like castles and particularly churches. Lately they have also been found in excavations of urban sites. As the marks seem to have been personal, they offer also a mean of relative dating of masonry buildings.

It’s suggested here that these marks could be used to study both the medieval brickmaking industry and the visual and mental culture behind the marks. Furthermore the comparison of marks in different buildings makes it possible to study the geographic areas where the brickmakers worked. In this way the marks could reveal data about the craftsmen that has not been preserved in written sources. I will also bring up the question of the ethnicity of the medieval brickmakers who worked in the area of modern Finland. Were they Swedish-Finnish or German?

**TH1-17 Abstract 12**

**To build the Medieval harbourside of Gammel Strand, Copenhagen, Denmark**

Author: Whithey, 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 Carinčin Grad in southern Serbia, which is supposed to be the imperial city Luxorina Prima, existed for merely 90 years. Without any marks of earlier or later occupation, the excavations provide undisturbed insight into everyday life in an early medieval settlement of the 6th century. Excavations in Carinčin 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 high resolution with integration of archaeobotany and soil science. The finds indicate a habitation 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 fulfils in the settlement system regarding social, religious and economic aspects. The building accommodated one or more persons who belonged to a specific social status 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 what departs the patterns of dispossession organisation. This and other economic activities display in little the organisation of the whole settlement. Working on households provides information of how the dwellers contributed to the development of the society. Changes and continuities in the ceramic spectrum and the settlement structure may indicate cultural but also economic transformations which concerned the ordinary people directly.

The talk will examine if it is generally possible to work with the household concept if there are unspecific structures or if it is rather necessary to apply it to gain more information. For this purpose it will place the archaeological remains of a specific small house into the context of a settlement.

The Alp Fenga - Analysis of a post medieval alpine dairy hut in the Silvretta Alps
Author - Ranzinger, Mario, Heidelberg, Germany (Presenting author)
Co-author(s) - Bakardzhiev, Stefan, Regional historical museum - Yambol, Yambol, Bulgaria (Presenting author)
Keywords: Alps, Dairy Farming, Interdisciplinary
Presentation Preference - Poster
Keywords: architecture decorations, ceramic decorations, Medieval castle

The aim of the poster is to present the architecture decoration of the buildings in Maliko kale. During the archaeological excavations are discovered western fortress wall with two of its towers: one circle and one rectangular, and are examined line of rooms, situated near the western wall. The buildings are decorated with brick niches and with rows from bricks and mortar. The rectangular tower is decorated with ceramic decoration, situated on two rows. All these decorations are typical for the rich towns in the Byzantium Empire during 10-12 c. Their presence here show the importance and wealth of the owner of the Maliko kale.

The Alp Fenga has been analysed in form of a bachelor thesis in the year 2013. It was possible to determine typology, chronology and functionality with an interdisciplinary approach.

Beginning in 2007 with a field survey it has been excavated in three campaigns. Due to the project "Rückwege" there should be created a record of human activities and environmental changes within this region.

The building can be interpreted due to the finds, results and historical notes. For example the ground plan of the ruin has similarities in the 18th/19th century. Furthermore with the help of dendrochronological examination, analysing finds (e.g. the only coin and historical maps this dating could be verified. Although this building is meant to be built in the 18th/19th century, we also have clues and written evidences that the pasturing activities already started in the medieval period.

Another attempt in the whole region to record archaeological sites was to collect data with satellite images, drones and geoarchaeological methods. Besides the chronology it was possible to find evidences for almost constant human activities in this high mountain region. In conclusion the Alp Fenga is an important part for the archaeological research of dairy farming in the Silvretta Alps.

The Alp Fenga - Analysis of a post medieval alpine dairy hut in the Silvretta Alps
Author - Ranzinger, Mario, Heidelberg, Germany (Presenting author)
Co-author(s) - Bakardzhiev, Stefan, Regional historical museum - Yambol, Yambol, Bulgaria (Presenting author)
Keywords: Alps, Dairy Farming, Interdisciplinary
Presentation Preference - Poster
The rise and development of brick production in Vilnius, the capital of the former Grand Duchy of Lithuania, was inspired as strategically important craft. The production of bricks has been changing and improving during more than seven centuries. Therefore brick is an important source providing the knowledge about the technical development, production potential and cultural influence during different periods. The evaluation of physical and chemical properties of bricks would enable us to judge about the technological standards of Vilnius bricks, deviations from them and their reasons. The promising investigation methods of the old bricks are related to applied methods of exact sciences. One of them is geochemical method. The geochemical data statistically grouped using Ward’s hierarchical clustering (Barczenica, Tartakiewicz, 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, Pb, Sr, S, P, Br, Cr, 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.

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**TH1-17 Abstract 19**

**A glimpse of the main street in Medieval Oslo**

**Author:** Birkaulnd, Kristina, NIKU, Oslo, Norway (Presenting author)

**Keywords:** Middle Ages, Oslo, street

**Presentation Preference:** Poster

During the excavations at the Foli line project a small plot outside the main excavation area was explored in the medieval town of Oslo. Although the first meter of the cultural layer was disturbed, there were still preserved 11 stratigraphically layered of which 9 was from a street. It was soon determined the street was the main street in Medieval Oslo – Vestre strete (1276) states the streets had to be cleaned before Christmas. There were a limited amount of objects found, but some of them tell us about production in the town. In one spot horn debris together with a horn comb were found, in another spot a whetstone together with whetstone blanks were discovered. All objects were situated on the edge of the street. The excavation has just been finished and we expect dating from CH4 and dendro-chronology this summer, together with results from soil chemistry samples. This is the street with the most layers ever excavated in Norway, and together with the main excavations at the Foli line project it give new and exciting information about the medieval town of Oslo.

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**TH1-18 Abstract 01**

**One burial at a time: Integrating entevlual archaeology and mortuary analysis**

**Author:** Polanyi, Tamas, Northwestern University, Evanston, United States of America (Presenting author)

**Keywords:** Bronze Age, death ritual, social change

**Presentation Preference:** Oral

Social change often comes as a thunderbolt shattering structured and institutionalized landscapes of human-material relations. Social change generally becomes recognized and experienced as an event. It is perceived as a single, synchronous episode affecting multiple intersecting spheres of life. Most of social progress, however, remains invisible, hidden from the broader public and from the outside observer with no durable and less visible material traces. Nevertheless, it is critical to recognize that individual occurrences of negotiating stasis and change contribute to the specific shape events take. Additionally, such occurrences construct the social, political and economic circumstances that enable events to have a sweeping material effect on society.

These observations are exponentially significant in the study of past societies. In archaeological analyses major transformations become recognized mostly through detectable and durable broad scale ruptures in the articulation of people and material resources. Most processes leading up to such events remain invisible. The goal of this paper is to provide a theoretical framework for the analysis of social transformations shaping major shifts in European prehistory. Integrating Victor Turner’s theory on ritual process and William Sewell’s concept of historical change I will present a historical processual approach to death rituals. I argue that a contextual and sequential analysis of funerals is a powerful tool to reveal micro-political processes contributing to broad historical transformations.

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**TH1-18 Abstract 02**

**Big men and small chiefs – social transformations during the early 2nd millennium BC**

**Author:** PhD Iversen, Rune, University of Copenhagen, Copenhagen, Denmark (Presenting author)

**Keywords:** Early Bronze Age, Late Neolithic, Social transformation

**Presentation Preference:** Oral

The Neolithic societies of southern Scandinavia were clearly demarcated from those of the Mesolithic by labour-intensive, large-scale construction works such as monumental tombs and enclosures. However, we do not yet see the long-distance, monopolized exchange of metal and prestige items that characterises Bronze Age societies from period II onwards, and which bear witness to a chiefdom organisation.
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 Jutland culture. The amount of imported metal had, however, not yet reached a level, which allowed the creation of formal hierarchies.

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

Copper and gold, on the other hand, held opportunities for control by powerful and influential lineages or individuals, as these metals could only be obtained through exchange. Consequently, if upcoming chiefs were able to monopolise external exchange, increased social stratification might have been facilitated and might have led to the formation of self-perpetuating elites. The occurrence of large ‘chefflaine’ houses and the increasing number of metal objects evident from 2000 BC onwards shows that certain individuals and/or lineages were successful in creating a production surplus to be exchanged for metal objects and that these lineages were able to obtain influential positions in the exchange networks over time. The creation of chefflaine structures was, of course, a long and complicated social process with no single explanatory factor, as clearly illustrated by copper imports in the Early Neolithic, which did not lead to the formation of formal hierarchies.

However, in contrast to the Early Neolithic, metal was, from around 2000 BC, an inevitable precondition for the production of ‘international’ status symbols and up-to-date weaponry such as daggers, halberds and spearheads, as well as gold and bronze rings etc. The necessity of obtaining bronze and gold meant that it became more difficult to manifest oneself as an influential individual or ‘big man’ without access to these prestige goods. As such, a clear shift in society occurred and wealth development became a reality.

Keywords:
- Bronze Age
-amber
-amber artefacts
-amber find loci
-amber finds
-amber jewelry
-amber finds in northern Germany
-amber as social status marker
-amber and social status
-amber and identity
-amber and power
-amber and authority
Interpreting the Archaeological Record

In 1973, Colin Renfrew published *Monuments, mobilisation and social organisation in Neolithic Wessex*. This seminal study examined how the amount of time invested in monument building changed throughout the Neolithic period in south central England. Renfrew's (1973) calculations appeared to demonstrate that the number of 'man-hours' invested in building monuments increased as the absolute numbers of individual monuments fell. On the basis of these findings, Renfrew (1973) argued that a number of hierarchical, centrally controlled chiefdoms had emerged in Wessex by the Late Neolithic / EBA period. He surmised that whilst the smaller, tribal societies of the earlier Neolithic had built many, small monuments, the later and more populous polities of the Late Neolithic harnessed labour from vast geographical territories in order to build the few, large, henge enclosures of Stonehenge, Avebury, Dorchester etc.

The implications of Renfrew's (1973) study were far reaching: the great monuments of Wessex were, in effect, presented as the earliest evidence of hierarchical institutions exercising power and control in Britain. Moreover, in contrast to earlier, culture-historical models of the past, Renfrew's (1973) explanatory framework succinctly demonstrated how internal processes, not external drivers, could drive large-scale social change. Throughout the 1980s and 90s, however, a number of researchers began to question Renfrew's (1973) claims and the anthropological theory that underpinned them (e.g. Hodder, 1985; Barrett, 1994). They argued that functionalist, social evolutionary models like Renfrew's (1973) were simply a means of making the historically specific and unfamiliar comprehensible (Barrett 1994: 161). In fact, the actions and experiences of individuals – the very things that actually constitute human history – were erroneously being written out of these overly generalised accounts of the past.

This postprocessualist 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 analysis and the hypothesis that the amount of time invested in monument building increased as the absolute numbers of individual monuments fell is re-examined.

Keywords: Monumentality, Social organisation, Wessex

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)

Presentation Preference - Oral

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 craftspersons 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 craftspersons only worked on a given institution (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 social unit Nordic Bronze Age, this analysis tries to show the contact networks in between and explains how and why we can talk about one social unit during the Bronze Age.

Keywords: Itinerant craftspersons, Metalworking, workshop organisation

Presentation Preference - Oral

TH1-18 Abstract 09

Contact Networks in Metalcraft: the Nordic Bronze Age between 1500-1100 BC

Author - Dr. Nørgaard, Heide, Moesgaard Museum, Aarhus, Denmark (Presenting author)

Keywords: Itinerant craftspersons, Metalworking, workshop organisation

Presentation Preference - Oral

TH1-18 Abstract 08

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

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

Keywords: Bronze Age Denmark, craft 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 operators 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 specialization and the role of flint craftsmanship on a diachronic scale in relation to contemporary socio-economic structures.

Keywords: Bronze Age Denmark, craft specialization, Lithic Technology

Presentation Preference - Oral

TH1-18 Abstract 09

Dynamics and transformation during the Late Bronze Age of western Norway

Author - Ass. Prof. Antinseit, 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 practices. This will be combined with the broader north European pattern of changes in order to understand the social dynamics involved in these processes.

Keywords: EBA-LBA, Materiality, Transformation

Presentation Preference - Oral

TH1-18 Abstract 11

Social dynamics in Bronze Age Scania

Author - Dr. Skoglund, Peter, University of Gothenburg, Göteborg, Sweden (Presenting author)

Keywords: Bronze Age, Cultural landscape, Social dynamics

Presentation Preference - Oral

In south Scania an interesting turning point appeared around 1200 BC when the tradition of building mounds came to an end and was replaced by urn burials. New excavations in south Sweden (Scania) demonstrate the urn burials to be organized as small, dense communities. 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 culture has been dated approximately by 4250-3950 ВС (cal). The BA-layer contains predominantly the bones of domestic species and horse; the remains of wilding, to the materials of the early Yamnay culture. Moulds, are also related to this complex. The found pendant with through hole and small horns made of plain bone blade is similar fragments of more than 50 vessels), animal bones, wreckages 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 Yamnay culture. Archaeological materials: the E-layer contains mainly the bones of domestic species: cattle and small cattle, dog, horse, and also of elk and beaver; the BA-layer contains predominantly the bones of domestic species and horse; the remains of wilding, including elk, auroch, bear, beaver, and fox, are live in number.

The series of 15 radiocarbon data based on animal bones from all the sections of the settlement area, and from different depths was undertaken. The materials of E-complex have been dated approximately by 4900-4400 BC (cal). Above that, some materials have been dated approximately by 4250-3950 BC (cal). The series of radiocarbon data based on animal bones from the upper cultural layer confirmed previously established data based on the shadings ceramics from Turganic settlement. K-15957 4710±80 BP. In total, the BA-layer could be dated by 3900 - 3400 not BC (cal). This dating corresponds with the well-known dates of the ceramics from Repin Hutor and Kuysh-Hak I and it settlements, and from some other sites of Repin horizon of Early Yamnay culture. The ceramics from the BA-layer of Turganic settlement is similar to the ceramics from these sites.

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 (i.e., from different cultures or European countries) or comparing rural environments to towns, but also those who have encountered difficulties when trying to operate such projects.
TH1-19 Abstract 02
Bronze Age foodways in the Carpathian Basin: similarities and differences, continuities and changes

Author - Dr. Molina Muñoz, Elena, Autonomous University of Barcelona, Bellaterra, Spain (Presenting author)
Co-author(s) - Rosell-Melé, Antoni, Institut de Ciència i Tecnologia Ambientals, Autonomous University of Barcelona, Barcelona, Spain
Keywords: Bronze Age, Carpathian Basin, Subsistence economy
Presentation Preference - Oral

The Argaric society was developed during the Early Bronze Age (c.2200-1550 BC) in the South east of the Iberian Peninsula, and became one of the first State societies in continental Europe. This society had a very characteristic pottery repertory, with a high degree of standardisation distributed in 8 ceramic forms. Nevertheless, the Argaric ceramics have generally been studied from a morphometric point of view, rather than their functional aspect. In this context, the organic residue analysis has been applied on just two occasions and over a small set of ceramics.

For the first time in an Argaric context, we have investigated the molecular and isotopic composition of organic residues (by gas chromatography and mass spectrometry) over a wide suite of ceramics (43 pottery sherds) from two of the main Argaric sites: La Bastida (Totana, Spain) and La Almoloya (Pliego, Spain). One of the key results is the detection of invisible substances in the organic residues, which are not observable by the naked eye.

By using this analytical tool, we look to improve our knowledge of the Bronze Age economy of the South east of the Iberian Peninsula. In particular, we aimed to identify the use of beeswax and honey by Argaric societies, and to understand the transformation processes of these lipids.

The combined sum of experiences will be used to make recommendations for future research on this topic, both in terms of necessary experimental work and the archaeobotanical analysis of these remains.

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

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

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The combined sum of experiences will be used to make recommendations for future research on this topic, both in terms of necessary experimental work and the archaeobotanical analysis of these remains.

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

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

The ethnoarchaeobotanical research aimed to record the steps involved in grinding and the many by-products obtained from this process. These change according to species and the desired product. The work was conducted in the villages of the Uoerlan Berber tribe (Kef, western Tunisia), where women still perform many of the domestic tasks related to the preparation of cereals for consumption, and they still often mill with rotary querns. This involved the manual clearing and grinding of bread wheat and durum wheat, and the cleaning, roasting and milling of hulled barley. We detail the different stages of each process, as well as the different products, byproducts and residues resulting from each stage of the operation.

The experimental research consisted in the dehulling of several cereal species using different techniques and different pre-treatments in order to observe the degree and type of breakage that was produced on the grains.

Finally, a systematic analysis of the fragments produced prior to charring in Neolithic sites of the NE of the Iberian Peninsula was conducted. They were not only quantified but also the type of fragment and the size were recorded, as potential relevant variables to understand the process that generated these fragments.

The combined sum of experiences will be used to make some recommendations for future research on this topic, both in terms of necessary experimental work and the archaeobotanical analysis of these remains.

TH1-19 Abstract 05
The diet of non-Romans living in the border area of the Netherlands

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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 visualise the Roman border and demarcate the Roman province of Germania Inferior and the lands inhabited by the indigenous tribes.

It used to be thought that the arrival of the Romans brought on a culture shock in the area south of the Limes, imposing another 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, how and how we think about food that is culture bound. It is assumed that in some way, the Roman food culture spread where necessary. This has been proven for some sites in the occupied area of Germania 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 with 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, archaeobotanical and archaeozoological data retrieved from archaeological excavations in the area north of the former Limes.

TH1-19 Abstract 06
Islamic diet and agricultural practices in rural al-Andalus: new archaeobotanical evidences

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Co-author(s) - Dr. Sénac, Philippe, Université Paris IV-Sorbonne, Paris, France
Keywords: al-Andalus, archaeobotany, islamic diet
Presentation Preference - Oral

In the literature (i.e. Watson, Aubaille-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 agriculture in al-Andalus lists 47 species, introduced or spread by arab-bger 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 Sillas (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 technicolour 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.

TH1-19 Abstract 07
PLANTCULT: An investigation of plant foods among prehistoric cuisines of Europe
Author - Prof. Valeroti, Soutiana Maria, Aristotle University of Thessaloniki, Thessaloniki, Greece (Presenting author)
Keywords: ancient plant foods, prehistoric 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. Stefanis Jacomet), University of Hohenheim in Germany (Dr. Hans Peter Shiak 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 prehistory.

In preparation we focus on the data and methods that will form the basis of the project and present an overview of the available data, research questions and lines of investigation that will be followed to address them.

TH1-19 Abstract 08
Medieval alimentation habits deduced from archaeobotanical studies of cesspits
Author - Dr. Wietheid, Julian, Inrap, Metz, France (Presenting author)
Keywords: Archaeobotany: Early modern times, middle Ages

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

Cesspits fillings are the most commonly studied contexts in late medieval and early modern archaeobotany. In most cases, especially when waterlogged plant remains were retrieved, abundant plant remains were recorded, but the archaeobotanical data sets from cesspits are hampered by taphonomic problems. Oil plants, spices, collected and wild fruits are in most cases much better preserved than cereals and pulses. Nevertheless, despite quite different preservation conditions for different types of plant food these emblematic deposits of faecal remains and kitchen waste are most suitable for comparisons due to a high number of recorded taxa of cultivated and wild edible plants used from human communities. Rescue excavations conducted by the Institute national de recherches archéologiques preventives (Inrap) in the medieval towns of Sarrebourg and Toul in eastern France revealed waterlogged and mineralized plant remains in huge quantities. These towns have developed since Roman times and for that matter, in a similar way, as a result of the different preservation of these plant assemblages, 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 is 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.

TH1-19 Abstract 09
Aspects of the Diet of the Medieval Population (10th – 12th Century AD) in Northern France: the archaeobotanical study from the castle of Boves and surroundings sites
Author - Dr. Preiss, Sidonie, Royal Belgian Institute of Natural Sciences, Bruxelles, Belgium (Presenting author)
Keywords: medieval diet, medieval period, social status

Archaeobotanical investigations from medieval sites in Northern France have provided charred and mineralised plant remains (seeds and fruits). Despite some taphonomical constraints of the different preservation of these plant assemblages, archaeobotanical analysis revealed valuable information on the diet, food choice and alimentary practices of the medieval population in Northern France between 10th and 12th Century AD. The archaeobotanical results were influenced by the different types of features from which macro-remains were retrieved and by the reliability of the studied samples. Many seeds and fruits 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 is 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.

TH1-19 Abstract 10
The contribution of pollen analysis to the archaeobotany of cesspits
Author - Dr. Deforce, Koen, Royal Belgian Institute of Natural Sciences, Brussels, Belgium (Presenting author)
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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/shard (Beta vulgaris), borage (Borago officinalis), capers (Capparis spinosa), spinach (Spinacea oleracea) and many other plants can be demonstrated by pollen analyses of archaeological remains of cesspits however. This paper now presents a first overview of a large set of pollen data from Roman, medieval and post medieval cesspits from Belgium and the Netherlands for several of these plants and discusses their use during the respective periods.

TH1-19 Abstract 11
Animals, Meats, Waste and Garbage in Medieval Visby
Author - NA Malmborg, Gustav, Uppsala University, Visby, Sweden (Presenting author)
Keywords: Medieval Visby, Social Economic, Zooarcheology

Faunal remains may give important clues to subsistence strategies, utilisation of meat and animal relationships in urban contexts. Bones are often recovered in various types of contexts that offer different opportunities to highlight aspects of urban “life”. The Medieval city of Visby on the Island of Gotland has a unique system of latrine chambers, each belonging to a separate house and, thus, one specific household. From an osteoarchaeological- and also social archaeological- the find material in the latrines are interesting since it may be assumed that they represent one household only. The latrine contexts offer a possibility to investigate differences between households with a variation not offered by open-air context such as yard deposit or out-door refuse areas where faunal remains are found commingled. The latrines were constructed under the houses and a number of them have been excavated. When in use, garbage and refuse material - including faunal remains - was deposited in the latrines which had to be regularly emptied. Thus, the latrine finds offer a good opportunity to identify specific meat-cuts and other preferences which may in turn highlight differences between the households, differences over time, differences in economic- and in the end life conditions in Medieval Visby.
TH19 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) - S. Trowbridge

Keywords: Archaeobotany, Postmedieval, Food choice and alimentary practices, Urban

Presentation Preference - Oral

In the 18th and 19th centuries, London was at the heart of the British trading empire. The collection, propagation and cultivation of new plant species from its colonies was a focus of the British Empire and its naturalists, and this had a huge impact on foodways in Britain.

Archaeobotanical evidence from this period has tended to be undervalued in the past, with funding often biased towards earlier periods. This paper will demonstrate the results that can be gained when environmental research aims are fully incorporated into the project design from the outset, presenting some lessons learned and data produced from a commercially excavated site in the centre of London. Well preserved archaeobotanical remains from this site help to build a picture of London society in the 18th and 19th centuries. Results show that the occupants of the site had access to plants from the Americas and Asia, as well as those grown more locally, though the continued absence of certain plants in the archaeological record was also noted. The use of imported plants for the production of alcohol was also found at the site, presenting evidence of the ‘Gin Craze’ which swept London in the 18th century.

TH19 Abstract 13
Unmasking millet from a multi-proxy approach

Author - Vigil Escalera Guirado, Alfonso, University of Salamanca, Madrid, Spain (Presenting author)
Co-author(s) - Acetilene Bocanegra, Francesco J., Universidad de Antioquia, Medellin, Colombia
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Keywords: biases, invisible food, millet

Presentation Preference - Oral

An extensive palaeobotanical sampling program was carried out at the Early Medieval village of Gózquez (central Spain, AD 525-750). It is one of the most comprehensive collections of botanical remains so far analysed for this kind of geographic and chronological unit. Approximately 8,800 items from 34 positive samples were retrieved. Hulled barley and free-threshing wheats were the dominant species. Hulled barleys and wheats were present in low proportion, and Aveca only appeared sporadically. In this setting, any trace of millet production and consumption seemed to be completely absent.

Other approaches, such as carbon and nitrogen isotopic analyses performed on bone collagen of 40 individuals buried in the cemetery and some sites of the same village revealed a first surprising result: villagers widely consumed C4 plants. Since no such crop was identified in the carpological record, starch analysis of the grinding surfaces of some rotary milling stones were performed as an alternative proxy. These revealed abundant starch grains of Panicum or Setaria in all the four items analysed in the first round, in addition to wheat, barley and oats.

At this point, we realised of several possible explanations for the invisibility of the production and consumption of millet at Gózquez. Insufficient sampling, uneven preservation of carbonized plant remains, or complete distinct routines in the processing of different cereal types may be possibly argued. Whatever the right explanation, this case study suggests that we should be extremely cautious when drawing conclusions if there is no way to consider unexpected biases on archaeological and palaeobotanical records.

TH19 Abstract 14
Meals on Wings: Multi-strand investigation of avian contributions to diet and nutrition

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Co-author(s) - Dr. Mattly, Mark, Bournemouth University, Poole, United Kingdom

Keywords: Avian Archaeology, Eggs, SEM

Presentation Preference - Oral

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

Determining the hatching profile of archaeological eggs can indicate whether these were being utilised to produce live animals or as a direct egg food source. As such many new methods of analysing eggshell material are allowing unprecedented insights into these areas of food choice and nutrition. Documentary sources, where available, are valuable for aiding these studies and include letters and orders (e.g. the Vindolanda tablet), and agricultural guides detailing husbandry and husbandry practices (as Coluémia’s Res rustica). Using case studies from Roman and Medieval Britain this paper demonstrates how multidisciplinary integration of eggshell analysis with other lines of evidence can offer new insights into avian contributions to diet and food selection. These case studies are then situated within the extended application of this methodology to a wider European dataset (including material from France, Portugal, Turley, Romania and Estonia) to explore the challenges and benefits of applying these approaches across a wide geographic and temporal area, and on material from a diverse body of archaeological sites which range from Neolithic tells to Post-Medieval monasteries.

TH19 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

Presentation Preference - Oral

This presentation will argue that the catch-all term ‘taphonomy’, when used to describe a seamless or continuous process, distracts from the differing cultural and natural formation processes which act together to preserve or destroy the archaeological record. Through the influence of zooarchaeological taphonomic experiments and observations (which have reached an increasingly advanced level) archaeobotanists often have recourse to ‘taphonomy’ as an explanation for how assemblages may present a biased record of the past. However, with few actualistic experiments to determine what the primary taphonomic processes might be within a burial system the understanding of preservation within archaeobotany is often based on inference rather than experiment. This presentation discusses the case of the production of digestion and highlights the difficulties for the archaeobotanist in interpreting the recovered assemblage. Understanding the effects of multiple taphonomic agents, often acting independent of each other but combining to alter the environmental record is a key to understanding the nature of the recovered assemblage. Using evidence from medieval historical sources, experimental taphonomy work, and an archaeobotanical study of urban cesspit remains from England this presentation will highlight the gaps in our knowledge and argue that we need to develop new methodologies for approaching urban remains, or begin the treat the record as the preservation of multiple separate assemblages with shared taphonomic routes into the archaeological record, but not shared taphonomic routes in the post-burial environment. It is hoped that in the course of discussion researchers from across Europe will be able to present their own observations to stimulate debate on how we approach these problems.

TH19 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

Presentation Preference - Oral

Until now, not much archaeological research has been conducted on faunal diet in Late Byzantine Greece. Most of the knowledge on the diet of Greece in this period is based on literature studies. Recently, isotope studies have also contributed to wider knowledge. However, so far no archaeozoological analysis has been conducted, focussing in this topic. The main goal of this research is to contribute to filling the lacuna of knowledge of the food supply in the Late Byzantine period in Greece and comparing the results to the existing data from isotope and literature studies. As a case study for this research, faunal material from Chalcis will be studied. In Byzantine times, between the 10th and 12th centuries, Chalcis was the harbour for Thibie in Boeotia, one of the most important centres in this region. Later, from the 13th century, the city become a trading colony and transit port for the Venetians. The excavated material from a rescue excavation in
the current city centre is extremely diverse (including glazed and unglazed earthenware, metal, glass, coins) especially within the material culture (i.e. wooden remains, burial relics, amphora for transport). This indicates that Chalcis was an important distribution centre with contacts in Venice and Constantinople. This makes the research interesting not only by creating a dietary image of Byzantine Greece, but also to see whether intercultural changes in diet have taken place between the Late Byzantines and the Venetians. From its prominent geographical location, Chalcis, with its well analysed stratigraphy and vast quantity and quality of faunal material, it offers the unique possibility to fill the absence of knowledge surrounding the food supply of the Byzantine period in Greece.

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

TH1-19 Abstract 19
Unravel the Medieval Islamic diet: preliminary data from the malacoфаuna of Tejo do Praio (Portugal)

Author - Branco, Rute, Universidade do Algarve - FOHS/NAP, Faro, Portugal (Presenting author)
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Keywords: Diet, Islamic, Zoarchaeology
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 characterise 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 zoarchaeological analyses (classification of remains, abundances, anthropic and other modifications, biometry) of the aquatic invertebrate remains. Ultimately, zoarchaeology 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 shows a greater abundance of Cerastoderma edule (common cockle), followed by Rudistes deccusus (clams), species that presently are quite common in region, well known as the highest moliaks production area of Portugal. Among other identified species are Ostra edulis (oyster), Mytilus cf. galloprovincialis (mussels), Solen marginatus (razor clam), Venus verrucosa (venus) and remains of Pectinidae family (scallops). The level of fragmentation is very heterogeneous across the contexts, from a mix of pre- and post-depositional agents.

TH1-19 Abstract 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 Civolo and Velturno-Tangase. 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 repens, Medicago minima, Ochthomen intybus, Onopordum acanthum, Pastinaca sativa, Silene stellata, Veronica 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 Garda region held very well all these environmental features.

All in all, ecological drivers seem to have played a significant role in spreading the cultivation of broomcorn millet in the Garda region. Furthermore, social processes and economic relations are not to be excluded in the perspective of an overall process of improvement of crop husbandry practices. We can conclude that the plant economy of Middle Bronze Age in Northern Italy is well characterized by introduction of new cultivars (broomcorn millet), together with an intensification of pulse cultivation (horsebean), and a diffusion of rotation systems.

TH1-19 Abstract 17
Analysis of a latrine from 17th century Copenhagen, Denmark

Author - Dr. Hald, Mette Marie, National Museum of Denmark, Copenhagen K, Denmark (Presenting author)
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Keywords: archaeobotany, diet
Presentation Preference - Poster

During archaeological excavations in central Copenhagen a latrine dated to the 1680s was uncovered. The poster presents results from the combined analyses of animal bones, waterlogged plant remains, pollen, and eggs from intestinal parasites found in the latrine. The results show how the diet of the local users of the latrine was varied, including several types of fish, pork, a range of cereals, herbs and fruits, some of which were exotic. The number of intestinal parasites also shows that hygiene was rather low. DNA analysis of the parasite eggs is carried out in order to get a species determination as well as investigating the zoonotic potential. The archaeological material from the vicinity suggests that the local inhabitants would have been in contact with traders from the Netherlands, based on the architectural, numismatic and ceramic finds. This is corroborated from the find of buckwheat chaff in the latrine, which is known to have been used a packaging material for goods exported from the Netherlands, while being only a very minor crop in Denmark.

TH1-19 Abstract 20
Parasites in archaeological deposits. How to interpret their presence and how to recognize them

Author - Desiderio, Anna Maria, INRAP, Paris, France (Presenting author)
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Keywords: archaeobotany, diet
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.

In order to interpret their presence and how to recognize them, we have to study the feeding habits of the parasites, the way they may spread with different goods or by human transfers. We have to know how parasites spread their infestations and how they can survive in different environments.
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 utilised 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 organised 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. Although 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.

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TH1-20 Abstract 01
Introduction. Regional and chronological development of fishing

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Co-author(s) - Pedersen, Lisbeth, Kalundborg, Denmark

Keywords: Ancient fishery. Human diet

Presentation Preference - Oral

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 humans’ adaptive and innovative ability to conquer new ecological niches and to respond to environmental stress has led to the invention of new fishing technologies and developing, e.g., mass-harvesting facilities and highly organised procurement strategies. Sometimes fisheries are time-consuming and collective labour may have been required to make the most of the seasonally abundant resources. Hence, fishing techniques may be seen as closely related to the socioeconomic, cultural, and socio-political systems affecting the fishing communities, as well as the population dynamics.

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TH1-20 Abstract 02
(Dis)continuities in fishing practices at the onset of Neolithic: a case study from Starcevo

Author - PhD candidate Živaljević, Ivana, Laboratory for Bioarchaeology, Belgrade, Serbia (Presenting author)
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Keywords: Early Neolithic, Fishing, Starcevo

Presentation Preference - Oral

Whereas the significance of fishing is well documented at a number of Mesolithic and Early Neolithic (c. 9500 - 5500 cal BC) sites in the Danube Gorges (the Danube stretch between present-day Serbia and Romania) and is corroborated by archaeozoological, isotopic and archaeological evidence, this important activity has received less attention in the study of surrounding areas.

The issue of determining the role of fishing is particularly relevant for 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 located on 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 1968-1970 excavation campaigns (originating from both domestic and wild animals, waterfowl and fishes) were previously published by Clason (1980), and are indicative of a 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 earlier excavations of Starčevo-Grad, our study also included the analysis of fish remains collected during 2003-2008 excavation campaigns. The aim of this paper, as well as future analyses of Early Neolithic faunal assemblages is to problematize the presumed dichotomy between Mesolithic and Early Neolithic subsistence strategies and to assess the role of fishing at the advent of food producing economies in the Central Balkans.

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TH1-20 Abstract 03
Comfortable fishers in Mesolitich western Norway

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Keywords: Fisheries, Fishing gear, Settlement patterns

Presentation Preference - Oral

In late Mesolithic western Norway fishing stood for a major factor in the subsistence. The large majority of the residential sites are situated close to the shoreline, near good fishing grounds. Line-sinkers of soapstone occur frequently at these sites, and at some of them - where conditions for preservation for faunal materials are favourable - fishhooks of bone are found, and also
Interpreting the Archaeological Record

TH1-20 Abstract 04
Written sources as a way of understanding Danish prehistoric eel fishing methods

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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 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 ethno-historical 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 fieldwork in Denmark and archaeological research 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 iselår - eel weirs, which the fisherman of historical times built on the coast and out into the sea. They were used to catch the shoals of silver eels which, then as now, migrated each 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, landscape use and marine biology in relation to the corresponding prehistoric structures. According to Danish adage, it’s hard to catch an eel by its tail. This paper presents diachronous Danish examples showing how the skill, craftsmanship and knowledge of the Stone Age fishers, in relation to the manipulation of both marine and terrestrial resources, contributed to the establishment of the ‘tricky’ weir with its high nutritional value, which was 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 catching eels 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 human nutrition.

TH1-20 Abstract 05
Stone Age Spear fishing in the Baltic Sea region

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Keywords: Baltic Sea, fishing, Mesolithic
Presentation Preference - Oral

A common fishing tool of Final Mesolithic (Eristake) and Early Neolithic coastal sites at the Baltic Sea is a specialised spear. This spear for active fishing was constructed with two wooden leister prongs and a bone point in the middle, which were fastened on a long straight handle. On underwater and wetland sites at the German Baltic Sea coastal wooden leister prongs, which were very well preserved, were excavated during the years 1996 to 2008. Archaeological and dendrochronological investigation of leister prongs will be presented in this talk supplemented by ethnographic examples and ancient finds of other periods. The fish bone data and ethnographic comparison points to the fact that eel (Anguilla anguilla) was caught with such spears although very similar iron tools are known from 19-20. century from the Baltic Sea region. The material presented here is the result of a long-term project focusing on the fishbone industry of the Mesolithic and Early Neolithic period. Different methods and approaches are applied to study this tool with a large gap in the archaeological sources. The production method of Eristake and Early Neolithic leister prongs could be reconstructed with the help of several unfinished tools that show characteristic cutting marks at the tips and the shafts. The tips of the finished fishing gear can either be elongated and pointed, or short and rounded. These differences are most likely due to their respective use on muddy or hard undergrounds. Moreover, traces of usage such as cracks, splitting, and roughening at the tips are frequently documented. The examination of wooden leister prongs shows that special wood types were preferred. These particularly the woods of fruit trees (Malusidae) and red dogwood (Cornus sanguinea), as well as the flexible and common hazel (Corylus avellana). A few other types were used very rarely. The proportions of material used showed regional and chronological differences, as certainly a result of which resources were available.

TH1-20 Abstract 06
A Boreal Mesolithic wooden leister prong from Sise, Ventspils County, western Latvia

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Keywords: Ancient fishery, Mesolithic, wooden tools
Presentation Preference - Oral

The Stone Age site Sise is situated in the valley of the River Ulava on the Kuresme Peninsula in western Latvia. Next to the site is the former river mouth, where during the transgressive phases of the Anglyus and Littorina Sea it entered a large bay. In the subsequent regressive phases the bay was transformed into lagoons that subsequently developed into freshwater lakes and peatlands. Archaeological finds recovered since the 1920s demonstrate the importance of this landscape for prehistoric hunter-fisher-gatherer groups. New research in this area started in 2010 in close cooperation with a local amateur archaeologist, resulting in a large collection of Mesolithic and Early Neolithic bone and antler tools. Excavation on the island of Vender in 2012 has brought to light wooden objects from stratified context as well: part of an eel trap and a tool handle with preserved resin showing imprints of a binding material, which are dated to c. 8200-8600 BC. The wooden leister prong from Sise is the oldest find of this tool type up to now in the Baltic region. The present paper will give an overview of the chronology and distribution of this tool type in the Baltic region.

TH1-20 Abstract 07
Fishing equipment of the late sedentary hunters of Russian Plain

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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 occasionally finds, old and modern excavation materials are present. I will review different groups of items concerning sedentary hunters’ fishing gear dated IV-III millennium BC(such as dugouts/roboats, bark/skin canoes (studied by clay sculpture), wooden paddles (series preserved in peat bog layer), 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

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Keywords: Baltic Sea, forest, fishing, Mesolithic
Presentation Preference - Oral

Šventoji Sub-Mesolithic - 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 these 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
Interpreting the Archaeological Record

The archaeological evidence confirming the significance of salmon fishing in prehistoric Finland is weak. Based on historic records, the greatest number of identified fragments come from seals among mammals while the majority of fish bones belong to pike (Esox lucius) and Atlantic salmon (Salmo salar). 

The greatest number of identified fragments come from seals among mammals while the majority of fish bones belong to pike (Esox lucius) and Atlantic salmon (Salmo salar) formed a stable part of the diet in prehistoric times.

**Keywords:** Subneolithic, fishing, Subneolithic Ireland.

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**Presentation Preference:** Oral

**TH1-20 Abstract 12**

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

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

**Keywords:** ethnoarchaeology, prehistoric fishing, salmon

**Presentation Preference:** Oral

The archaeological evidence confirming the significance of salmon fishing in prehistoric Finland is weak. Based on historic sources, mass-harvesting of migratory species, such as Atlantic salmon (Salmo salar) and whitefish (Coregonus lavaretus) formed the basis of the northeast coastal river economy 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 artefactual evidence confirming this is scarce. The settlement pattern, site locations and technological level achieved in fishing in the Mid-Holocene (c. 3500–3000 cal BC) populations of coastal northern Ostrobothnia suggest focusing on mass-harvesting facilities, utilising the regular migrations of specific species, and investing in storing techniques. Application of ethnographic, historic and anthropological data collected among the Atlantic (Salmo) and Pacific ( Oncorhynchus) salmon fishing communities may provide some additional information to be used in archaeological reasoning and interpretation. Analogue data may also provide important tools for understanding the fragmentary and biased archaeological record and open up new avenues for exploring prehistoric salmon fishing.

**Keywords:** Atlantic salmon, prehistoric fishing, salmon.
What is the role of cultural heritage for poverty alleviation in coastal areas of Latin America? Along the coastline of Brazil, small-scale fisheries are a traditional and crucial source of food and livelihood for thousands of people. Brazilian coastal communities efficiently integrate modern small-scale fishing techniques with pre-colonial indigenous knowledge, as a ‘neotraditional’ mix. In one of the poorest areas of Latin America, 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 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.
Interpreting the Archaeological Record

Cremation and funerary rites at the Merovingian cemetery of Broechem, Antwerp (Belgium)

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Keywords: cremation, interdisciplinary research, Merovingian cemetery

Presentation Preference: Oral

This paper discusses the preliminary results of the anthropological analysis of the human cremated bone excavated at the Broechem cemetery and sheds light on early medieval funerary practices in the Scheldt 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 Brandenburggräber or Knochentäler. The osteological analysis aims to provide a detailed description of the nature of the deposits, to identify and quantify the human and animal cremated bone, to assess taphonomic effects of thermal alteration and fragmentation, to estimate the minimum number of buried individuals, to assess demographic data (age, sex) and presence of pathological changes, to identify any evidence of pyre technology (used during the cremation process) and presence and type of grave goods. The analysis of anthropological and other dendrochronological characteristics observed in the charcoal fragments is expected to provide additional information on former wood use for fuel. Additionally for the study of the charcoal from Broechem, attention will be paid to possible differences in fuel selection between the different types of cremation graves.

Cremations and remains of mortuary rites at the Merovingian cemetery of Broechem, Antwerp (Belgium)

TH1-21 Abstract 04

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 recognitions and processing of osteological remains.

Cremation, The Great Migration period, Viking Age

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Keywords: grave goods, Viking Age, burial rituals, cremations, bones

Presentation Preference: Oral

Cremation is known as a dominating funerary ritual in the Upper Volga in the IX-X-th cc, however present knowledge of cremation practices in this region in the Viking Age is based mainly on the documentation of the burial mounds excavated in the 1960-1980-ies and in the earlier times. Recent investigations in Shekshovo burial site not far from Suzdal, produced with the implementation of modern excavation techniques (2011-2015), opened new research perspective, revealing important aspects of cremation ritual and transition from cremation to inhumation after conversion to Christianity. Field investigations in Shekshovo produced evidence of coexistence of the two forms of funeral rites with cremations. According to the first tradition, cremated skeletal remains have been placed in the mounds. Another tradition involves dispersing human and animal cremated bones on the surface or in the ground pits. Both have coexisted in the X-th c. Recording of superficial cremations with small fragments of burned bones (from five to fifteen millimeters in diameter) and fragments of grave goods (glass beads, metal ornaments, coins) destroyed by the fire in Shekshovo reveals special features of this funeral ritual. First, cremated remains were not grouped in the individual burials, but placed on a broad area forming common field with the burned ashes of the humans (men, women and children) as well as the animals. Second, the weight of cremated remains, which can be regarded as belonging to one individual is very small (about tens of grams). Therefore, most of the cremated remains of the skeletons were not interred on the cemetery. These features indicate special funeral practice, which was earlier recorded in Northern Russia, but proves to have much wider geographical spread including the center of the Volga-Oka region.

Field material associated with the cremations (melted objects of silver, non-ferrous metal and glass, mostly dress decoration) includes female ornaments relating to Volga-Finnic and Baltic cultural traditions. C-14 dating and the study of the artifacts define that cremations in Shekshovo were performed in the X-th c. with the culmination in its second half. Infrahumations were introduced in the end of X-th c and there is no evidence that the practice of cremation had continued in the XII-th c. Laboratory analysis of cremated remains allows to discuss sex-age characteristics of the group from Shekshovo. The data on the ratio of strontium isotopes (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 recognitions and processing of 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 determine somatometrics.

Strontium isotope analysis taken as well. According to the results of our research, we can discuss two hypotheses. The first one is that the population of Moscow region was unchanged from the early Iron Age until the end of the first millennium AD. According to another hypothesis, the population could change several times during the second half of the first millennium AD. We discuss pro and contra.

TH1-21 Abstract 06
Folk from “Lodges of the dead” (on the burial sites of the Russian North in first millennium AD)

Author - Kleshchenko, Ekaterina, Institute of Archaeology of Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)

Keywords: ‘Lodges of dead’; ethnoarchaeological approaches, cremations

Presentation Preference - Oral

“Lodges of dead” – is the special type of burial sites which was typical for the Mologa-Shekina interface and other parts of the Russian North and central region of the European Russia. This name comes from the special wooden structures (small houses - lodges) with materials of the funeral cremations as well as ash, pieces of carbon, fragments of bronzes, iron, glass, bone grave goods. The tradition of this site types stretch for many centuries, from the first cc. BC to the end of the first millennium AD.

These archaeological sites of the Mologa-Shekina interface (western part of the Vologda district) were excavated by A.N. Bashchenkin (1) during 80-90 years of XX c. The author did not formulate the clear opinion about the ethnocultural background of these sites. Skeletal materials from “lodges of dead” of this region were not studied till nowadays.

The report is the first summary of the characteristics of the cremated remains from these burial structures. Burned bones from burial sites Chagoda 1, Pugno, Kurenvinishka XII, Kurenvinishka XVI were used in this research. Materials were examined with the help of optical and neutron activation analysis. All cremated fragments were verified by color, weight, number, high temperature cracks and deformations. Clear anatomically fragments were used to determine the sex and age of the individuals, and to detect the presence of animals. All clear anatomical fragments were recorded in archaeological plans.

According to the research, every “lodge of dead” includes the remains of about 7-10 individuals (males, females, subadults). The fragments of the treated animal bones were detected as well. 87Sr/86Sr bone ratio indicates the presence of the individuals who lived on the different territories. Their remains were deposited inside burial structure (“lodge of dead”) together. Considering geological chronology, it was possible to identify the migrants. The last decade of the life of these humans took place in the different geological environments (3).

Comparative analysis of the regional sites highlighted the main features of a funeral ceremony: the burning of dead bodies on the funeral pyre outside the cemetery; partial deposition of burned bones together with charcoals, ash, melted grave goods. There is no individual burial space inside the “lodge of dead”. This structure includes all the individuals who were buried at different times together.

Bibliography:

TH1-21 Abstract 07
Medieval cremations of Novgorod Land: Christians or Pagans?

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

Presentation Preference - Oral

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

However, a small number of cremated burials in the Old Russian barrows of the XII beginning of the XIII 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 be 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, Sophia 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 (tirins, iron weapon’s heads, coins) are rare in the analysed group and located like in inhumation graves. The subjects typical for female costume have not been found yet. It is important to emphasize that the found things have no trace of a fire.

Mentioned peculiarities give us an opportunity to clarify why Christian burial canon was disrupted. Probably the cremation was the only possible way to deliver the body to the family cemetery, where the deceased could be buried together 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, who knew the deceased victim/will) felt obliged to bring the body to his relatives for burial at home.

TH1-21 Abstract 08
Underwater burial sites of the 14th century: Kernave case

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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 baltic sea in water was a long - time tradition or it was only the consequence of important historical events? 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 1365 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.

Based on artifacts typology Kernave burial site can be dated rather broadly (the 14th century). However cremated underwater graves are essentially treated as a mass burial site, where there are no boundaries among individuals. Mass graves, whether in water or on land are usually interpreted as a simultaneous consequence of deaths of several persons. So, the possibility remains that all the dead were buried there because of the certain circumstances, which occurred for the short period of time. Thus not only burial site was massive, but also the cremation process itself. It also should be noted that when the deceased was buried in this way, any grave personification opportunity disappears. East Lithuanian region is noted for barrow burials tradition with very conservative funeral customs which existed 1000 years until the 13th century. Barrow was installed and used for a long time as a posthumous dwelling for a certain family. The specific individual burial place had to be important and at least several family generations were familiar with it. Therefore, the cardinal change of these traditions had to be the consequence of sudden and unavoidable events. Perhaps these events were the cause of death of significant group of persons. In this context, the attention should be drawn to the fact that precisely in the second half of 14th century the eastern Lithuania was reached by the largest forces of German Order and during the attacks of 1365 and 1390 Kernave town was left in ruins. Furthermore, precisely at that time the “black death” spread throughout Europe and perhaps plague could reach Kernave too.

TH1-21 Abstract 09
Urn Cremation in the Southeast Baltics in the late Roman period.

Field record sand laboratory study

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Keywords: late Roman period, SouthBaltics, urn cremation

Presentation Preference - Poster

The cremation was the prevalent burial rite since Roman times and early Middle Ages in Western Baltics. In this regard it should be noted that the development of new approaches to the study of cremation urn particularly relevant. A lot of new burial sites opened in the second half of the last century, but they have not been studied with the bioarchaeological approaches.

New cemeteries with inhumations and cremations of the Roman period (Sambian-Natangian archaeological culture) discovered by Sambian expedition Institute of Archaeology in recent years. Most of the vessels were disturbed, so we cannot
reconstruct the sequence of packing urns by bones and a grave goods. Often fragments of cremated bones are located out of vessels (above, from the side, spread over the site). Bioarchaeological approaches contribute to understand the causes of these locations (taphonomic changes and so forth).

Romanov-Pugachev pond - one of the monuments, which was opened recently in the Zelenograd district of 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 pushed above of each of these two clusters of cremated bones.

This methodical approach of the study of the contents of urn in the laboratory enables to reconstruct the complex and multi-stage procedure for the funeral rites. Also, thanks to this method, we can discuss some of the important characteristics as: the temperature and time of pyre burning;

- The presence/absence of single and double (collective) burials; The age and sex of the individuals from the burials with weapons;

- Grave goods burned on a pyre and those that have been put into the urn without burning. Further rise of data will contribute to estimate the interaction of local and outside cultural influences and migrations on the funerary traditions of the inhabitants of the region of Sambian peninsula.

1 The study was supported by the RFBR, № 16-06-00058.

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**TH1-21 Abstract 10**

**“The largest cremation” of the burial ground Schurovo: typical or exclusive?**

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**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. In particular, the burials differ in the way the localization of the burned bones (burned mound and burial ground). The batches of the burned bones may be scattered and compactly located. We consider all these variations, since they have a specific meaning and formal position in the funeral rites. This report - the description of the unusual case of burial cremation of the first half of the 10th century. It comes out of the ordinary ones by “heavy weight” of all individual burials in the Middle Oka.

Schurovo archaeological site is located on the first terrace of the right bank of the Oka (the middle reaches of the river) near the Kolomna town. There are kurgans and ground graves with cremations on this site territory. Systematic excavations take place since 2001 by Kolomna archeological center expedition (A.S. Syrovatko). According to the dating of the grave goods the site existed from VI till X cc. Ground graves with cremation is more late type of burials and associate with IX-X cc. The batches of cremated bones may be scattered and compactly located. We consider all these variations, since they have a specific meaning and formal position in the funeral rites. This report - the description of the unusual case of burial cremation of the first half of the 10th century. It comes out of the ordinary ones by “heavy weight” of all individual burials in the Middle Oka.

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The total weight of the bones burial was 10470 g (NB - average weight of a single burial of about 500 g). The grave goods are typical for this site. Most part of the fragments (8875 g.) is indelible. Nevertheless, we could estimate anatomical position of the 8 fragments from different part of skull and postcranial skeleton of the adult human (20-30 year, the sex is unclear). The mass of these fragments is about 32 g. Cremated bones (273 fragments, 1762 g.) of large and small mammals have been identified besides human bones. Thus, this is the extraordinary burial. We offer two versions of interpretations:

- The high-status burial;
- Rich sacrifice (animal bodies) were burned on the pyre;
- Cult events that goes beyond the funerary practices (sacrifice??).

1 Syrovatko A.S. Burials with cremations on the Middle Oka River of the second half of the I millennium AD//Russia Archeology/2014.v.4. p. 63

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 - Cuauhn-Solana, David, University of Rennes 1, Rennes, France (Presenting author)
Co-author(s) - Marchand, Géörg, CNRS/University of Rennes 1, Rennes, France

Keywords: Archaeology, Shell-middens

Presentation Preference - Oral

The study of Mesolithic settlements is a key issue to understand 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 archaeological facts to their interpretations is obviously a crucial phase of our works, we need closer monitoring.

Research on dwelling structures can be approached from a wide range of theoretical and methodological points of view, which in turn can provide heterogeneous perspectives of archaeological interpretation that lead to the enrichment of discussion and debates. The session aims to gather together presentations on dwelling structures from archaeological sites but also multidisciplinary research on the structures from multiple methodological perspectives (e.g. spatial analysis by GIS, lithic refitting, geospatial archaeology, micromorphology, geochemistry).

In this session we intend to discuss this crucial topic for the European Mesolithic, considering all geographical locations (coastal settlements located as well as inland sites) and all Mesolithic chronologies, to offer a very wide panel of the concepts, methods and technical means at the disposal of the archaeologists.

TH1-23 Abstract 01

Social organization behind shell-middens: ethnarchaeological experiences from Tierra del Fuego

Author - Garcia-Piquer, Albert, Autonomous University of Barcelona, Barcelona, Spain (Presenting author)
Co-author(s) - Estévez, Jordi, Autonomous University of Barcelona, Barcelona, Spain

Keywords: Ethnarchaeology, Mesolithic, Shell-middens

Presentation Preference - Oral

Mesolithic shell-middens sites have been used to support the existence of economic intensification and reliance on marine resources and sedentism. The archaeological visibility of shell-middens and the good preservation of archaeological remains have led to a long tradition of research.

Nevertheless, the stratigraphic analysis of shell-middens always carries specific problems, given their very heterogeneous nature and the successive post-depositional processes that may have occurred. Indeed, traditional methods and techniques of excavation as well as the character of unfertilized shellmuş commonly attributed to shell-middens, has reduced the advantages of good preservation of the archaeological record.

Since 1988, a SpanishArgentinian team has been developing ethnarchaeological projects in Tierra del Fuego (Argentina) with the objective of improving methodology and developing conceptual instruments in order to advance in the study of prehistoric huntergatherer societies. The archaeological sites on the coast of Tierra del Fuego archipelago are shell-middens corresponding to fisher-hunter-gatherer groups that intensively exploited the litoral resources. Thus, in the frame of these projects, we excavated two settlements of the eighteenth and nineteenth centuries Yamana people. Túnel VIII and Lanashua, both located on the northern coast of the Beagle Channel.

The ethnographic record, including pictures, descriptions of shape, size and the discontinuous but repeated use of circular houses by Yamana people, has allowed us to test a specially developed excavation methodology. We separated and registered 3D dimensions of fine deposition pockets. Experiments of sampling strategies for malacological and fish remains allowed to choose the best and less time-consuming procedure to obtain reliable samples. Columns and wide-area samples for soil micromorphology and chemical analyses contributed to the interpretation of the formation processes. We also analysed the spatial distribution and densities of consumed goods and residues, the articulation of skeletons, the refitting broken bones and debris in order to get a complete understanding of human activity in the sites.

TH1-23 Abstract 02

Mesolithic dwelling space in an interdisciplinary perspective

Author - Res. Associate Gnei, Ole, Norwegian Maritime Museum, Oslo, Norway (Presenting author)
Keywords: Dwelling, Interdisciplinary, Mesolithic

Presentation Preference - Oral

This paper discusses the authors’ development of an empirically based approach for analysis of the Mesolithic use of dwelling space based on theory, concepts and data from mathematics/physics, experimental social psychology, social anthropology as well as archaeology. The underlying assumption is that the space of hunter-gatherers 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.

TH1-23 Abstract 03

Early Mesolithic site in western Norway

Author - Dr. art. Inn, 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 with associated fireplaces and lithic debris.

These features have been suggested as indicative of the early Mesolithic way of live as mobile hunter-fishers being present in both coastal and mountain areas. Presumably the lithic dispersal patterns primarily seems to be the remains of activities performed by a single individual. But 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 analyse trends in Early Mesolithic site patterns. Aspects of this culturalhistorical development and methodological challenges will be discussed.

TH1-23 Abstract 04

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

Author - Dr. Connelly, Chantal, University of Manchester, Manchester, United Kingdom (Presenting author)
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We have been able to distinguish fine deposition sub-units and to identify discrete periods of occupation. There were different dynamics, activities distribution and management of space in apparently very similar sites. In Tünel VIII 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 ethnarchaeology is a useful tool; providing guidelines for excavating and explaining similar archaeological sites around the world. For example, Mesolithic Atlantic Europe shellmiddens 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.
During excavations at the early Mesolithic site of Star Carr, UK, between 2007 and 2015, three features were encountered. One of these was an unambiguous pit and post structure with the pit filled with large quantities of lithics and organic material. In 2014 what appears to have been a similar feature was discovered, though this had been partially excavated by previous excavations. Finally in 2014/2015, a series of post-holes were encountered, though many of these were ambiguous in an area that had been heavily affected by root action. In this paper we present results of post-excavation analysis of these features. Using refitting, use-wear and micromorphology, we investigate the nature of these structures, and their differing history of use and abandonment. Beyond this what do these structures and their relationship to adjacent debris tell us about the nature of dryland activities that complement the well-known wetland archaeology of the site.

**TH1-23 Abstract 05**

Back to Beg-er-Vil: from taphonomy to spatial analysis of a mesolithic dwelling in Atlantic France

Author - Marchand, Gregoire, CNRS, Rennes, France (Presenting author)

Keywords: Dwelling, Mesolithic, Spatial Analysis

Presentation Preference - Oral

Firstly excavated by G. Kayser during the 1980s, the Mesolithic site of Beg-er-Vil at Quiberon (Brittany, France) is the object of an extensive excavation since 2012, to anticipate its likely destruction by the erosion. It involves both a shell deposit and its periphery, occupied between ca 6200 and 6000 BC. Numerous archaeological structures (pits, post-holes, fire-places, hut) have been discovered. The sedimentary analyses (sedimentology, soil micromorphology) are linked to chemical analyses (acidity, minerals) to best describe the spatial variations of the archaeological remains. These taphonomic analyses allow us to enter for the first time in the histories of maritime hunter-gatherers, particularly marked by many changes of function of the site during the human occupation.

**TH1-23 Abstract 06**

New insights into open-air Mesolithic settlement in northern Spain.

Recent research at El Alloru

Author - Prof. Arias, Pablo, Universidad de Cantabria, Santander, Spain (Presenting author)

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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 cave 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 09
Can pits define a settlement?
One example from inland Iberia Mesolithic

Author - Gaspar, Rita, Porto, Portugal (Presenting author)
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TH1-23 Abstract 10
Clues to recognize spatial organization and function of the Mesolithic camps from Polish Lowland

Author - Dr. Ósipowicz, Grażyna, Nicolaus Copernicus University/ Institute of Archaeology, Toruń, Poland (Presenting author)
Keywords: Mesolithic, Poland, Spatial analysis

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

Author - Assoc Prof. Rahmstorf, Lorenz, University of Copenhagen, Copenhagen, Denmark (Presenting author)
Co-author(s) - Dobyński, Aleksander, University of Wroclaw, Wroclaw, Poland
Co-author(s) - Dzbyński, Aleksander, University of Zurich, Zurich, Switzerland
Keywords: cognition, metrology, trade

TH1-24 Abstract 02
Normative and behavioural aspects in Near Eastern weight systems: a Case study from Ebla (Syria)

Author - Dr. Ialongo, Nicola, Sapienza University of Rome, Roma, Italy (Presenting author)
Co-author(s) - Dr. Vacci, Agnese, Sapienza University of Rome, Roma, Italy
Co-author(s) - Prof. Peyronel, Luca, University IULM of Milan, Milan, Italy
Keywords: balance weights, Ebla, hoards

TH1-24 Abstract 03
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) - Dobyński, Aleksander, University of Zurich, Zurich, Switzerland
Co-author(s) - Gralak, Tomasz, University of Wroclaw, Wroclaw, Poland
Co-author(s) - Dzbynski, Aleksander, University of Zurich, Zurich, Switzerland

Keywords: metrology, trade, weights
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? If 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 Maridkh/Ebla (2000-1680 BC). I) the assemblage of balance weights found in different buildings (palatial, religious, defensive and domestic) throughout the Old Syrian town and 2) the unpublished silver hoard containing 171 pieces (ingots, rings, chains, scrap metal) found beneath a floor of a dwelling located on the south-eastern slopes of the Acropolis.

The hypothesis to be tested is that the distribution of the weight values of the silver ingots, scrap and fragments – which the hoard is composed of - may reveal substantial analogies with that of the balance weights from the same site. The choice to focus on a silver hoard is dictated by the fact that this metal was, at the time, the 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 weight as a 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 04**

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

**Author** - Associate Prof. Rahmfeldt, Lorentz, University of Copenhagen, Copenhagen S, Denmark (Presenting author)

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

**Presentation Preference**: Oral

In Europe, outside the Aegean, secure evidence for the use of weights is known from the second half of the second millennium. The increasing attestation of weights in Europe has been noted in recent decades by archaeologists, particularly by Christopher F. E. P. P. for Central Europe, by Andrea Cardarelli and others for Italy, and Raquel Vázquez 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)** - Poingt, Tribaud, UMR 5638 TRACES, Université Toulouse Jean-Jaurès/Université Bordeaux Montaigne, Toulouse-Bordeaux, France (Presenting author)

**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-induced behaviour, 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 words, the adoption of such technology would have meant the deliberate development of an exotic, formal institution, whose imitation aimed at inserting the native networks in the wider Mediterranean ones. This convergence of the Iberian institutions of trade with those of the “Classical” Mediterranean is considered as part of a wider evolutionary process, which conclusion would be the constitution of Iberian “Early States”. We will first look for the evidence linked to weighing. Such evidence is overwhelmingly concentrated in the Valencian Country. We will show that here, from the end of the 5th cent onward, metrology is quite coherent from one place to another. However, through the contextual analysis of the weighing instruments, we will argue that weighing is not prominently linked with long-distance trade, but rather with one’s patrimony management, and was a highly performative activity.

In a second time, we will examine the evidence for normative behaviours, much 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 seemed indeed to result from the productive routines. On this ground, we will conclude, that in the Iberian context, metrology is not a formal institution enforced through legal control and public coercion, but a practical one, aimed not at diminishing the transaction costs in a trade context, but at creating interpersonal trust between partners whose association went far beyond the strictly economic sphere.
Metal ingots as a medium of exchange in the Bronze Age and the Iron Age

Author: Ph.D. Grajales, Tomasz, Wroclaw University, Wroclaw, Poland (Presenting author)

Keywords: medium of exchange, metal ingots, trade

Presentation Preference: Oral

Metal ingots constituted a long-lasting phenomenon that occurred from the beginning of the Bronze Age to the late Middle Ages. They appeared at the earliest in the Sitchia culture in Central Europe. Specimens made of bronze are rib-shaped, while gold ones were made of spiral rods of wire. In the era of the Urartian complex, longitudinal ingots of bronze and tin appeared. Sometimes they were used as legal and formal construction that facilitated their breaking. They were often found in contexts associated with metallurgy. In the Hallstatt period, objects of this type made from iron appeared. In the La Tène period, ingots of gold, silver or bronze, often broken, have been found together with chopped coins. Analogous finds date from the Roman period, the Migration period and the Middle Ages. From that time onwards, wound ingots and coils of wire are also known. Silver ingots, usually in medium of exchange in medieval Lithuania. It seems the reason for such a long use of ingots is their unique usability. They served as a source of raw material, yet remained bullion money. Their form facilitated their breaking up in to smaller pieces in order to achieve the proper weight. This method of their use facilitated relationships with communities using different weight measurement systems. They were also necessary, even if coins were available, in areas where political power was not able to guarantee and enforce their value.

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

Author: Tobias, Benedikt, Institut für Archäologien, Universität Innsbruck, Innsbruck, 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 great use.

They are made of transparent glass of different colour. Domes are pale yellow and green colours, but even pieces made of dark blue, 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 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 figurative 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 - Architectural Khan, Nikolay, Vatypakja Archaeological Expedition Ltd., Moscow, Russian Federation (Presenting author)

Keywords: EAALl, 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. 1st 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 Volga Bulgaria by Alexander Spitsyn. 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 rings of the Persian such as appeared in the area between the Vyatka and Kama in the ancient homeland Udum-Firno-Permin population as cultural synthesis (cultural genes). But they began to fall out in hoards with the Arab coins first on Gotland, and then Southern Sweden and Denmark and is only the latest in Vyatka and Kama. With 833 for 845 years.

Neck decoration Scythians were of iron, they were not used and the Slavs. Slavs used as an expensive silver jewelry and fashion item or as a store of value. But in Sweden rings Permian type were made to get rid of the excess of silver in the form of coins, which were worn as bracelets. Neck rings were brought to the Baltic States through the Arab coin, which is before the first silver crisis of 60 - 90 years of the 9th century rushed flow to Sweden. Therefore the treasures with the Arab coins could fall in the period of excess revenues coins from the east, and in products, besides multifaceted neck ring head marked by 2 things: bracelets on hand, clasps-frabiales. 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 necessary. They may correspond to the Nordic, Byzantine, Iranian, Persian, Danish weight standards in ducats, 322, 486, 190, 250 grams. Alone or in combination. Neck ring in hoards have tangible evidence of large wholesale trading or tax collection.
TH1-24 Abstract 11

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

*Author*: Dr. Rodriguez del Cueto, Fernando, Universidad de Oviedo, Oviedo, Spain (Presenting author)

*Keywords*: Bronze Age, Hilforts, Weights and measures

*Presentation Preference*: Poster

In 2008 a flat axes mould was discovered in one of the streets of Pendia’s Hilfort, 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.

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TH1-24 Abstract 12

**Scales and Weights in Roman Trade: The Case of the Wreck Found in Valle Pega (Comacchio, Italy)**

*Author*: Dr. Corti, Carla, University of Verona, Campogalliano, Italy (Presenting author)

*Keywords*: Roman trade, scales and weights, weighing procedures

*Presentation Preference*: Poster

In 1981 in the delta of the Po river, in Valle Ponti near Comacchio, was found one the wreck of a Roman ship with its cargo. The boat was engaged in small scale coastal shipping, but it was able also to transport by river. The shipwreck occurred around 12 BC along the north-western Adriatic coast, between two branches of the ancient Po.

The ship’s cargo excavated by archaeologists includes a big variety of merchandise: lead ingots, some with the stamp of Agrigina, amphorae and ceramics of various type and provenance, lamps, wooden beams, fourths of meat and various small objects, including several little lead temples.

A turn-over steelyard for retail trade and a big stone weight are also found in the cargo. They were part of the ship’s equipment. The turn-over steelyard has two capacities and a stamp with the mention of one personage, probably the person 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 Pega’s wreck provides an opportunity for some remarks about weighing procedure on Roman maritime and fluvial trade and about official control of scales and weights.

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TH1-25 Abstract 01

**How do we understand animal deposits from the Roman Iron Age in the wetlands in Denmark?**

*Author*: PhD student Pantmann, Pernille, Museum of Northern Zealand, Hilleroed, Denmark (Presenting author)

*Keywords*: Animal deposits, sacred versus profane, Wetlands

*Presentation Preference*: Oral

Animal deposits are perhaps the most frequent type of sacrifice in Danish wetlands, and they appear in most of the prehistory. However, in 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 Sætpersenmoen 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 reinterprets 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.

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TH1-25 Abstract 02

**Bokaren- a bog revisited**

*Author*: Ekund, Susanna, BA, Uppsala, Sweden (Presenting author)

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*Keywords*: Bog body, Ritual practices

*Presentation Preference*: Oral
Archaeological finds of human and animal remains in bogs and wetlands are random and unpredictable causing trouble for both anthropologists and antiquarian authorities. In Sweden, new finds are scarce but searching museums and archives you can find numerous notes of earlier discoveries. This paper asks the question what is the potential in these old notations by presenting recently conducted work on one such a site – Lake Bokaren in central eastern Sweden just some 20 kilometers east of Uppsala. The place was first found when farmers were trying to ditch out the bog lake to retrieve new farmland in 1939 and found to two human skulls and a couple of horse skulls. The finding was followed by a small excavation in 1941 where more animal bones (primarily horse skulls) were retrieved alongside with a wooden platform covered with flux. Unfortunately, this quite spectacular find were forgotten about and the report never written up. It’s only been referred to in some texts. We have now been able to re-collect 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 of the human skulls and some of the animal’s bones and performed osteological analysis of the human skulls. Last year we got the chance to return to the place for a small scale research excavation to see how the finds had been preserved and trying to find out how big the actual site was. We found another human being and two horse skulls together with worked wood. The site appears to be quite big, and there is more the 35 meters between the findings of horse skull and human bones and we were not able to find the boundaries of the site. The ritual practices spread out for 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 Relabo 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 creeping down shrubs, many human bones came out from Lawinoo ‘encampment swamp’. Also pigs dug out human bones with rusted pieces of iron. It seems that fighting had been so fierce that there was not enough time to bury the dead, so they were transplanted into the swamp [...]. (E 63001/12)

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 Rabivere bog body is reflected in place-lore. How information in place-lore is comparable with archaeological data and how this folklore should be received by archaeologists, will be discussed.

TH1-25 Abstract 04
Sacrifice and necropolitics

Author - Associate Prof. 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 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).
The presentation will introduce assemblages of stone grinding tools from the late Neolithic sites (4900 – 4500 cal. BC) in the Oral Presentation Preference Co-author(s) Co-author(s) - Oral Presentation Preference - Oral
at causewayed enclosures. The project has also sought to develop method in use-wear analysis, notably through the use of high-life biographies that the flint artefacts hold, and in this way contributes to understanding the temporality in depositional practices at these sites that has not been taken before. In particular, use-wear analysis has been able to reveal some of the encapsulated (Surrey), with reference also being made to preliminary analyses of assemblages from Hambledon Hill (Dorset) and Windmill Hill Presentation Preference - Oral
Taking a closer look – causewayed enclosures
TH1-26 Abstract 01
Author - Bye-Jansen, Peter, University of Southampton, Hayling Island, United Kingdom (Presenting author)
Keywords: Neolithic Britain, life biographies, depositions, use-wear, Neolithic, causewayed enclosures
Presentation Preference - Oral
This paper presents a closer look at the phenomenon of monumentality in the early Neolithic; at a micro-scale. The methodological approach is use-wear analysis of flint assemblages from selected contexts of a number of well excavated early Neolithic causewayed enclosures in southern Britain and southern Scandinavia. The UK sites include: Eton (Cambridgeshire) and Staines (Surrey), with reference also being made to preliminary analyses of assemblages from Hambleton Hill (Dorset) 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 histories that the flint artefacts hold, and in this way contributes to understanding the temporality in depositional practices at causewayed enclosures. The project has also sought to develop method in use-wear analysis, notably through the use of high-end digital microscope technology in combination with a conventional microscope.

Grinding Tools and Circular Enclosures - CeremonialBehaviour or Common Refuse Management?
TH1-26 Abstract 02
Author - Říšk, Jaroslav, Prague, Czech Republic (Presenting author)
Co-author(s) - Burgert, Pavel, Prague, Czech Republic
Co-author(s) - Končelová, Markéta, Prague, Czech Republic
Co-author(s) - Sumberová, Radka, Prague, Czech Republic
Keywords: Circular enclosures, Grinding tools, Neolithic
Presentation Preference - Oral
The presentation will introduce assemblages of stone grinding tools from the late Neolithic sites (4900 – 4500 cal. BC) in the Czech Republic that were collected in the vicinity of circular enclosures (rondels) the function of which is assumed to be socio-ritual. The assemblages consist mostly of fragments of tools from ditch infillings of the rondels, or from other pits in their vicinity.
We would like to present assemblages from several long-term excavations where the origin of raw source, the manufacturing process, the stage of preservation, and the location of the artefacts in relation to the rondel or other features are known. The following issues related to the socio-ritual features and other surrounding artefacts will be discussed: Is there any evidence that there is a direct relation between the grinding tools and the socio-ritual structure, such as ritual grinding activities during various ceremonies, or do they represent just a common refuse management in the settlements? Why were some of the grinding tools intentionally destroyed and others not?

From the living to the dead. Lithic artefact deposits in TRB burials in Jutland
TH1-26 Abstract 04
Author - Czepkowska, Marzena, Aarhus University, Wroclaw, Poland (Presenting author)
Keywords: Burial, Lithics, TRB
Presentation Preference - Oral
From the Megalithic period onward, sometimes even up to the Iron Age, lithics are frequently found in funerary context. Evidence of ritual use of flint is known from Neolithic settlements, enclosures, ritual houses and graves. Several traditions of treatment and handling of flint such as ritual destruction, burning or scratching the surface of the artefacts were recognized.
In this paper, special emphasis is placed on possible role and meaning of lithics in TRB burial ceremonies. Artfact 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.

The biography of megalithic art at Millin Bay, Northern Ireland
TH1-26 Abstract 05
Author - Dr. Robin, Guillaume, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)
Co-author(s) - Dr. Hensey, Robert, National University of Ireland, Galway, Galway, Ireland
Keywords: Digital methods, Megalithic art, Neolithic Ireland
Presentation Preference - Oral
The megalithic monuments of Western Europe are famous for their engraved and painted decoration which adorns the walls of their chambers, passages and sometimes their external features. While most of that art was primarily created to be seen within the fixed setting of the monuments, excavations and studies in Iberia, France and Ireland have shown that a surprising percentage of this art was hidden in inaccessible parts of the architecture, or was erased from the walls, and that many decorated stones were broken and reworked before being re-employed as the structural components of new monuments. This raises at least two important questions: what was the earliest history of the decorated stones before they were placed inside the monuments? And, what was the role, if any, of such ‘un-displayed’ art in their final monumental contexts?
An interesting case study is the Neolithic site of Millin Bay in Northern Ireland, dated c. 3600-3300 BC. The site was excavated in the early 1990s, revealing an unusual long oval structure containing 16 burials and 64 stones with decoration associated with the Irish megalithic art tradition, which regularly features abstract carved motifs (concentric circles, spirals, meandering lines, etc.). Several of these stones display evidence of intentional breakage, as well as several episodes of architectural superimposition, suggesting that the decorated stones had a complex biography before subsequent use in the built 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 overlying art indicating sequences of art production, together with evidence of intentional breakage and other alterations of the stones. This examination allows us to infer the multiple stages and ‘chains of practices’ involved in the production, use and reuse of the Millin Bay stones as ritual artefacts.

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

This paper will consider Millin Bay in its broader context, with reference to wider evidence of reworked and displaced megalithic art in Ireland and Europe, and will discuss the reuse of megalithic art as representing a specialised form of prehistoric monumental construction.

TH1-26 Abstract 08
Useful, beautiful or ritual?
The life biography of grave goods from prehistoric burial sites
Author - Kogalinceanu, 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 showed me that, in spite of the traditional view that grave goods were especially created for the graves, 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 - a medium life - is the stone axe/adze/chisel, which could include medium-distance trade, manufacture, use, repair, use and final deposition. On the other hand, there certainly seem to be objects with a very short biography, namely those fabricated especially for the event of the burial. One example of this type seems to be illustrated by clay vessels or figurines that are poorly manufactured, indicating that their use might have been deemed from the start to be very short-termed. This 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 next to the deceased.

TH1-26 Abstract 09
Function and meaning of stones from the grave of the Globular Amphora Culture in Wilczyce (Poland)
Author - MA (Mg) Kiermed-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 stone were with stone floors, as well as with a grave goods are known. The Wilczyce site is located in southern part of Poland, in the Sanomdziej Upland. The site is well known from earlier publications as a symbolic (imaginal) 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/and soil platform on the perimeter of grave pit. In the vicinity there were also...
The role of chipped stone artefacts in the Late Neolithic burial practice at Alsónyék (Hungary)

Author: Saliagyi, Kata, Eötvös Loránd University, Budapest, Hungary (Presenting author)

Keywords: Chipped stone tools, Late Neolithic, Lengyel culture

Presentation Preference: Oral

The Late Neolithic Alsónyék–Bugszák site has enormous extension, which reflects in large amount of stone tools (nearly 8000 place stone tools). This site’s chipped stone assemblage contains many long-distance import stone tools (e.g. large-size volcanic flint blades which were removed by indirect percussion). The enormous extension of this site and structured construction of the settlement and a lot of burials; these factors which can reason the intensive intercultural connections of the Southeast-Transdanubian group of the Late Neolithic Lengyel culture. This hypothesis is not reflected from the settlement’s chipped stone tools, in contrast to the stone tools from burials These shows the raw material manipulation’s role inside the site. Based on these, we find the everyday’s ingredient tools (e.g. blade, end-scraper on blade and end-scraper on flake) form local and regional raw materials. The long-distance raw materials made import tools from burials mean the ritual sphere’s artefacts.

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

Author: PhD Henrikaas, Marete, Norwegian University of Science and Technology, Trondheim, Norway (Presenting author)

Keywords: deposits, biographies, amber, antler, Norway, ornaments, late Neolithic

Presentation Preference: Oral

In the coastal region of north-western Norway, pendants of amber constitute a characterisitc 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 depositions from the late Neolithic and early Bronze Age in Norway, the crescent-shaped ornaments have been interpreted as votive offerings. However, this hypothesis does not necessarily provide the best tool for understanding the ornaments and their deposition. In the present study of the ornaments in both amber and antler, a biographical approach is applied, focusing on the relations tied to the objects during their life-course. Against this backdrop, an alternative view of the ornaments, their role in society and the final deposition is presented.

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.

Ritual Objects as Offering at the Eneolithic Shrine

Author: Kolčukčickas Nesteva, 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 millennium 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 were found various ceramic dishes, zoomorphic and anthropomorphic figurines, altars (sacificial 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.

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)

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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 Corunia 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-sanded 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 broken 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 the these indentations.

By the reason this special traceological, infrared and Raman spectroscopy investigation were carried on by the scientists of Vilnius Academy of Arts, Klaipėda 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
to find out if modification of natural ochre could take place and what could be the range of colors possible to obtain from local grounds and in such case what are the material properties of ochre color and purity of the tone. Further research was directed on the surface of the artifact was analyzed using both FTIR and micro Raman spectroscopy. The presence of coniferous resin gum, bees wax and fat, while the red traces – aluminum silicate, red ochre and bees wax. The origin of the brown yellow spot pattern, but also differences are observed in the manufacturing of the ornaments, which shows that ornaments could have been used. Visible ornaments on the obverse and backside of the artefact differs not only in the geometrical value might take us in the context of contemporary material culture theory and welcomes papers from all periods exploring ideas of value and worth from the material record.

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 red 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 masculinity and nellethetical nomadic tribes.

The archaeological site Zvejnieki was excavated in 1960, and physical evidence of the colors that were used is no longer available. However, it is still possible to study indirectly the question about the mental and physical capacities involved, in order to recreate a span in time, where such activities as coloring a deceased family member was a valuable task to do. In the study, the first questions to answer were there are naturally occurring ochre site in near proximity from burial grounds and in such case what are the material properties of ochre color and purity of the tone. Further research was directed to find out if modification of natural ochre could take place and what could be the range of colors possible to obtain from local material. At the same time information about similar symbolic behavior in other archaeological sites were studied. During the research the ochre source minerals were found near Stone Age cemetery Zvejnieki. The laboratory analysis for characterization of the material included granulometry evaluation, color spectrum, mineral treatment in various temperatures to alter the color and different natural binders were tested. In order to compare the color variation defined by impurities in the material, iron rich minerals were collected from different parts of Latvia.

It should be noted that considerable amount of ochre source material can be found in less than a 500 m distance near Zvejnieki archaeological site, but the colors are yellowish or brown (goldish). Thus, the material was not directly suitable for the purpose of red burial. However, the experiments conducted confirm that it was relatively easy to alter color, if necessary, by treating material in temperature not exceeding heat of ordinary campfire to gain a consistent red color (hematite). The origin of the brown yellow spot on the surface of the artifact was analyzed using both FTIR and micro Raman spectroscopy. The presence of coniferous resin and wax was identified. This investigation has proved FTIR and micro FT-Raman spectroscopy could be particularly suitable technique for non-damaging analysis of such significant archaeological objects.

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 red 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 masculinity and nellethetical nomadic tribes.

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The approaches taken to private letters in this paper allow these documents to be viewed once again as whole objects, rethinking texts with material form to provide a more rounded view of such sources. It allows focus to shift from elite and prestigious possessions that usually are at the centre of discussions of value within scholarship on this period. By focusing upon private letters, it is clear that such texts can be deeply valued personal objects. Not only do letters physically trace connections between disparate individuals, but their lifespan also have the potential to extend significantly beyond the anticipated movement from writer to recipient. As such, they can function in ways that are separate from the communication of information. Furthermore, this paper reconsiders letters specifically as material gifts and, through reference to the theories of Mauss, Bell, Robbog-Halt and Calsenantmihalok, explores how their essentially handmade nature affected the creation of personal meaning and sentimental value.

The period of Late Antiquity (approximately fourth to seventh centuries AD) has left us with a huge number of documentary texts, handwritten on papyrus and ostraca, and preserved by the arid conditions of Egypt and the Lower East. These documents provide a rare glimpse into late antique society, and as such modern scholarship has tended to focus on the textual contents and its value as evidence of everyday life. Consequently, documentary texts are usually considered as utilitarian and ephemeral objects, whose primary function was to communicate information, after which they were likely discarded. However, these rare survivals in the archaeological record suggest that informal texts were extensively used and had a significant presence within the material culture of Late Antiquity. Therefore it is important to consider these texts as complete objects and possessions that, like other artefacts, had biographies that created meaning and subsequent value. In this paper, texts – specifically private letters written between individuals - are considered in terms of their materiality and refamed as personal artefacts with the potential for significant value beyond utility.

By focusing upon private letters, it is clear that such texts can be deeply valued personal objects. Not only do letters physically trace connections between disparate individuals, but their lifespans also have the potential to extend significantly beyond the anticipated movement from writer to recipient. As such, they can function in ways that are separate from the communication of information. Furthermore, this paper reconsiders letters specifically as material gifts and, through reference to the theories of Mauss, Bell, Robbog-Halt and Calsenantmihalok, explores how their essentially handmade nature affected the creation of personal meaning and sentimental value.

The approaches taken to private letters in this paper allow these documents to be viewed once again as whole objects, rethinking texts with material form to provide a more rounded view of such sources. It allows focus to shift from elite and prestigious possessions that usually are at the centre of discussions of value within scholarship on this period. By focusing upon private letters, it is clear that such texts can be deeply valued personal objects. Not only do letters physically trace connections between disparate individuals, but their lifespans also have the potential to extend significantly beyond the anticipated movement from writer to recipient. As such, they can function in ways that are separate from the communication of information. Furthermore, this paper reconsiders letters specifically as material gifts and, through reference to the theories of Mauss, Bell, Robbog-Halt and Calsenantmihalok, explores how their essentially handmade nature affected the creation of personal meaning and sentimental value.

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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 already individualized personal identity – 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 lifetime and eventually buried after death be proven? If this was really the case, there should be a clear correlation between the age at death of a woman and the degree of wear detectable on the brooches in her grave. By developing a scheme for rating the degree of wear we’ve been able to analyse a large group of Merovingian brooches of several cemeteries in southern Germany in regards to their possible correlation to the age of the bearers and their distribution patterns within the age-groups. In addition to this I designed theoretical models on how brooches could have made their way into the graves. These models were then compared with the results of my empirical investigation on wear marks and the age of the bearers. Only models consistent with the empirical data were considered plausible and were examined in more detail.

The results indicate that Merovingian brooches were neither inalienable personal possessions, as traditional research saw them, nor symbols of an age-related role as some scholars suggested as an alternative explanation. My conclusions rather suggest that they were personal possessions which the women privileged to wear them were able to replace if they wanted, in compliance with certain rules.

TH1-27 Abstract 03
Jewels between genders: the shifting values of bodily adornment in England AD 350-700

Author: Dr. Martin, Toby, University of Oxford, Oxford, United Kingdom (Presenting author)

Keywords: Dress and identity, Early Medieval, Gender

Presentation Preference: Oral

Skillfully crafted dress accessories such as brooches and buckles were highly valued between the fourth and seventh centuries AD in Europe, and it is this value that to some extent explains frequent 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 the artefacts, especially when it comes to consider individual’s ability to own and cultivate these objects. While their value has been traditionally been considered in terms of ‘wealth’, this term has proven to carry with it connotations that are incongruous when applied to the artefacts, especially when it comes to consider individual’s ability to own and cultivate these objects.

In late Roman Britain exceptionally large and decorative brooches were closely associated with high status men, but by the later fifth century this had become an exclusively feminine practice. Thereafter, highly ostentatious feminine jewellery declined in the later sixth century, when a new type of gold and garnet jewellery predominantly associated with men replaced it. Thanks to recent advances in chronological research, an horizon of particularly richly ornamented female burials has emerged dating the latter part of the seventh century, which may well represent a final swing of the pendulum before furnished burial ceased entirely. Using a scheme for rating the degree of wear we’ve been able to analyse a large group of Merovingian brooches of several cemeteries in southern Germany in regards to their possible correlation to the age of the bearers and their distribution patterns within the age-groups.

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, Theilhaus:unten, 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 bridle and most prominently a horse, the man’s grave furnishings range well above average for that time and region; yet, the only outstanding finds are fourteen gaming-pieces and a die. Accessories for board games are extremely rare in the – otherwise often so richly furnished – graves of the 6th and 7th centuries in continental Europe. Also, the gaming-pieces in Leipheim belong to a type not known in southern Germany so far, with the closest parallel pieces found in the exceptionally richly furnished burial mound in Taplow, Buckinghamshire, England. While the grave’s furnishings in Leipheim are poor in comparison to Taplow, they still allude to the same lifestyle – which is, in short and clichéd: horse-riding warriors drinking and playing board games (or maybe rather: high-ranking men entertaining guests with drinks and games). Both the context gaming pieces are usually found in, i.e. very richly furnished graves of men, and their general rarity seem to indicate board games were restricted to a rather exclusive echelon of society. At the same time, their material value can be estimated as quite low, as both the raw materials and the skills to produce gaming-pieces – even the nicely turned Leipheim and Taplow ones – were easily available. Thus, gaming-pieces highlight how value might often be not so much in the things themselves but rather in how and by whom they were used. They raise questions of where, how and from whom the gaming accessories and, more importantly, familiarly with the concept of board games were acquired, and also whether their rarity in graves really 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 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: Artfacts, 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 (Klevnäs 2014), it shows that only a limited range of artefact types were taken, but that the selection was not based on raw materials or use value.

Many apparently highly valuable objects were deliberately left behind. What lies behind the selection? It will be suggested that the single trajectory which could end in graves differed significantly between artefact types, especially in the degree and nature of objects’ connectedness with their owners, leading to different capacities for separation of the bodies with which they were eventually buried. An argument will therefore be made for low fungibility between many fifth- to seventh-century grave-good types; different forms of possession did not necessarily bear equivalent or interchangeable forms of value. Considerable complexity needs adding to our understanding of artefact worth in this period – in particular its emergence from interactions of human and object life courses.
Interpreting the Archaeological Record

TH1-27 Abstract 07

Value-added gold: The physical, social, and cultural re-purposing of Scandinavian bracteates

**Author:** Prof. Wicker, Nancy, University of Mississippi, Oxford, MS, United States of America (Presenting author)

**Presentation Preference:** Oral

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

TH1-27 Abstract 08

The things with value. An ontological investigation

**Author:** Van Vilet, Krista, Stockholms Universitet, Värmö, Sweden (Presenting author)

**Keywords:** ontology, value

**Presentation Preference:** Oral

While ideas about the various and unstable meanings of value and possession as well as their situatedness have gained considerable interest within archaeology, the ontological statuses of these notions remain largely unexplored. This is problematic, for the reason that it leaves us in the dark about what we are actually talking about and, even more important, it keeps presumptions and beliefs about the nature of the world equivocal. Inspired by Deleuze, Guattari, and DeLanda, but also by Lucas, Fowler and Normark, I propose to investigate ‘value’ and ‘possession’ not as references to other abstractions, but as concepts and as such as entities that are active parts of the archaeological record. Being entities themselves, they are connected to and interact with other entities within and outside the archaeological record (e.g. books, brochures, archaeologists, ideas, animals, pots, voices). Challenging the idea of the preeminence of human intention, I argue, that it is these relations and interactions that continuously define and redefine ‘value’ and ‘possession’.

Consequently, objects are no artefactual receivers or holders of worth either, nor are they indifferently imbued with ideas of value or meaning, but are (re)defined by the interactions they establish with other entities that may or may not include notions of value or possession.

TH1-27 Abstract 09

Unraveling Value: Cultural Transmission Value-based Constraints among Blackfoot Ceremonial Bundles

**Author:** Walsh, Matthew, Aarhus University, Aarhus, Denmark (Presenting author)

**Keywords:** Blackfoot, Ceremonial Bundles, Cultural Transmission

**Presentation Preference:** Oral

Archaeologists are increasingly focused on understanding the implications of social learning on the development of material culture. Such studies look to establish the roles of social learning, individual choice, and information transmission within cultural contexts. This study examines the contents of Blackfoot ceremonial bundles to investigate whether heritable continuity is evident in their assembly, allowing for inferences regarding social learning, cultural transmission, and transmission bias among proto-contact Blackfoot bundleholders. Among the contact-era Blackfoot, flexible concepts of the value of different material objects enabled individual bundleholders to respond creatively when presented with historic, 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-preserved 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 bundleholders were in the development or maintenance of particular contents. In contrast, bundleholders in possession of bundles associated more closely with personal practice were able to embellish the contents of those bundles under less-preserved social constraints.

TH1-27 Abstract 10

My worthless precious. Troubles with fluctuating value of Ancient Greek vases

**Author:** MA Miścicki, Wawrzyniec, Jagiellonian University in Krakow, Krakow, Poland (Presenting author)

**Keywords:** Ancient Greece, Greek painted pottery

**Presentation Preference:** Oral

Estimating value of the artifact could prove to be a difficult endeavor even if items come from societies with abundance of coinage systems like ancient Greece. This is true specially for manufactured goods, and specially for Greek painted pottery. The peculiar combination of different stages of consumption of the object, added trade value, and the low cost of raw materials, all this factors are adding up to constantly refer to scholarly debate which now runs for over thirty years. Depending on their calculation researchers estimate value of a standard piece of Greek painted ware from being almost completely worthless material of metal vessels to being a prestigious item and luxurious commodity, to present views of just two extreme ends of the discourse. Furthermore, given the fact that Greek vases could be found all over Mediterranean their value would change accordingly. Indeed, their trade value is also being assessed with conclusions varying from one which would have been corresponded to ship’s ballast, a package for other goods, to the one which make pottery production a serious contributor to Greek trade.

In my paper I will present theories and estimations of value of the Greek vases for all the stages of consumption, straight from the kiln to the present day, where they rest in museums exhibitions. Give details on how these theories were created, as they often reflect different worldviews and are stretched over four centuries, as well as explain how they reflect on the studies of Ancient Greek culture. The fluctuating value of the vase not only obfuscates proper understanding and placing of object within Greek culture, but it also changes the grounds for interpreting the iconographical massage conveyed in the pot. Greek painted pottery consists of enormous cluster of scenes, ranging in hundreds of thousands which are used for studies of the ancient society. The value of the item is often pivotal as it represents the social class for which these objects were made and by which they were consumed and it allows to connect certain ideology with particular set of scenes.

TH1-27 Abstract 11

Materializing worth and value in archaeological beads

**Author:** Dr. Miller, Holly, University of Nottingham, Nottingham, United Kingdom (Presenting author)

**Co-author:** Dr. Bysañ, Emma, Turkish University, Edima, Turkey

**Keywords:** Beads, Interpretation, Neolithic Anatolia

**Presentation Preference:** Oral

Despite moves in recent decades for archaeology to look beyond “form” and “function” for more esoteric meaning in material culture, there are categories of artefacts that are still under-studied and under-theorized in this way, such as beads. Understanding the socio-cultural-economic significance of beads is obscured by their general classification, through typological asssessments, as “ornamentation”. This implies outward-looking, visually driven social practice with decorative purpose, limiting interpretation of value and worth to societies and individuals. Beads, like any aspect of material culture, do not passively impart their meaning, yet through recognizing only the visual impact of these items in archaeological interpretation, this is what we seemingly expect.

Given the potential for beads to have circulated through society in various ways, as shown through ethnographic examples, it is important that we look beyond this for interpretation of value and worth.

In this paper we will address a number of examples from the Neolithic of Anatolia that indicate the drive behind manufacture and use of beads was often not based on aesthetic consideration. The artefacts highlighted are thought to have been relatively mundane objects, manufactured on readily available materials and were not particularly visually arresting, yet their value and
significance can be interpreted from evidence of extreme curatorship, intense wear, modification and repurposing over the longue durée of use. The addition of a pendant, or even a further, to one of the items, is not on the shortlist of the ‘exclusivity’ 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 signalling.

THI-27: Abstract 12
More luxury for common people than we thought before: Asian items in medieval and later Europe
Author - Dr. Jede, 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 lordly circles. The reason for this assumption was the focus on outstanding and curious collector’s items in the lordly treasuries and cabinets of wonder. However the architectural 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 lordly circles. Nevertheless many of these objects connected with a daily nutrition. The property and frequently use of respective objects in the medieval and later civil society was able to break through the controlling of the knowledge.

Another question weighs the aspects of a globalisation. The existing contacts of the Trans-European exchanges until the discovery of the maritime route from Europe to India often were selective. Just a few of contacts stretched steady over the time. Most of them were unilateral, rarely bilateral. One has to question how comprehensive been these contacts inside the Trans-Euroean exchanges. Which regions had an amount? How tall was a mutual influencing? A higher measure of a mutual interchange is certifiable. However the notion of a globalisation seems not quite appropriate for this period of history.

THI-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 specialists. Coins are used in detailed models of economy, trade, and exchange far beyond the geographical limits of the Empire. As a researcher who spends much of his time studying Bronze Age metallurgy, Roman coins are an astonishing opportunity for examining pellets of copper-alloy that are often stamped with a date, place, and value.

Due to the richness of the data immediately associated with the coins, it is sometimes hard to consider them within the broader context of Roman metal use. This paper highlights new approaches to understanding and characterising the large corpus of chemical data taken from Roman coins over the last two hundred years. These approaches emphasise the flow of metal and ideas, and the negotiated creation of value and identity. The contemporary domestic metal assembly has been interpreted using the same methods, which reveals close links between the Imperial control of mints and the wider availability of metal. This work aims to contribute to the broader debate on the creation of economic and social value, as well as discuss the changing prevalence of recycling and debasement.

THI-27: Abstract 14
Moulding meanings. Late Bronze Age valuables through the organisation of metalworking
Author - PhD student Sörman, Anna, Stockholm University, Stockholm, Sweden (Presenting author)

THI-27: Abstract 15
Fragility and Frivolity: the perceived value of 15th-18th century glass in the Eastern Adriatic
Author - Garwood, Samantha, The University of Sheffield, Sheffield, United Kingdom (Presenting author)
Presentation Preference: Oral

Despite the fact that there was a broad selection of intrinsically valuable goods available to the wealthy during the Renaissance, a changing relationship with art in the household meant that objects of glass or ceramic were increasingly prized for their high level of craftsmanship, and were sought alongside gold or silver. For Venetian glass in particular, the skill of the city’s glasmakers and the purity of the raw materials they used meant that the value of the glassware they produced was much higher than the comparatively inexpensive cost of silica and soda ash with which the glass was manufactured. At the same time, however, the lower monetary cost of glassware meant that members of lower social circles might also fill their homes with objects of display.

Unlike more durable forms of material culture circulated at the time, part of the allure of glass was its fragility and ephemeralness. Of course, this means that these objects rarely reach us today as much more than small rim fragments, and their value in their original context is not always readily apparent. This paper will explore these ideas of value and worth through late-15th to early-18th century glass excavated along the eastern Adriatic coast, looking at Venetian-style glass’s rise in popularity up until its decline in public favour, and will also consider the newfound value which modern archaeologists place on these artefacts.

THI-27: Abstract 16
More than a pleasing form of real estate: what is a valuable textile and how do we identify it?
Author - Dr. Harris, Susanna, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Keywords: Artefact, Textile, Value
Presentation Preference: Oral

Until recently textiles in archaeology were studied predominantly in terms of the technology of production and the social identity of clothing. Lately scholars have recognised the expense of textiles in terms of labour and resources, which addresses the question of value largely through an economic perspective. We may ask more broadly: why were textiles valuable, what for, by whom, and were some textiles valued more highly than others? This raises deeper theoretical concerns in understanding textiles as a specific form of valued material culture. Such theoretical concerns need to be addressed in archaeological methodologies of artefact analysis. In this paper I suggest that there are five principle ways archaeologists can recognise the value of textile through the material record; through materials with affordances, in terms of expense and exclusivity, as artefact biographies, as items with conspicuous, sensory appeal and in terms of fungibility. By addressing value, rather than wealth or prestige, we open up questions as to how textiles were valued across social matrices, according to changing ambitions during the life course and through the biography of the textile. Textile value will be explored through archaeological evidence in Mediterranean Europe from 1000-500 BC.
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 ceramic record of the 15th and 16th Centuries show a nearly complete break due to the presence of the Islamic influence. This change was driven by several factors including trade, demand, and the introduction of new technologies. The ceramic record of the 15th Century onwards is characterized by a more standardized production process, with increased uniformity in shapes and designs.

Between the 13th and 19th centuries in northern Finland a number of individuals were buried beneath church floors. As a result of the unique microclimate at these sites, many of these burial contexts have naturally mummified. This paper addresses this topic by focusing on the analysis of the textiles from these contexts at the churches of Haukipudas and Hailuoto as well as the cemetery at Oulu Cathedral. The unique preservation context offers the opportunity to explore less durable items including clothing, textiles, and other decorative elements.

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

Valuable pots made with cheap clay.
A biographical approach of the pottery from Sultana-Malu Rosu

The Neolithic site of Sultana-Malu Rosu (Romania) is well known in the overall framework of the Gumelnita-Kodjadermen-Karanovo VI cultural complex (ca. 4500-3800 BC) due to the large amount of good quality pottery, among which some of the vessels are unique in terms of shape and decoration. These characteristics are the ones that assign value and special meaning for vessels according to both old and new interpretations. However, most of the pottery from this site is represented by common vessels and other thousands of shards. Also, the site formation has its own identity with the final contexts of the pottery varying from crushed shards used as temper (grog) to whole vessels assembled in burnt houses or used in mortuary practices.

The aim of this paper is to examine certain stages of the biography of various types of pottery concerning their value both for individuals and the community. Our inferences will be mainly based on the analysis of pottery related to the archaeological record. The close inspection of pottery will include provenance studies based on archaeometric analyses, identifying manufacture technologies, morphological and typological classification, wear-use analysis, and fragmentation patterns. This approach can establish certain pathways and changes in the vessels' lifecycles, addressing various interpretations of the value and meaning of the objects at each stage of their existence.

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

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Th1-27 Abstract 21
Fluid Fungibles: The Politics of Value in Archaeology of the Early Medieval Volga Trade

Author: Dr. Bringlyn, Ilnia, University of Oxford, Oxford, United Kingdom (Presenting author)
Keywords: Middle Ages, Trade, Value in Archaeology
Presentation Preference: Oral

This paper will address diverse “regimes of value” which were brought together by the booming medieval trade along the Volga River during the 9th-10th centuries CE. The paper will focus on how value was attributed to different goods and objects in various cultural contexts, and how fungibility of goods was fluid among different trading communities. The latter included the nomads of the Khazar Empire, the Viking Rus, and a variety of local sedentary communities, who lived along the Volga River. While we possess some textual narratives about the Volga trade, its participants, their rituals, goods, and fungibilities, archaeology speaks louder than words in terms of the meaning of value in this trade. By looking primarily at the archaeological context of medieval burial practices, it is possible to see how new means (objects and goods) were put to old ends in the process of social exchange. Namely, how items such as coins, belt sets, and beads, were circulated among the specific communities, and then taken out of circulation in the process of ritual (burial) action—and in some instances, extracted again. The aim is to show how the politics of value developed during this period of trade and affected the participating communities. The problems connected with archaeological interpretation of these processes will also be addressed.

Th1-28 Abstract 01
The bishop’s grave in St. Alban Church in Odense, Denmark

Author: PhD Hansen, Jesper, Odense City Museums, Odense C, Denmark (Presenting author)
Keywords: 11th century bishop, Odense, Old bishop - new church
Presentation Preference: Oral

When King Canute was killed in 1086 in the church of St Albain’s in Odense it “…was at that time the bishop’s church…” (“…tunc temporis sedes erat episcopalis”). This reference by an unknown author in a commemorative text of King Canute the Holy indicates that St Albain’s church functioned as a bishop’s cathedral until 1095, when the king’s body and St Albain’s relics were transferred 75 metres to the newly built St Canute’s church. In the fall of 2015 Odense City Museums excavated a hitherto unknown bishop’s grave in St Albain’s, supporting the designation of St. Albain’s as a cathedral in 11th century. The paper will primarily address two questions: What are the origins of the bishop in the church and with which archbishops and/or kings/kingdom is he most likely associated? In the beginning of the 11th century, the Danish Church had close relations to Canterbury and thus to the Anglo-Saxon Church. In the middle of the 11th century, ties were close to the German Church, and Danish bishops were appointed by the archdeaconate of Hamburg-Bremen. Attempts to answer these questions are based on traditional archaeological methods as well as DNA and strontium analyses. Additionally an attempt will be made to explain why the bishop was not moved into the new cathedral together with St Albain’s relics and Canute the Holy in 1095, or in connection with, for example, Canute’s canonization and translation only five years later in the year 1100.

Th1-28 Abstract 02
An abundance of chapels: the pre-parochial religious landscape of the Isle of Man

Author: Johnson, Andrew, Manx National Heritage, Douglas, Isle of Man (Presenting author)
Keywords: early chapels, Isle of Man
Presentation Preference: Oral
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 Gaelic, ‘keeills’). 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, 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, offers an exciting opportunity to study the location and distribution of these chapels, particularly in relation to routes through the landscape. As a result, it is becoming possible to propose some new ideas about their location and about the nature of the medieval religious landscape of the Isle of Man.

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**TH1-28 Abstract 03**

**A landscape of belief: Orkney’s medieval churches**

*Author:* Dr. Gibbon, Sarah Jane, University of the Highlands and Islands, Kirkwall, Unite 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 associated with larger and more isolated from settlement but not isolated. In addition to identifying different types of church, some sense of chronology and religious development within the Orkney Earldom will be presented, mapping the transition from the forced conversion of the islands by Olaf Tryggvesson in 995 to the creation of an urban diocesan centre, part of the newly created archdiocese of Nidaros, in 1152/3.

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**TH1-28 Abstract 04**

**Chapels, Church sites and Settlement in Medieval Faroe Islands**

*Author:* Arge, Sílmun 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 place names, 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 remains. In an attempt to understand these relics - their relation and function within the Medieval church in the Faroes - they will be placed in a settlement-historical as well as in a North Atlantic context.

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**TH1-28 Abstract 05**

**Novel topographical surveys and analysis of ecclesiastical sites in the Faroe Islands**

*Author:* Mjølnessen, Helgi Dal, Faroese National Museum, Høvsk, Faroe Islands (Presenting author)

*Keywords:* early churches, ecclesiastical landscape, North Atlantic

*Presentation Preference – Oral*

In the Faroe Islands there are ecclesiastical sites that by tradition or place name are associated with bannah (Faroese for chapel).

The lack of historical and 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) Methodologies (ISM). The collected data are analysed, visualised and compared in an ArcGIS environment. This paper will present the preliminary results of the project.
Communities of death in medieval Iceland

Author: Prof. Vésteinsson, Orr, 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 landowner. 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.

"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.

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 staff
Presentation Preference: Poster

Ongoing excavations of the site of the medieval Carmelite Friary of Tuilium in Perth, Scotland in advance of its redevelopment have located at least 300 human burials in the friary church. The earliest group of these burials are consistently buried with wooden 'staffs' which are apparently not functional objects but symbolic and two of the other burials were found to be wearing leather 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

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 Strathern Environ & Royal Forteviot project (http://www.gla.ac.uk/schools/humanities/research/archaeologysearch/projects/serf/). 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 interpretive artists, from traditional archaeological illustrators to re-enactors and digital designers. The exhibition generated a series of striking and successful representations of the discoveries. This paper provides the first public opportunity to reflect on questions about authenticity, accuracy and accessibility raised by these efforts following their exposure to audiences. This paper also constitutes a step in critical process leading to the final academic publication of the results of the study.
TH1-29 Abstract 02
Reconstructing the Past
Author - BA Gerrit Jacob, Schilp, Reinwardt Academy, Utrecht, Netherlands (Presenting author)
Keywords: Archaeological reconstructions, Museological theory, Open air museum
Presentation Preference - Oral

One way in which archaeology can reach back and experience some parts of ancient life is through attempts to reproduce former conditions and circumstances. By using reconstructions, visitors of archaeological open-air museum can experience what the meaning and importance of these objects was for their original creators and owners. Spread throughout Europe, there are about 300 archaeological open-air museums 1 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 2. 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 3, 4. 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 5. Visitors of the 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 1 that have these kind of reconstructions forming their main collection.

5 EXARC, Definitions.

Praestekop, 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, Daniël, Groningen Institute of Archaeology, Leeuwarden, Netherlands (Presenting author)
Keywords: Methodology, Netherlands, Reconstructions
Presentation Preference - Oral

Archaeological reconstructions of excavated buildings are becoming a common feature in many countries throughout Europe and beyond. The value of such structures for communicating ideas about past life or even a more sustainable modern lifestyle is borne out by the fact that many have been built in open air museums or open (freely accessible) landscape settings. In professional archaeological reports too, reconstructions, or reconstruction drawings to be precise, help to convey the archaeological message to a larger audience. But what do these practices seem so normative to be stuck to in practice. Perhaps museums prioritise different than academic building research? Perhaps academic researchers lack sufficient knowledge and experience regarding ancient building techniques? And from these: should we not distinguish more clearly between different kinds of reconstructions, each aimed at different kinds of public? These are and may remain rhetorical questions: the concern of this paper is with demonstrating that ‘playing by the rules’ will indeed increase our understanding of past architecture.

Recent settlement research in the northern Netherlands has given a central role to a structural approach in studying previously excavated house-plans. The primary aim of the project was to establish how the region’s early medieval turf-walled buildings were constructed and how their architectural development can inform us about greater societal changes. However, generally accepted ideas on the limitations of turf construction and quality requirements for structural timbers were at first found not to tally with the details of the often well-preserved turf house fragments. A more systematic approach of the data was deemed necessary for outlining and explaining the typology, use, technique, design and context of these buildings. It will be demonstrated that early medieval turf and timber buildings in the north of the Netherlands were both of a fundamentally different design than previous, less encompassing investigations have suggested. A new series of reconstructions models was established on the basis of in-depth preparatory research, different assumptions (e.g. on stability requirements), new ethnographic analogies, reasonable chronological depth and a greater geographical range. The resultant model for an ‘average’ early medieval farm building is now characterised, in short, by fully stable arch-shaped trusses rather than the well-known but unstable (non-braced) rectangular trusses. In the treeless salt-marsh area along the coast, thick clay turf walls served as load-bearing elements, whereas common belief would generally not allow for such a structurally demanding use of turf blocks. It is hoped that this case study will help raise awareness of the possibility that our views on past architecture may be subject to radical new interpretations, which is something to bear in mind for future visualisations and reconstructions, regardless of our purpose being educational, generally informative or academic.

5 EXARC, Definitions.
6 Praestekop, The Value of an Archaeological Open-Air Museum is in its use, 23.

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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 El Salvador, Guatemala, Jordan, Turkey, and the USA, the paper will present six examples of how such reconstructions, both digital and physical are being used to present archaeological information both to a local and global audience. The paper will also discuss how the projects are using archaeological reconstructions to inform and educate local communities about the significance of the sites and to engage them in the preservation and protection of the sites.

TH1-29 Abstract 05
The Reconstruction of three Roman Houses at the Archaeological Park at Xanten (Germany)
Author - Dr. Kierstede, Peter, LVB Archäologischer Park Xanten, Xanten, Germany (Presenting author)
Co-author(s) - Dr. Mueller, Martin, LVR Archaeologischer Park Xanten, Xanten, Germany
Keywords: Experimental Archaeology, Presentation, Reconstruction
Presentation Preference - Oral

In Roman times the Colonia Ulpia Traiana (CUT) located in the lower Rhine area of Germany was second only to the provincial capital Colonia Claudia Ara Agrippinensium (Cologne) in Germany interior. 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 these 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 pillar 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.
THI-29 Abstract 06

The “Arty” Way - Dutch Approach to the Presentation of Archaeological Heritage

Author: Dr. Kocken, Marc, MARC heritage consultants, Bemmel, Netherlands (Presenting author)

Keywords: interpretation, reconstruction, visualization

Presentation Preference: Oral

Aim of this paper is to present a new approach in the Netherlands and discuss its pros and cons with the international community in order to contribute to the ICOMOS Debate on Permissibility and Standards for Reconstructions of Monuments and Sites and to answer some questions asked in the session proposal.

Early 2013 an online survey was presented by the ICOMOS ISC ICIP 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 need towards significant commercialization of reconstruction activities.

To contribute to the debate, I will present the Dutch approach on the subject of reconstruction with a specific focus on the archaeological heritage.

In contrast to most European countries, there is in the Netherlands no tradition in physically reconstructing archaeological sites due to the lack of visible archaeological substance.

In 1999 a National policy document examining the relationship between cultural history and spatial planning, was presented. Under the influence of this policy, progress was made to present the archaeological heritage to the public. Due to the lack of visible substance a more artistic approach developed, with artefacts, reconstructions, and ideas presented in the lead that can be described as the “arty” way of reconstructing 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 Hoose Moebernburg in Tilburg.

These examples show an inspired design that makes the archaeological heritage both physically and mentally liveable 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.

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THI-29 Abstract 07

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

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

Co-author(s): Thëw, Négel, Office de la culture (ICCC), section d'archéologie et de paléontologie, canton of Porrentruy, Switzerland

Co-author(s): Von Burg, Alexandre, Federal Roads Office of Switzerland (FEDRO), Bern, Switzerland

Co-author(s): Elmer, Chloé, Office du Patrimoine et de l'archéologie du canton de Neuchâtel, Hauterive, Switzerland

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Keywords: environmental change, human impact, reconstruction drawings

Presentation Preference: Oral

The delta of the Areuse River lies between the foot of the Jura Mountains and the north-western shore of Lake Neuchâtel in Switzerland. Excavations were carried out there between 1995 and 1998 prior to the construction of the A5 motorway. Before this, knowledge about human history and palaeohydrology in the delta was very limited. After preliminary soundings proved positive, a major research programme was set up that involved a team of some twenty archaeologists and specialists from the earth and life sciences.

Test-pitting and trenching across two-thirds of the width (1.3 km) of the upstream part of the delta, followed by excavations and the detailed documentation and sampling of the complex stratigraphies, have revealed a remarkable history of alluvial change and human occupation that covers the last 11,000 years. Over forty palaeochannels have been identified, dating from the Preboreal (c. 9,000 BC) to the post-Medieval period, and since the Middle Neolithic most channels were found to contain archaeological remains.

Five reconstruction drawings represent 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 syntheses of the interdisciplinary study. The aim of these drawings is to visualize the evolution of environmental change and human impact in the study area over a period of 8,000 years. The presentation will focus on the criteria applied during the preparative phase of the drawings to select the archaeological periods to be portrayed and the choices made relating to the depiction of such features as angle of view, geographical scope, season, types of vegetation and human activities. In addition, the underlying environmental and archaeological data taken into account will be discussed as well as the issues of uncertainty and impression pertaining to these data, or absence of information. Finally, the composite drawing techniques used for the creation of the illustrations will be explained.

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THI-29 Abstract 08

Virtual communication at the great medieval Castrum Tunsbergis

Author: Archaeologist Gustavsen, Cecilia, Slottsfjellsmuseet, Tuns Berg, Norway (Presenting author)

Co-author(s): Bahre, Lena, Slottsfjellsmuseet, Tunsberg, Norway

Keywords: Digital communication, Interpretation, Reconstruction

Presentation Preference: Oral

Stoltsfjellsmuseet, a museum in the medieval town Tunsberg in Norway, is participating in a working group that will improve, renew and develop the well-known archaeological site “Castrum Tunsbergis”. (The medieval castle of Tunsberg). Today’s runs have few information spots, and the audience often don’t know what the place has been like. Stoltsfjellsmuseet have made an agreement with sponsors about presenting the sight through virtual reconstructions and other sorts of digital presentations like AR (Augmented reality), role playing games and a museumApp using beacons technology connected to the site. In 2013 we made our first digital reconstruction of the castle of how it could have looked like in 1372 AD. New results from geophysical methods show new structures on the site, which is of interest for future reconstructions. In this paper, we will discuss the advantages and drawbacks by virtual presentations in the light of our archaeological site, Castrum Tunsbergis.

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THI-29 Abstract 09

The Art of Perception in Archaeological Visualisations

Author: Wilson, Kelvin, Kelvin Wilson, Ridderkerk, Netherlands (Presenting author)

Keywords: Illustration, interpretation, phenomenology

Presentation Preference: Oral

When in the year 79 violent tremors pointed to something big about to happen near his house on the Gulf of Naples, Pliny the Younger nevertheless continued reading his book - and in the heat of the day, dozed off. It is a rather mundane reminder that our view of history finds direction by what we think important, yet that even past lives were lived by individual - and to past people, very present - concerns.

Most of the smaller human experiences of the past seems lost to us, yet other sensations are thought tied to places, and are recreated in landscapes and architecture. Indeed, a building may successfully copy plenty of details of this past design. Yet an enthralled visitor could have only ever had one perspective: a building’s interior scale determined by its walls, the appreciation of its exterior too often by the weather (and one person never under the spell of both at the same time). A bored Roman visiting his local bathhouse at the end of the day would need to know where to store his clothes, hope to find a seat in the crowded steam room, and be able to find a sponge - and not at all ponder the mechanics of the floors and drains as a present-day archaeologist might do first.

Phenomenology, or sensory interpretation, was suggested over twenty years ago by professor Christopher Tilley as a useful technique in helping understand ancient sites. Though understandably considered subjective, the same is now well understood to be undermining its very opposite: reconstructions made to the dictate of data. To bring the two opposites together - whether in full-scale architectural visualisations, as reconstruction art in the media, or in future multidimensional developments - the central issue is to ask a plain question: "what did one need to know?". There are instances where the answer has altered the interpretation of the archaeology - bringing back the focus to what might have really occupied the mind of a person in the past, or merely pointing out the best place he might have left that sponge. The discrepancies between visualisations, with on one side multi-period sites being 'read like a plan' and reconstructed accordingly, and opposite the 'one moment at a time' view visual artists may help re-experience, were discussed in a series of English Heritage-funded workshops and conferences at the University of Southampton. This paper expands on statements and case studies made by the author there and in follow-up meetings.
As Planned, as Built, as Found: Reconciling Written and Field Records at Ksar es-Seghir (Morocco)

**Author:** Elbí, Martin Malcolm, Portuguese Studies Review / Baywolf Press, Peterborough, Canada (Presenting author)

**Keywords:** Islamic, Portuguese, Morocco, Ksar es-Seghir, methodology, reverse mapping, GIS, validation of data

The present study reflects the results of a multi-level forensic analysis of archaeological written records, archaeological field data (pre-2000 and post-2000), and competing interpretive models (pre-digital and digital) relating to the colonial urban outpost of Ksar es-Seghir (Morocco). The primary written record baseline was extracted from a fresh critical 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), Nazário 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 Abd Yaqob Yigaul to Abd al-Asan AY”, in Stéphane Prud’homme, ed., Architecture militaire du littoral, de la conquête Arabe à l’Émpire Ottoman (Cairo: IFAO, 2016) and partly published as “Contours of Battle: Chronicles, GIS, and Topography—A Spatial Decoding of the Portuguese Siege of Tangier, September to October 1437”, Portuguese Studies Review 21 (2) (2013, rel. 2016): 1-135 (Portugal and its Empire, 1128-1809: A Volume of Papers in Honour of Francis Dutcher.) 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 des Travaux du Patrimoine Culturel (Morocco). In the final stage, the project then proceeded to engage critically with various interpretive traps, possible omissions, likely flaws, or failures of coherence detectable in existing models of the locality (Ksar es-Seghir) as products of the 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.

Reconstructing the Form of Late Neolithic Rondels

**Author:** Dr. Klára Jarosová, Institute of Archaeology CAS, Prague, Praha, Czech Republic (Presenting author)

**Co-author(s):** Vařička, Petr, Institute of Archaeology CAS, Prague, Praha, Czech Republic

**Keywords:** Enclosures, Neolithic, Virtual reality

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 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.

From archeology to the restoration: the reconstruction of tile stoves in the New Jerusalem

**Author:** Vladimíra Olga, Institute of Archaeology of RAS, Moscow, Russian Federation (Presenting author)

**Keywords:** 17th century, New Jerusalem Monastery, the reconstruction of tile stoves

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 stone 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 Balansia, 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 heraldic church and state subject.

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

3D modeling, RTI: non invasive and non contact methods for documenting a stamped amphora from Padova

**Author:** Tomai, Francesca, Università di Padova, Padova, Italy (Presenting author)

**Co-author(s):** Ceres, Filippo, Università di Padova, Padova, Italy

**Co-author(s):** Galeazzi, Gian, Università di Padova, Padova, Italy

**Co-author(s):** Villi, Danilo, Università di Padova, Padova, Italy

**Keywords:** 3D modeling, open-source, RTI

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 archeologists to analyze diagnostic 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 amphorases and RTI images of stamps might be the creation of open online databases of amphorases and stamps from the Mediterranean; measured and scaled reproductions of amphorases using 3D printers, to be used for education 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 - Groß, Daniel, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany (Presenting author)
Co-author(s) - Colas, Nanterre Cedex, Nanterre, France

Keywords: bone and antler tools, typology, presentation, preference, oral session

Abstract 01

Evaluating the importance of osseous tools in the Early Holocene

Author - Groß, Daniel, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany (Presenting author)
Co-author(s) - Lübke, Harald, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany

Keywords: Early Holocene, introduction, osseous tools

Abstract 02

Evolution in bone exploitation during the Late Mesolithic at Zamojszte 2 (Russia)

Author - Toulouat, Julien, Panthéon Sorbonne University, Champagne au Mont d’Or, France (Presenting author)
Co-author(s) - Lozovskaya, O.V., Institute for the History of Material Culture RAS, St Petersburg, Russia

Keywords: Bone technology, Central Russia, Mesolithic

Presentation Preference - Oral

Abstract 03

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

Author - Dr. Zhilin, Mikhail, Institute of Archaeology RAS, Moscow, Russian Federation (Presenting author)
Co-author(s) - Jonuks, Tõnno, the Estonian Literary Museum, Tartu, Estonia

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

Presentation Preference - Oral

Abstract 04

The biography of an Estonian Mesolithic slotted bone dagger

Author - PhD student Jensen, Mathias P.B., Aarhus University, Helsingør, Denmark (Presenting author)
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Keywords: Biography, Mesolithic, Slotted bone dagger

Presentation Preference - Oral

Abstract 05

Inserts from Early Holocene bone tools in the area of Pidhirtsi and their context

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

Presentation Preference - Oral

Abstract 06

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

Presentation Preference - Oral
TH1-30 Abstract 05

Time after time - First results of typochronological analyses at Hohen Viecheln, Germany

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Keywords: bone tools, Early Holocene, radiocarbon dating

Presentation Preference - Oral

Excavated in the 1950s, Hohen Viecheln 1, Utr. Nordwestmecklenburg, is one of the most striking sites of the early Mesolithic in the North European Lowlands. The abundance of finds and good organic preservation characterise the site, which is located north of Lake Schwein in eastern Germany. Among German scholars, Hohen Viecheln is ranked alongside Bedburg-Könighoven, Frasasse, Duvencée, Mulerup, and Star Carr, 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 purpose of the finds and the site’s presence in the Mesolithic. By this it will be possible to adequately position the site within the Mesolithic and add valuable chronological and technological information to the understanding of osseous tool development in the Early Holocene. The re-evaluation also allows the accurate dating of the numerous bone points, for which the site is known.

The modern re-evaluation also renders possible to solve problems on the stratigraphic sequence. Due to the fact that the site represents a former shore area of the modern Lake Schwein its stratigraphic sequence with different layers of peat, sand and gyttja is typical for overgrown lakes. The direct dating of several artefacts therefore allows us to understand when different areas were settling-up.

TH1-30 Abstract 06

Not that simple! A debate about the apparent decrease of bone tools in the Paris Basin Mesolithic

Author: Post-doc. Guérin, Colas, Nanterre, France (Presenting author)

Keywords: bone industry, Mesolithic of Paris Basin, use-wear analysis of lithic tools

Presentation Preference - Oral

In contrast to the Upper Paleolithic period, it is widely admitted that bone industries have played a minor role in the economy of Mesolithic societies of Northern France. This fact is based on the scarcity of osseous tools and diagnostically wasted recovered in the settlements and the spectacular decrease of lithic burins and benders generally associated with bone and antler working.

Nevertheless, for a long time, the archaeology of Mesolithic in Paris Basin has only excavated dry-land contexts where organic materials were not preserved. Since 30 years, rescue archaeology has allow us to discover well-preserved sites in the valleys: evidence of bone industries are now increasingly numerous, even if the data still remain occasional. In addition, in the last few years, the development of use-wear analysis of lithic tools gives us new informations about the place occupied by osseous materials in the economy of Mesolithic groups. This communication will be the occasion to make an assessment about the available 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 underestimate the role of antler, bone and teeth in the daily life of human communities. Finally, we will compare the situation of North-eastern Europe with neighboring regions, in particular to the Maglemosian techno-complex, well known for its abundant bone industry.

TH1-30 Abstract 07

The use of osseous raw material of Vlakno cave (Croatia)

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Co-author(s): Vitezovic, Selena, Institute of Archaeology, Belgrade, Serbia

Keywords: bone and antler, experimental archaeology, taphonomy

Presentation Preference - Poster

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 skeletal remains of large mammals. Considering the amount of available osseous materials it is natural to expect correspondingly high amount of tools made of bone, teeth and antler. Here we integrate results of archaeological analysis and the study of osseous tools. Raw material selection, technological and typological aspects were analysed. Availability of skeletal elements is compared with raw material choices. Recovered bone and antler tools show very little typological diversity between Epigravettian and Mesolithic layers. However there are some interesting small-scale temporal trends (e.g. retouchers and harpoons being almost exclusively present in older deposits). Authors debate this pattern in tool production as the reflection of environmental and subsequently subsistence changes corresponding to availability of targeted animal taxa.

TH1-30 Abstract 08

Osseous tools in the Mesolithic and Neolithic in the Iron Gates

Author: Dr. Selena, Vitezovic, Institute of Archaeology, Belgrade, Serbia (Presenting author)

Keywords: bone technology, Iron Gates region, osseous raw materials

Presentation Preference - Oral

Osseous artefacts were very important in everyday lives of prehistoric communities, especially before the invention of metallurgy. However, they were long neglected area of study, particularly in some regions of Europe. For the Early Holocene period, the region of the Iron Gates is particularly interesting, because the presence of both Mesolithic and Early Neolithic sites enables analyses of traditions and innovations in raw material selection, technological choices, etc. Related rich finds were published in most of the Starčevo sites bones prevailed. Typological repertoire included heavy duty and small craft tools, rarely other types of artefacts. Certain techno-types introduced in the Neolithic sites are of Near-Eastern origin, in particular spadula-spoons from cattle metapodia. Manufacture debris is not abundant and the question is whether this is related to taphonomy, excavation and recovery technologies, or specific activities carried out at some of the sites. Overall importance of analyses of the osseous industries and comparative approach of different technologies will be discussed.

TH1-30 Abstract 09

Post-depositional alterations on the bone surfaces – experiments with different agents of abrasion

Author: Mgr Orłowska, Justyna, Nicolaus Copernicus University, Toruń, Poland (Presenting author)

Keywords: bone and antler, experimental archaeology, taphonomy

Presentation Preference - Poster

Taphonomic issues are one of the most important factor that must be concerned during study of every archaeological bones or osseous artefacts. Especially, if our analysis is subordinated to technological or use-wear traces. Identification of human or nonhuman modifications is then crucial. Weathering, trampling, tooth marks, root etching or sedimentary abrasion are just the examples of possible nonhuman destructing agents. The main goal of presented study was to understand and describe changes resulting from the different kind of sedimentary abrasion (among others bioturbation and movement in an aqueous setting) on the bone surface. The experiments related to the study have been divided into two main parts. One was connected with modifications observed on raw bone surfaces. The second one, with degradations raised on processed bone surfaces (among others scraped, polished) and their possible influence on the morphology of observed traces.

TH1-30 Abstract 10

A replication of Neolithic bone harpoon with engraved concentric circles from Šventoji, W Lithuania

Author: Gaidauskas, Lukas, Vilnius University, Vilnius, Lithuania (Presenting author)

Keywords: bone working, experimental archaeology, Stone Age

Presentation Preference - Poster

This poster presents an experimental study which was designed to replicate the manufacture of a bone harpoon with a certain type of engravings using only the tools and materials available for the Subneolithic societies at the environmental setting of the eastern Baltic. The harpoon with a pattern of concentric circles engraved on it was found at the site Šventoji 6, which is a refuse-area/waste bed in the area of an ancient lagoonic lake and is dated to the end of 4th millennium BC. While concentric circles were widely used to decorate bone and antler tools and ornaments in different chronological and geographical contexts, there are no analogies for the find from Šventoji 6 from the same period even in the neighbouring regions. The problem is that this type of engraving is mostly associated with metal tools, which could have appeared in the region only in the Bronze Age, after 2000 BC. The foreign origin of the harpoon with concentric circles is confirmed by another find from the same site – a worked piece of bone, on which the manufacturer tried to imitate the same decoration of concentric circles, but instead produced polygons with a dot in the center, which look nothing like the engravings on the harpoon. However, a clue for the engraving of concentric circles before the appearance of metals comes from a certain type of North American stone tools in North America. I will first experimentally try to replicate the harpoon using similar stone tools and then compare it to the production of the same artefact using metal tools.
“BARBARIANS” OF EASTERN EUROPE
IN THE SYSTEM OF CROSS-CULTURAL INTERACTIONS

Southeast Lithuanian Cultures of B2/C1–C1 period. Some notes about analogies in Southeast Baltic to S-shaped and «tremolo» appearance of «occulted» fibulae in Central Dnepr is connected to this region. Of Baltic artisans, who elaborated a peculiar variation of «filigree» style of 2nd century. A range of imitations of filigree ornaments are of strong profiled fibulae and bracelets, chains of drinking horns are ornamented with punches and stamps. It could be an inspiration in Dnepr region and Baltic lands.

The themes of the session include: different forms of interaction of “Barbarians” of the forest and the forest-steppe zones; communication between “Barbarians” and the late antique population; trade and cultural exchange; formation and advance of artisanal traditions; evolution of social structures.

TH1-31 Abstract 01
On the nature of Baltic impact in elaboration of eastern European enamel style in Dnepr region

Lecture reviewed a problem of Baltic impact in formation of eastern European enamel style in Dnepr region. It can be considered by the analysis of stylistics and jewelry tradition. Multiple elements inspired by artifacts made in Roman provinces. Central European cultures and Baltic lands can be seen in morphology and decoration of ornaments from Central Dnepr: s.a. strong profiling, openwork ornamentation, filigree. A variety of artifacts: lamellar 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. Korzuhina and T–shaped crossbow fibulae. In A. Oblomskij’s and R. Terpilovskij’s view their origin is connected with forms of Almgen group IV fibulae. The morphology of the type II is represented by series of fibulae in B2 and B2/C1 periods. Persistency of elements in morphological group IV of B2 period from Southeast 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 profiling endings.

Opwork elements in decoration of enamal V-shaped fibulae, elements of pectoral ornaments, chains of drinking horns, lunula pendants from Central Dnepr associated by similar ornamental motifs close to opus interastile stylus. Closest analogies these elements with geometrical motifs find in contact zones of Baltic lands, in artifacts dated to the beginning and the mid–third century. One only complex - Moschino hoard, so they don’t have local or chronological peculiarities.

Among artifacts, composing a jewellery assemblage from the so-called circle of East European (“barbarian”) enamelled ornaments there are items that are sometimes interpreted as neck-rings. In our opinion, shape, size and location in burials allow to consider these things as ornaments of the head, perhaps not headbands but “diadems” used in combination with high hairstyle or over a headdress. This equipment from Dniepr region was found (Zhuravka, Panikovets, Zamyatino-Yuryevo, the Lebedyan’ district). Three of four complexes are hoards of scrap metal for recasting. It is unknown, which population used adornments with enamels in the Upper Dniepr 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 decoration stage were also found. In Don hoards, as well as in Dnepr/Oka complexes, hinged bracelets, “Okh” fibulae, single late Sarmatian and Central European artifacts are known. So Dnepr/Oka hoards belong to the same period, as Dnepr/Oka hoards. Western area hoards are complexes of female dress accessories sets and items of culture prestige. The Don hoards are complexes of handicrafts 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 Dnepr/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 Dniepr 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 people. As a result of their advance to the Upper Dniepr region in the middle of the 3rd century, Kashinka – Siedki cultural group was formed.

The report is prepared on the RGNF project No. 14-01-00269.

TH1-31 Abstract 03
“Diadems” from the East European world of enamelled ornaments

Among artifacts, composing a jewellery assemblage from the so-called circle of East European (“barbarian”) enamelled ornaments there are items that are sometimes interpreted as neck-rings. In our opinion, shape, size and location in burials allow to consider these things as ornaments of the head, perhaps not headbands but “diadems” used in combination with high hairstyle or over a headdresses. Today not less than 23 whole and fragmented enamels are known. Excluding one find, they have no enamel intact, but are decorated with embossed and engraved geometric patterns. According to peculiarities of shape and ornament the array of “diadems” was divided into three main and two additional types. Their mapping shows that the main types are local. All copies of the type 1 come from the Baltic region, mainly from the territory of modern Lithuania. Most of the type 2 finds are connected with Upper Oka and the Dniepr region. Exceptions are a few items from the Upper Sula and the Lower Dniepr regions, which may mark the direction of cultural influences from the eastern part of the Eastern European forest zone to southern forest-steppe and steppe territories. The majority of the type 3 ornaments are found in the Middle Dniepr region and on the Dniepr left bank. Perhaps, in the beginning of the 3rd century it may be also extended in the north, it may be indicated by specific finds in the upper reaches of Berezina and the middle reaches of Western Dona. Recently artifacts from the circle of East European enamelled ornaments, including fragmented “diadem”, have also been found in the Upper Dniepr region, items of same period as the Don hoards (the end of the 2nd – 3rd c.). A range of “diadems” was derived from samples of the type 1 and can be related to the second half of the II – I c. AD.

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 3, in contrast, includes items pertaining to the early and the final stage of the existence of enamelled ornaments in the
Interpreting the Archaeological Record

East European champlèvé enamels: production technology and possible origin

Author - Rumiantseva, Olga, Institute of archaeology, Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)

Keywords: Eastern Europe, enamelled ornaments, Roman time

Presentation Preference - Oral

East European enamelled objects appear in the Baltic, Upper and Middle Dnieper regions in the mid-2nd century A.D. From this area they spread rapidly over a wide territory, reaching the Crimea and the Caucasus at the South and the Kama region at the East. They were usually considered to be influenced by provincial Roman enamels and made by local or possibly itinerant craftsmen using glass beads as raw materials. The ornaments made in this style have drawn scholars' attention for more than a century. Nevertheless, technological studies of such objects are quite a new research area, recently introduced by A. Bilner-Wróblewska and T. Stawiarska. The technological investigation of enamelled objects of the Briansk hoard aims to develop this line of inquiry. The hoard discovered in the Bryansk region (south-western part of Central Russia), is dated to the late 2nd – 3rd c. A.D. It contains 24 ornaments with enamelled decoration of red opaque or polychrome glass made in champlèvé technique.

Techniques used for enamelling monochrome needles include the applying of wet glass powder or previously turned pieces of glass. Large fields were filled by powdered enamel in two stages: firstly the ground layer was heated, afterwards the upper layer was applied. Polychrome needles with combination of enamels of different colours without metal bars could be enamelled using juxtaposed blocks of glass, or, more likely, by a combination of blocks and powdered enamels of different colours. It cannot be also excluded that in some cases enamels were applied and heated successively colour by colour. Line- and wave-shaped elements were applied as wet enamel powder (possibly using stencils) and as pre-formed drawn rods. The choice of the technique seems to depend on the glass colour, special features of colour formation and difference of melting temperatures for enamels of diverse colours.

The following technological features of the studied objects should be highlighted: applying of glass working techniques (such as the use of drawn rods); complicated combination of different methods of enamelling, implying skills of a high degree; the use of cut blocks of glass demanding semi-finished products of a size exceeding one typical for beads. It enables to assume that the objects in question were not produced by local "Barbarian" craftsmen. It is likely that they were made by professional glass workers, possibly, of provincial Roman origin. Regarding the style wherein the ornaments were made it appears that the East European enamelled objects make part of articles, custom-made for Barbarian people by late antique craftsmen. Possible production centers for them have not been discovered so far. They were likely located in zones of the most active contacts between Barbarian and late antique populations. They are very tempting to assume their location at the Barbarian settlements characterizing by the presence of late antique representatives, numerous imported and developed handicraft industry, interpreted as regional industrial, commercial and administrative centers, and also trading points beyond the limes. The funding for this project was provided by Russian Foundation of Humanities, № 14-01-00269a.

Glass vessels of the Chernyakhov culture – technology and origin

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Keywords: ancient glass, chemical composition, manufacturing technique

Presentation Preference - Oral

There are different kinds of glass vessels – the study of the manufacturing technique allowed to single out 13 schemes of making vessels which are connected with workshops of various types. It allows us to identify the places where the goods under investigation were manufactured. Glassmaking workshops where grind objects were produced were situated in big Empire towns. Vessels hot decoration were made in the common glass-house workshops which were situated somewhere in Empire.

The commemorative gifts or immolating of items? (The New materials of Hun-Sarmatian time from the territory of Kazakhstan)

Author - Dr. Bogdanov, Evgeniy, Institute of archaeology and ethnography SB RAS, Novosibirsk, Russian Federation (Presenting author)

Keywords: ritual ceremonies, burial gifts, Mangyshlak Peninsula

Presentation Preference - Oral

A few stone constructions were investigated at the territory of Mangyshlak Peninsula (Republic of Kazakhstan) in 2014 – 2015. The space inside of stone fence contained the traces of varying ritual ceremonies: crushed crottery, vessels, embedded into the earth, and calciferous alters. In addition, the one small pit contained the bridle kit, another one – the belt kit consisted of incrustate items, and the third – the remains of saddle (silver margins and details of garniture). All components of material complex correlate with items of 5 – 6 centuries, found at the territory from Danube to Southern Urat. At the same time, the planigraphy and character of construction indicate the Sarmatian range of sites. An article considers the findings in association with theory of "burial gifts" among the Huns, offered by I. Bona, P. Tomka and supported by A.V. Kornar. We made the case, which evidenced the appearance of developed cults, associated with sacrificial gifts of prestige items in Caspian Sea region.

The formation of these rider rituals are in account with nomads, who came to the new territory together with Hun invasions of West and South.

Controversial problems of studying early medieval hoards in the Middle Dnieper region

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

Keywords: Hoards of metal ornaments, individual attire, interpretation of archaeological sources, Middle Dnieper region

Presentation Preference - Oral

Hoards of metal ornaments for a long time have been considered the sole archaeological source of the third quarter of the 1st millennium AD in the Middle Dnieper. After the discovery of settlements and cemeteries study hoards become secondary. Objective circumstances of the past 20 years, namely:
- The lack of systematic scientific field research as the settlements and cemeteries 7-8 centuries AD on the territory of the Middle Dnieper region
- Uncontaminated spread of sacrificial works with metal detectors led to the facts that:
  1. The perception of saturation monuments of this time non-ferrous metal was radically changed- the number of findings has increased many times.
  2. The context of the finds of metal items is immediately lost, they are removed from the complexes and the cultural layer.
  3. The only complexes in which can be credibly traced co-occurrence of artifacts are fixed treasuries.
  4. The accuracy of the information about the origin of these findings is low, but in some cases verifiable. The accuracy of the information about their composition is low too, they can be falsified. The completeness could be different from disparate up to fully taken.

We have accounted for about 100 complexes treasures of various origins. The following conclusions can be drawn on the basis of their study:
- The amount non-ferrous metals, which were in use, are very large. However, gold is not represented at all, and silver is poor-quality. In the complexes deposited on an individual attire, male or female, or a number of them, belonging to a small group (maximum 5 -6 individuals). At the same time there are complexes with unpacked things and scrap. Deposition of these hoards was

Cultural and economic exchange in the Dnieper-Donets forest-steppe during Late Roman Time

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Keywords: Chernyakhov culture, cultural exchange, settlement activities

Presentation Preference - Oral

During the first centuries AD comprehensive settlement activities took place in the expanse of the watershed between the Dnieper and the Sozh-Dniester rivers, processes in which the Chernyakhov and Kiev cultures as well as nomadic Sarmatian tribes were involved. The interactions between these groups are considered on the base of recent investigations in this area. Special attention will be payed to material of the Chernyakhov culture concerning indicators for influences of other groups on the burial sites, the geographical position and structure of the settlements. Furthermore imported objects from the sites like amphorae, glass beads and others will be discussed as evidences for the exchange between the "barbarians" and the ancient cities of the Black Sea coast.
not “hiding treasures”. The “wealth” of these complexes is alleged. Unification of the composition of a set of ornaments reflects the overall homogeneity and ‘egalitarianism’ of material culture in the third quarter of 1st Millennium in the region in question. On the basis of these materials, it is impossible to draw a conclusion neither an “elite” nor the “Potestarian structure”. The existence of such a usage (a cultural norm), as a mass deposition of the elements of ceremonial costume in hoards, is a sign of the cultural unity of the ancient community. This community can not be correlated with “Arians” described in written sources.

But the most important questions still remain unresolved. Were hoards complexes of prolonged accumulation? How can be characterized the deposition of hoards (gradual, one-time, deliberate, etc.)? What compelled to deposit the sets of elements of the traditional ceremonial dress in a plurality of treasures?

What led to the evolution of the “treasures of artisans”, containing serial things, jewelry, belt ends, buckles as well as specific votive forms?

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What is the role of the “treasures of artisans”, containing serial things, jewelry, belt ends, buckles as well as specific votive forms?

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 Dollkeim-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 Dollkeim/Kovrovo type. For this purpose presumed mutual occurrence of several fibulae types as well as other characteristic artefacts (i.e. chronological markers) in the burial complexes are discussed in detail in the artefacts chronology data. The transition from the Late Roman period to the Early Migration period and the diachronic typological tendencies within the framework of the later period are demonstrated by means of the comparative analysis results of the so-called big crossbow fibulae, characteristic of the Late Roman period/the very beginning of the Migration period, the so-fibulae with the star-shaped foot, fibulae type Schönwarling/Skowarcz and Dollkeim/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 (finne-daggers, shoulder straps, jewelry, belt ends, buckles as well as specific votive 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 Natanga on the flat burial sites Bol’shoe Isakovo (former Lauth), Schossjeino-1 and Schossjeino-2 and are published for the first time.

THI-31 Abstract 09
Sites of the late stage and the end of the Imenkov 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, Imenkov culture, Middle Volga region
Presentation Preference: Oral

The issue of defining the time and circumstances when the one of the largest early medieval archaeological cultures of the Eastern Europe ceased to exist is the most debatable one for the archaeology of the Middle Volga region. For years of Imenkov culture studies, several completely opposite hypotheses on this issue were developed. The majority of the hypotheses are of historiographical interest, but the issue still remains debatable. According to various researchers, the cessation of existence of Imenkov culture is related either to the leaving of population from the region at the end of the 8th - the beginning of the 7th c. (Alexey Bogachev) or at the end of the 7th c. (Eugeniy Kazakov) or to the slow dissolution in the culture in the early Volga Bulgarian culture in the 8th-9th centuries (Galina Matveeva, Yuri Syrmyin).

As a result of the recent research, it became possible to determine at least two stages of the Imenkov culture: the early one in the 4th-5th c. and the late one dated 6-8 c. The chronological framework of the last stage was determined according to details of heraldic-style belt-setts, Sasanian coins, several furniture and costume details.

The analysis of the collections allowed to determine the late Imenkov materials from Komintern 2 burial ground and Maklasheevka archaeological complex in trans-Volga area. ‘Osh-Pando’ hillfort in the Middle Sura region. These sites are very similar in culture and dated 6th - the first half of the 7th c. The common feature of this group is the mix of classic Imenkov cultural complex with ‘eastern’ artefacts. The synchronous group of sites that is culturally distinct was researched in the Ulyanovsk region. Cremation burials of Komarovka burial ground contained relatively ‘rich’ materials of the 6th-the first half of the 7th c. The ceramics and artefacts found in the sites have visible traces of the ‘southern-western’ direction of cultural ties.

The hillfort ‘Aska-Panda’ and ‘Shomn’ in the Middle Sura region are related to the ‘final’ stage of the Imenkov culture. The both of the sites are of the second half of the 7th c. (the beginning of the 8th c. is also possible). These sites have a significant difference in ceramics and artefacts, therefore, the Imenkov population was inhomogeneous at the ‘final’ time. The materials of the late Imenkov sites have a clear local specifics conditioned by different directions of cultural relations. It is possible to define stable local variations of culture only on the late stage of the Imenkov culture. The specific regional types of furniture and costume details and differences in ceramic complex appeared in the 6-7th centuries bear an evidence of this.

The cessation of existence of Imenkov sites in the different regions was taken place in different periods, possibly, due to different reasons. In the majority of regions with Imenkov culture remains, the upper boundary does not exceed the first half of the 7th century. However, sites in the eastern part of Imenkov area remain later, probably even until the beginning of the 8th c.

THI-31 Abstract 10
A new view on the chronology of fibulae of Dollkeim/Kovrovo type in the light of new research data

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Keywords: fibulae of Dollkeim/Kovrovo type, Kalingradgrad 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 Dollkeim-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 Dollkeim/Kovrovo type. For this purpose presumed mutual occurrence of several fibulae types as well as other characteristic artefacts (i.e. chronological markers) in the burial complexes are discussed in detail in the artefacts chronology data. The transition from the Late Roman period to the Early Migration period and the diachronic typological tendencies within the framework of the later period are demonstrated by means of the comparative analysis results of the so-called big crossbow fibulae, characteristic of the Late Roman period/the very beginning of the Migration period, the so-fibulae with the star-shaped foot, fibulae type Schönwarling/Skowarcz and Dollkeim/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 (finne-daggers, shoulder straps, jewelry, belt ends, buckles as well as specific votive 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 Natanga on the flat burial sites Bol’shoe Isakovo (former Lauth), Schossjeino-1 and Schossjeino-2 and are published for the first time.

THI-31 Abstract 11
Salt production in the Landscape of the Polish Lowlands in the Roman period

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Keywords: Poland, Roman period, Salt production
Presentation Preference: Oral

The aim of our paper is to present the recent developments and achievements of our project about the study of ancient exploitation and production of salt in Poland, which implies both the study of salt production processes and its role in the organization and articulation of the territory during the Roman period. The geo-historical framework for this study is the north western part of Poland (Kuyavia and Great Poland), during the period of the Roman influences (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.

THI-31 Abstract 12
Langoards necropoli on the Danube: material culture and social identity

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Keywords: Migrations, necropolis, society
Presentation Preference: Oral

During their migration from Scythiavania to Italy, the Lombards settled for about 40 years in Central Europe, in the Danube river area and Panonia, between Vienna and Budapest, where a lot of burial areas have been found. Here, with Franks people at west, Gepids and Slavs at east, and a lot of autochthonous people of roman tradition, the Lombards feel threatened in their political and cultural independence. Their society was still heterogeneous and various and, to keep their social and political unit, they developed a strongest material culture, that is the expression of different social meanings. This development has a great reflection in the funerary practices. Here, will be analysed few Austrian and Hungarian cemeteries; the study and the analysis of burial customs and material culture of these sites are essential to understand how they developed their identity, through the diffusion of different customs and the integration of people of different origins. These sites, as well as illustrating the more important methodological problems of this type of approach, present the starting point and the further developments of Lombards’ culture, and allow to draw some important conclusions about the change of the society, and thus the construction of the ethnic identity of this people, that evolved in the middle of Europe during the migration age and that they took to Italy in 568.

THI-31 Abstract 13
Was there a contact between Early Slavs and Lombards in the area of western Pannonian Plain?

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Keywords: Early Slav, Settlement, Lombards, Western Pannonian Plain
Presentation Preference: Oral
The presentation is going to discuss results of our research, in which we explored the possibility that we can draw conclusions about the migration and settlement of a cultural group indirectly from information about a certain pattern of material culture. This also defines possible dates of their settlement. It shall present a possible interpretation of events in the 6th century in the western Pannonia (i.e. north-eastern Slovenia) and proposes 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 586, but probably only around 580 or later. The historical interpretations in question were proposed mainly on the basis of written sources, since the material evidence for this area was absent.

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

According to the site Nova toole near Murska Sobota and its archaeological material opened up new questions. A reconsideration was needed where it was least expected, in the absolute dating of these sites, which has allowed a new understanding of the timing and pace of settlement of the Prague-type culture in the western Pannonian Plain.

We conclude on a conclusion that challenges the previously well-established expert opinion about the timing of the early settlement of Slavs in modern-day Slovenia. The presentation thus presents results that suggest that the first settlement of the early Slavs in the Pannonian Plain already occurred in the first half of the 6th century. These conclusions are based on three lines of evidence: 1) the study of the pottery; 2) dates obtained from the analysis of the radiocarbon isotopes of carbon 14C, and 3) comparison with the spread of the allegedly contemporaneous Lombard settlement north of the Danube and in the Pannonian Plain.

The main argument that supports the possibility of early Slavic settlement in the first half of the 6th century is the Lombard colonization of Pannonia and its archaeologically proven gradual pace to the line Szombathely-Kaaszipiac and later colonization of central Slovenia. Unexpectedly, the area between Pannonian settlement and Central Slovenia, i.e. north-east Slovenia, was left unsettled by Lombards. Since the lowland settlement of indigenous Romanized inhabitants in the 6th century was still not discovered, it is strongly believed that Lombards encountered the early Slavic settlement west of the above-mentioned line. A further argument for the hypothesis is the archaeologically proven fact that both early Slavs and Lombards respected the borders between areas of their settlement north of the Danube, which is also supported by 14C dates.

TH1-31 Abstract 14

Cultural exchanges between Barbaricum and Roman Empire in Lower Danube Region

Author - Dr. Magureanu, Andrei Mirea, Institute of Archaeology Vasile Parvan, Bucharest, Romania (Presenting author)  
Co-author(s) - Dr. Ciupercu Bogdan, History and Archaeology Prahova County Museum, Ploiești, Romania  
Keywords: center and periphery, cultural interaction, historical ethnic groups  
Presentation Preference - Oral

It is a long discussion about the influences between the Romans and barbarians, last one understand as the other. The Lower Danube area brings its contribution to this debate, even till now the main discussion was based only on the discoveries from Middle Danube, there being a lot of material evidence of peoples, aera... and here, in today South and East Romania, being just a not so attractive periphery, a scratch one.

Is this image true? Can a periphery excluded from this kind of discussion? Are important cross-cultural exchanges only between centers of power? How can we track cultural interactions? What can be considered as an import? What are the ways that facilitate this kind of human interaction?

It is only an elite privilege or all the community participates into these cultural exchanges? Those are only a few of the questions that can be analyzed into our contribution.

Analyzing the discoveries known today as Ipotești-Câprău-Câmando and Costesti-Bogotena-Hansca Cultures, dated in the 6th – 7th centuries A.D., we intend to see the interaction both on a larger scale – eastern and middle Europe, but also, to a micro-scale, particular the east and south Romania, trying to see both the forest and the trees.

TH1-31 Abstract 15

Barbarian Coins, Elite Identities and the Birth of Europe

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Keywords: Coins, Goths, Imitations  
Presentation Preference - Oral

A commonality of the cultures of “Barbaricum” northern and Eastern Europe was the production of coins imitating the issues of the Roman Empire. Analysis of die-linked coins (i.e. struck from the same die and thus produced in the same workshop) has long demonstrated that there were wide-ranging exchange networks across much of the northern “Barbaricum” during the Roman and Migration periods. Furthermore, both official Roman coins and imitations, as well as their imitations, played an important role in the self-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 intense than had previously been appreciated, and that such networks in fact stretched from Moldova and the Ukraine to Scandinavia. The new material allows us to produce a narrative that can be closely linked with the rise of the Gothic Kingdom and its subsequent displacement in the face of the Hunnic invasions.

The numismatic material is the subject of a 3-year joint DFG/NCN Beethoven project “IMAGMA: imaginea maiestatis” by the University of Warsaw and the Römisch-Germanische Kommission that aims to understand how these imitations of Roman coins were produced and used by the developing elites right across the northern and eastern “Barbaricum” to demonstrate their status. The picture that is emerging is one of disparate groupings linked together by common elements of material culture and of a wide-ranging exchange network, but above all of the crystallization of the Gothic power centre on the territory of the Chernihov/Sitlana desMures Culture.

The coins not only point to a diverse and deep-ranging picture of how such elites saw and expressed there identity, but with both 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?

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Keywords: Identification, Relationship and influence, Romans and Barbarians  
Presentation Preference - Oral

In late antiquity, due to a change in social relations inside the barbarian societies, perception of Barbarians themselves changed as well. As a result of the intensification of contacts which less and less frequently took a form of a one-sided diktat, the late-antique community was not any longer the oppressed or dominated ethnic group of other populations, but they began to partially adopt Roman culture 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 formed particular barbarian populations, which made them create permanent state organisms.

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

TH1-31 Abstract 17

Burials with weaponry of the upper Dnieper version of the Zarubintsi culture

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Keywords: upper Dnieper, weaponry, Zarubintsi culture

One of the specifics of the upper Dnieper version of the Zarubintsi culture making it different from the Polyezhye and middle Dnieper versions is a custom of placing weaponry in a grave. On the burial ground Chaplin 14 spear and dart heads (5%) were found in 282 burials, on 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 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 horsehoe-like iron fibulas of sygroma type and (or) iron knives with hatched bands. What is more, the knifes always lay with the point directed to the side opposite to that of the spearhead.

A unique element for the funeral rites of the Zarubintsi 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 shaming weapons or labor implements through the remains of the burial person placed in an um or a pit is widely distributed territorially and chronologically. It is noted in the Przeworsk and Jastorft 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 (shaming) of a spearhead into a burial pit had apparently some ritual or magical signification.

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
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 phalic cult symbolizing the re-fertilization of Mother Earth.

Also for the first time for the Zanzubary culture an iron scabbard of a sica, a battle knife (burial No.28) and the spiked head of a Scythian arrow (burial No.30) were found in Goroshkiv.

On the basis of the finds of various versions of fibulae of the middle and late La Tène scheme, the burials with weaponry of the upper Dnieper version of the Zarubintsi culture are dated to the late 6th-early 5th centuries. In general, the burial Goroshkiv 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 champlevé enamels

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Keywords: Champlevé enamels, Geoinformation methods

Presentation Preference - Poster

In the last decade the objects made with champlevé enamels have attracted the attention of many researchers once again. Increased volume of incoming information from different regions of East Europe has expanded significantly the current understanding of the spread of this 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, Linings, Ringings, etc.) were taken into account in this corpus. In the Middle Dnieper region 173 of 184 findings came from "casual" ones found on the surface and from private collections of the locals. Only 11 items were found during excavations. In the second part of the book devoted to the surrounding regions, the situation is slightly different: 192 items were found in the excavations, 74 were related to the "casual" finds. Totally 69 places with the finds in the Dnieper region were recorded. The author of the source corpus identified three regions where things with enamels spread: Middle Dnieper, Baltic and Volga-Oka regions.

In addition to the G.F. Korzukhina's corpus new one was prepared by R.V. Terpilovsky and A.M. Oblomsky (2007). It included 142 findings mostly from the Middle Dnieper region. Thus, even on the example of existing source corpus it is obvious that a significant part of the findings is not related to the Grabhügel and boggy settlements. At present the accumulation of sources is irregular. So in the Baltic region new finds are rare and are related to archaeological researches, while in the territory of Ukraine, Russia and Belarus number of known finds has increased significantly. Vast majority of items was found due to the massive looting of archaeological sites. This process has been going more intensively since the late 1990s–early 2000s. Nevertheless over the past 10 years hundreds of things in museum collections have replenished ranges of enamels. Regular work on fixing findings is carried on in a number of regional museums. At present day we have information on more than 2,000 items. Such study full database (source corpus by Kozukhina 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 finds 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.

TH1-31 Abstract 19

Neck-rings of the 'emained style' in the South Eastern Baltic Area and in the Dnieper–Oka region

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

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

Presentation Preference - Poster

Amongst different types of East European enamelled ornaments, the neck-rings (torques) made of three twisted wires and with rings-shaped ends, are a conservative stuff category. In the South Eastern Baltic Area, these are known from stray finds (Taurage) and from burial complexes (Malzony, Verbais). In the Dnieper–Oka region, such neck-rings originate from hoards (Moskhyzin, Myhigai, Ye, Glezhevo, Usulha). Amongst the neck-rings of the Malzony burial ground, there is a specimen cut in two——what could serve as a piece of evidence of ‘killing’ the stuff. In three hoards from the Dnieper–Oka region, cut-neck-rings are known, too. The latter could indicate the 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 Ulów (Poland)

Author - Dr. Niesiobodzka-Wirynska, Barbara, Institute of Archaeology, Maria Curie-Sklodowska University in Lublin, Lublin, Poland (Presenting author)

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

Presentation Preference - Poster

In the vicinity of Ulów (Middle Rzucuwo, SE Poland) the complex of multi-cultural archaeological sites was found. Among them two–bi–ritual cemeteries (site 3 and 7) originating from the late Roman Period and the early Migration Period were discovered. On the map of archaeological cultures, Ulów is located in the settlement zone F of the Wielbark Culture. Therefore, the features typical of this culture dominate over the cemeteries discovered in Ulów. However, no fewer is the number of features of funeral rite, location of the site, as well as grave goods possessing parallels in other cultural units from the European Barbaricum (e.g. Malormczyk Group, Chernyakhov Culture). It is known that the Wielbark Culture has a small number of wheel-made pottery. Moreover, it has not yet been proved that the population of this culture produced such a ware (apart from one “episode” from Wielbark). According to many archaeologists, wheel-made potteries from the Wielbark Culture sites are in most cases imported from the Chernyakhov or Sântana de Mure Cultures. In the light of this fact, surprising is the extraordinary number of wheel-made pottery and its fragment discovered in Ulów. In site no. 7 they comprise more than a half of ceramic ware from the Roman and Migration Periods. In this case, it can not be ruled out local production of at least part of the wheel-made pottery beginning at the phase C1b-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 Sântana 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, Maria, Muzeum Lubelskie w Lublinie, Lublin, Poland (Presenting author)

Keywords: interdisciplinary studies, Przeworsk Culture, settlement reconstruction

Presentation Preference - Poster

The disappearance of cultures stemming from the tradition of the Roman Period at the territory of Central and Eastern European Barbaricum emerges as a diverse process in time and space. For the most part of this territory, among others also for the territory of Poland, the existing literature records a “sudden and dramatic” fall in the number of sites associated with the cultures at the end of the 4th and at the beginning of the 5th centuries. Such view of the cultural and settlement evolution is presented in the last syntheses 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 Barbarium not only settlements connected with the Wielbark culture but also the final phase of the Przeworsk culture which transpires from recent excavation carried out at a settlement in Nieszawa Kolonia, site 5, Opole Lubelskie district.

This site is the largest archaeologically explored settlement of the Przeworsk Culture in the Lublin Region with relics of dwelling constructions. The dating of the majority of artefacts and features uncovered in Nieszawa Kolonia can be placed within the phases B2 and B2/C1-Ca of the Roman Period. One can however also mention a whole set of metal and ceramic artefacts pointing the functioning of this Visutka 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 systemically fullfil the still up-to-date postulates of the internalization 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 "couch-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, Chermyakhov (in part), later Kiev and Kolochino, Moimchino, culture of Volga Rins, Imernkov. Studying of Eastern-Europe forest-steppe sedentary cultures ceramics as a single phenomenon has not been conducted, but there are some works in separately. The main part of the special researches about ceramics are works devoted to the vessels shapes typology, based on the method of ceramics processing, which had introduced into scientific circulation by IP Rusanova and FY Ganin in 1973. These typologies had arisen from the mid-1980s and still are working. These include typology of AM Obolinsky, OS Rumyantseva, AM Vorontsova, VF Grishakova. Besides them there are typologies based on the features, defined as type-forming by the researchers themselves (for ex. the functional features of vessels, features of profiling and others) - typologies of BV Magomedov, O. Petrusskas GIL Malueva, GA Massaliman. 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 Chermyakhov 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 Imernkov 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 Chermyakov 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 this stage of our research work is devoted to the characteristics of the raw materials and pottery pastes. In recent years, some ceramic sets of Chermyakov culture began to be exposed to petrographic and X-Ray studies.

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. The time of the Migration period in the area the Eastern-Europe forest-steppe is associated with the spread the "couch-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.

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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.

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 hardly damaged by abrasion and excavaions (1984-2003) were irregular and limited. Reports on Komintern 2 excavations were partly published (Kazakov, 1998; 2005), the historiographical tradition, mainly controversial has managed to developed in such difficult circumstances. Situation becomes more complicated due to existence of another complex, 'Komintern hoard' (also known as 'Komintern burial mound'), 'Burakovo burial ground' or 'Burakovo horseman') that was similarly named and have close location to Komintern 2 burial ground. The 'hoard' has controversial historiography developed around it too. This work aims to find origins and define status of the 'hoard' and its relations to the burial ground.

According to the first publication (Izmaylov, 1999) the 'hoard' originated from the burial ground (near Burakovo) that was destroyed by water reservoir. Later publication (Mukhametshina, 1999) as well as documents of Bolgar Museum-Reserve argues that the artefacts were found by the resident of Burakovo, P. Levagin, in 1983 in Beganchik island (located in the place of eroded burial ground), 1 km far from Komintern. The first localization was inaccurate, as there is 5 kilometre distance between Burakovo and bank of the reservoir. The second is also inaccurate (as the island located to the west from Komintern and no burial mounds were found there earlier), however it may be more trustworthy. Attribution of all the artefacts to one complex is a random interpretation of P. Levagin, who had not give details neither about the place nor about the composition of the hoard.

The composition of the ‘hoard’ is chronologically and stylistically heterogeneous. The majority of the artefacts are dated from the end of the 6th - 7th centuries. A silver fibula dated the 5th century, a two-edged sword probably from Azelino culture burial ground of the 3-4th centuries are beyond of this chronological frameworks. The iron stirrup and probably two silver belt plates are of the 8th century. 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 turquoise inserts, (2) silver stamping belt-set with lead filing, characteristic for 3rd horizon of Volga region heraldic style, (3) two cast silver strap ends of Artaybashovo 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 Akhtay stretched from ‘Devichy 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.
Iron Making Techniques and Social Change in the Medieval and Early Modern Europe

Friday, 2 September 2016, 14:00-16:00
Faculty of Philology, Room SFS

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Co-author(s) - Magnusson, Gert, Jernkontoret, Stockholm, Sweden
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Keywords: Iron production, social organization, skills, life course, techniques, furnace, charcoal

Presentation Preference - Workshop

Wrought iron has been produced with different techniques. The techniques have in diverse ways been adaptations to local raw materials such as the ore and the woodlands for charcoal production.

Various raw materials and furnaces required different social organizations. Collecting bog or lake one could easily be done within a family, while operating a mine was a much more complicated process, which required a larger group of laborers and several specialists. Especially while introducing new techniques skilled experts were needed.

Our aim is to analyze how sites of different technical processes reflect the working groups and their skills. The social complexities differed when running a small bloomery furnace, a high bloomery or a blast furnace. The last two techniques demanded highly skilled workers, a complicated social organization and larger funding in order to run the operations. This resulted in a division between those who operated the furnaces and those who owned the land and the industrial plants like ironworks or monasteries.

There is also the question of the distribution of the products. Small scale production for household use is easy to explain. However, it is hard to understand any large scale production without knowing the demands or purposes behind. Reasons like export oriented trade or military preparations might explain the expansion of a technical development of the production. Analyzing the life course and use of iron objects helps us to understand the production as well.

Several methods can be used for studying these issues, like excavations, landscape archaeology and experimental archaeology.

We invite papers focusing on social organization and local techniques primarily related to iron production, but contributions on copper or silver production are also welcome. The main focus of the session is the Middle Ages and the early modern era, but papers dealing with earlier periods are welcome too.

TH1-32 Abstract 01
Basque Iron metallurgy, habitat and social complexity during the Middle Ages (7th-14th A.D.)

Author - Dr. Jose Luis, Solaun, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain (Presenting author)
Co-author(s) - Azkue, Agustín, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain
Co-author(s) - Escribano-Ruíz, 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 ironworks, as opposed to the zeharrolak or hydraulic ironworks.

Judging by recent discoveries, it seems more likely that this impression is just a result of the nature of archaeological investigation itself, traditionally, had been prioritizing very precise prospections and intervention in the mountainous zones of the Basque Country. Nothing, however, was known about the inland flatlands except, paradoxically, that there was a major mountainous habitat and social complexity during EMA in the Basque Country area.

The archaeological record shows us a more diversified reality with large metallurgic establishments located in the flat areas of the Basque Country. Nothing, however, was known about the inland flatlands except, paradoxically, that there was a major mountainous habitat and social complexity during EMA in the Basque Country area.

TH1-32 Abstract 02
The Iron and the Smartphone: ‘expensive’ technologies at the verge of the millennium

Author - Larreina-Garcia, David, UCL Institute of Archaeology, London, United Kingdom (Presenting author)
Co-author(s) - Guirado-Castillo, Juan Antonio, Universidad del Paíis Vasco, Vitoria-Gasteiz, Spain

Keywords: farming iron implements, medieval peasantry, technology

Presentation Preference - Oral

It is widely accepted that the fall of the Roman Empire had a negative impact on the iron industry across Europe affecting its production, distribution and consumption (e.g. Tylecote 1960). The metal production centers became closely linked to political, military or religious powers (Hinton 2005) mainly focused on providing to elites since iron objects were expensive items (Jaritz 1995) not affordable for most of the pochasts. Archaeological evidences contribute to this supposed scarcity of metals within the peasantry since agricultural implements of early medieval chronologies are inexpensive: typically rather ejoyous numbers of barely 1-2 items per site (e.g. Hameoro 2011).

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 metallographic analyses of thirteen iron implements reveals that these are very acceptable quality items made of low carbon steel by piling, employing occasionally sophisticated techniques such as carburisation and even the complex pattern-welding technique 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 market and offers a tentative reconstruction of interplay between iron models of production and peasant communities during EMA in the Basque Country area.

References cited:

TH1-32 Abstract 03
Iron and Society in the Baltic 900 - 1350 AD

Author - Assoc. Prof. Magnusson, Gert, Stockholm University, Stockholm, Sweden (Presenting author)

Keywords: Iron production, trade, urbanization

Presentation Preference - Oral

capable of {englobing the entire operational chain; that is, from the reduction of the mineral up to the final forging of the ferrometa (iron). The second period, which runs from 960 to 1400 A.C., presents considerable differences between the sites. Thus, while some basically maintain the pattern of spatial and production organisation of the first phases, others develop rapidly towards fully urban forms. These transformations would bring with them a significant change in the iron production strategy, leaving behind the refined activities and only maintaining the forging activities.

Moreover, the archaeobotanical and metallographic studies undertaken have enabled archaologists to identify the type of iron mineral used, the different models of exploiting woodland, diverse technological changes in production (obtaining iron or steel according to needs) and other aspects relating to the operation of slag-tapping furnaces and forges.

TH1-32 Abstract 04
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Keywords: Iron production, trade, urbanization

Presentation Preference - Oral

- Iron and the Smartphone: ‘expensive’ technologies at the verge of the millennium
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 last centuries on the Swedish east coast in the county of Småland. Here there was what has to be described as a mining area of lake and bog ore with over 1000 known bloomery sites with a minimum of 144 000 tons of produced iron. A production on such a scale during a period of 200 to 300 years evidently had a great impact on the whole Scandinavian and Baltic society, despite the fact a new more efficient technique, the blast furnace, was to be developed in the mining area of Bergslagen further north in Sweden around AD 1000.

The bloomery processes of iron production survived the whole period and a regional specialization and social differentiation developed. As a result peasants on the plains founded their economy on grain production and peasants of the transitory regions between plain and woodland produced a surplus of animal products, while woodland peasants often sold handicraft articles, but iron opened up a new need for labor and produce, where the forests, lakes and bogs contributed with raw materials. Under these conditions iron production was introduced and raised within the peasant society linked to the emerging states, for example through towns like Kalmar, Gdansk, Kuressaare 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 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 last centuries 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 bloo...
TH1-33 Abstract 01
The Avellino Event: investigating the migration resulting from the Bronze Age eruption of Vesuvius
Author - Dr. Van Leusen, Martijn, University of Groningen, Groningen, Netherlands (Presenting author) Co-author(s) - Attema, Peter, University of Groningen, Groningen, Netherlands - Cardona, Federica, Università degli studi di Trieste, Trieste, Italy

The Avellino event is characterized by movements of people coming from the fringes of the Roman Empire and settled on the Roman territories. Such period is poor of contemporary historical records, but rich of archaeological material. This has opened a long-lasting debate to have a view of the patterns of migrations, the impact of new peoples on the autochthonous populations, and the demographic processes occurred. The study of the early medieval period encourages a more direct comparison between different disciplines both in terms of methodology and result data. In recent years, archaeology has considerably improved its interdisciplinary approach, integrating scientific evidence to construct a nuanced view of human patterns of migration and demographic models.

The conference offers a forum for the discussion of archaeological and scientific approaches to the study of past migrations and the dynamics of human interactions. First, we invite papers dealing with the theme of migration in any time period, not necessarily medieval, which work comparatively across regions. Aim is to discuss current methodologies and results in the study of human past migrations.

Second, we invite researches that use recent scientific data, such as isotopes and DNA analysis, to investigate patterns of human migrations, interaction between migrants and autochtonous, and reconstruction of demographic scenarios.

Lastly, we open the discussion of future disciplinary aims in terms of data collection, management and presentation. We invite presentations on the management of electronic and interregional data collected in datasets and maps, which possibly relates results from different disciplines and researchers.

Presentation Preference - Oral

TH1-33 Abstract 02
Phenomena of migration on Chalcidice
Author - Dr. Elliott, Ben, University of York, York, United Kingdom (Presenting author) Co-author(s) - Dr. Van Leusen, Martijn, University of Groningen, Groningen, Netherlands - Dr. Elliott, Ben, University of York, York, United Kingdom

The Chalcidice, a peninsula in Northern Greece, formed since early times a transitory 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 chalcis (copper), from the city Chalcis on Euboea or from the so called ὕπποσ, a Greek tribe which settled in the area during the migrations of the 2nd millennium (Hdt. 7.185).

Beside the Chalcidians settled numerous populations on the mainland and the three prongs Pallene, Sithonia and Aite. 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 Aines 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.

Presentation Preference - Oral

TH1-33 Abstract 03
A Regional Assessment of Migration in Roman Britain: The Cultural Narratives of Decapitation Burials
Author - Christie, Shaeen, University of Wisconsin-Milwaukee, Saint Charles, United States of America (Presenting author) Co-author(s) - Dr. Denk, Olivia, University of Basel, Basel, Switzerland

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 burial traditions, 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 traditional interpretation of decapitation for sacrifice, including infanticide, penal execution, trophy taking, fear of the dead, or veneration practices toward individuals of presumed low, criminal, foreign, or slave statuses 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 archaeological 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 Romano-British burials 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.

Presentation Preference - Oral

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) - Liddle, A., United Kingdom - Knight, B., United Kingdom - Connelly, L., United Kingdom

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Presentation Preference - Oral
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 osseous 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 traceological analysis and microwear studies to allow an unprecedented discussion of the ways in which antler barbed points, antler headdresses, elk antler mattocks, bone bodkins and auroch bone scraping tools were made, used and deposited at c.9000 cal. BC in North Eastern Britain.

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Bone functional adaptation in the femur: a quantitative analysis in historical populations
Author: Dr. Simonit, Francesco, Montalcino, Italy (Presenting author)
Keywords: computed tomography, migration period, moments of inertia
Presentation Preference - Oral

Bone is responsive to mechanical stimulation. Working aspects and social conditions are able to bring out significant skeletal alterations, which can be revealed in postmortem. Quantitative evaluations of the markers of occupational stress (MOS), in particular in the lower limbs, have been provided through the analysis of the cross section geometry of the diaphysis.

Some historical populations of Friuli Venezia Giulia (North-Eastern Italy and Slovenia) have been studied with quantitative MOS methods. The activity patterns were already known for every group, especially about the loads to the lower limbs. Femoral cylindroids were obtained by Multidetector CT scan of midshaft femur. Average values of the cross section geometrical properties (areas and second moments of area) have been calculated to evaluate bone functional adaptation in each cylindroid. Furthermore, the moments of inertia of the cylindroids 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 use of the lower limbs. In particular, moments of inertia have been turned out highly sensitive. This working and cost-effective technique might represent a useful non-destructive and operator-independent method in bioarchaeology and could be useful to evaluate and compare the MOS of historical populations.

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 some of the central questions surrounding works were published. Since the first decade of the 2000s the extent of Slavic archaeology in Germany is decreasing, as measured by archival research in this field. Contemporary directions in archaeology are often focusing on more theoretical approaches and provide new perspectives on well-known research issues, while rescue excavations keep on being the main source for providing new data. Nevertheless, Slavic archaeology was the topic of academic research programmes in the last decade, too.
THI-34 Abstract 03
How clustered were clustered settlements really?
A case study on the Gátahillőy West Mound
Author: Prof. Bahi, Peter F, University at Buffalo, Buffalo NY, United States of America (Presenting author)
Co-author(s): - Rosenstock, Eva, Free University Berlin, Berlin, Germany
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 gátahillőy 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 gátahillőy experienced fundamental changes in its socio-economic makeup, which are expressed in alterations of the settlement layout and organization. In the uppermost building levels of the Neolithic East mound the settlement transformed from a tightly clustered and large agglomeration of houses into a series of individual houses or house clusters with open areas between them. At the same time, the tightly integrated social structure that characterized the site before 6500 BC loosened when households started to be economically more independent. During the following Early Chalcolithic period (ca. 6000-5500 BC), there seems to have been a return to dense clustering on the West Mound, suggesting another change in social structure. However, ongoing work on the formation processes of the built environment on the West mound questions whether the buildings were actually all in use at the same time, which provides a new perspective on the use, function and meaning of settlement space of Neolithic and Chalcolithic settlement mounds.

THI-34 Abstract 04
Spatial and social patterns in LBK Neolithic settlement
Author - Michalak, Katarzyna, University of Gdańsk, Gdańsk, Poland
Co-author(s) - Polczyński, Łukasz, University of Gdańsk, Gdańsk, Poland (Presenting author)
Keywords: built environment, community organisation, spatial organisation
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.

Concerning 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 food. The “dirty zones” are associated with accumulation of artefacts (pottery and flints) recorded usually in lateral pits and rubbish pits, and situated on one side of the house. The “kitchen zones” are characterised by the presence of features associated with direct use of fire, sunken-floored huts and grain remains.

The location of the zones around particular houses was varied. However in most cases we recorded a connection between the location of the zones and a neighbouring house of the same or earlier phase. The spatial analysis indicates that the activity zones have been probably used by inhabitants of more than one longhouse. This shared space can be an indicator of close social relations (e.g. kinship) between them.

THI-34 Abstract 05
Activity Zones and Community Formation:
The Role of Spatial Structure in Early Nucleated Villages
Author - Dr. Salisbury, Roderich B., University of 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 active areas and activity zones, is an essential aspect of understanding craft specialization, cross-craft interactions, power structures, inclusion/exclusion, and the local social relationships. Along with the broader scale of and diachronic approaches, comparative spatial analyses are an essential tool in understanding the inner workings of the built environment of everyday life. Drawing on ethnographic and archaeological comparisons from the Near East, Europe and eastern North America, this paper examines different use of space in different types of sites between 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 06
Assemblages of material-social interaction and the creation of space at Polgár-Csoszhalom
Author - Raczky, Pál, Eötvös Loránd University, Budapest, Hungary (Presenting author)
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Keywords: built environment, Carpathian Basin, Neolithic
Presentation Preference - Oral
The case study focuses on materialities and interactions as related to the built environment at the Late Neolithic settlement complex of Polgár-Csoszhalom in the Upper Tisza Region (Hungary). House constructions and associated attributes provide particularly interesting contributions to the study of the site. Previous archaeological investigations have been concerned with the macrostructures (tell and horizontal settlement) of the Csoszhalom settlement complex. These studies were able to reconstruct two different reference systems of space/time that diverged regarding their basic characteristic features. In our interpretation, the tell and the enclosure system represented a higher level of integrative architectural principle: this unit was not simply a residential area, but an arena for events with a unique choreography, which was very distinct from the surrounding horizontal settlement, the physical setting of everyday activities. Both house construction and house burning on the tell were special actions, which were fundamental parts of the formerly reconstructed, complex feasting practices implemented in the enclosed section during its ca. 350 years long life-span, in the first half of the 5th millennium BC.

Regarding settlement organization, fundamentally new data were provided by a large-scale magnetometer prospection in 2014. The preliminary analysis of the measurements identified another enclosure system, composed of two ditches, as well as burnt house structures west of the tell, in the context of the horizontal settlement. Altogether, the results infer that interactions between human groups and various features in the Csoszhalom settlement complex may have been much more sophisticated than previously thought.

The presentation will provide a detailed contextual assessment of the currently available 109 AMS dates from the site, in order to move beyond the duality of the enclosed tell and the horizontal settlement. In addition, we will examine the internal dynamics of interactions between houses, pits, wells and burials that represent the various physical loci of human activities and events. Finally, the spatial and functional associations of those loci and their social implications will be discussed. The project was funded by the Hungarian Scientific Research Fund (KSCF Grant 10/1024).

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)
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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. Podopotis) and Romania (e.g. Pietrelcina, Sutiana) led to discoveries that revealed archaeological structures outside the tells that attest intensive activities and habitation. This situation brings a whole new perspective on the relationship between the nucleated tell settlements and the various activity areas from their vicinity, including the funerary areas. Future research will focus on analyzing these variables in searching for rules and exceptions, with the help of 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.

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TH1-34 Abstract 08
Experience, organisation and identity within the nucleated broch villages of Northern Scotland

Author: - Gai, Emily, University of St Andrews, St Andrews, United Kingdom (Presenting author)
Keywords: Brochs, Iron Age, Scotland
Presentation Preference - Oral

This paper will explore the Iron Age nucleated ‘broch-villages’ of northern Scotland and their significance within the wider settled landscape. Brochs are a well-recognised drystone domestic structure in later prehistoric northern Scotland, with distributions extending across mainland Scotland and the Northern and Western Isles. Interestingly, the brochs of Orkney, Caithness and Shetland are often directly associated with nucleated ‘villages’ consisting of a number of smaller structures, within an encircling boundary. These structures took a variety of forms, in a radial or non-radial arrangement around the broch, with entrances often facing inwards. Archaeological evidence suggests that they were primarily domestic in nature, although some sites have revealed evidence for the housing of livestock, metalworking, and other craft activities. Most were equipped with standardized furnishings including hearths and stone-lined tanks.

The spatial organization and purpose of these villages and the monumental broch as their focal point is investigated with reference to archaeological evidence and theoretical approaches, resulting in a deeper understanding of social and organizational arrangements. Beginning with a comparison of contemporary regional settlement types, prescribed movement around the nucleated settlements will then be explored (e.g. Foster 1988), as well as social relations and interaction in these architecturally-crowded settlements. Through the consideration of a number of relevant case studies it is suggested that over time social and spatial dispossession, constraint, control, dependence and isolation may have developed. Additionally, it is argued that such settlement dynamics represent later prehistoric regional power structures which were to develop into the historic period. A number of relevant case studies spanning northern and Atlantic Scotland will be discussed, namely from Caithness, Orkney and Shetland.

TH1-34 Abstract 09
Kernave Town in 13-14th Centuries: Social and Cultural Pattern of Community

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Keywords: community organization, The Middle Ages, towns
Presentation Preference - Oral

The Eastern Baltic region in a European context is distinguished by its peculiar historical development. For a long time, there was no state, no Christianity and no towns here. Small, isolated, poorly stratified agricultural communities lived here till the 13th century. German Knights founded the first medieval towns in the margins of this region in the 13th century. Meanwhile, the Lithuanian state emerged on the basis of the pagan tribes (Lithuania was christianised only in 1387) and the first political administrative centers, which eventually developed into towns, were created. One of the earliest towns in Lithuania was Kernave, the residence of the grand dukes of the 13th century, which is considered to be one of the most important economic and political centers. Therefore, in the context of European medieval history, Kernave is unique, because the town was shaped by the pagan community. Archaeological and interdisciplinary research allows the reconstruction of the socio-economic model of medieval Kernave. The most important archaeological objects of that period in Kernave are a defensive system of five hill-forts, the upper and lower towns, and inhumation and cremation burial sites. These structural parts of medieval Kernave are associated with the activity of different social groups. The central hill-fort was the residence of a duke. It was surrounded by three non-functional function. Two of them were meant purely for defense. The third hill-fort had dual function, because it was populated by urban artisans and merchants, but it also held a defensive function. The function of the fifth hill-fort, which is situated furthest to the east, is not clear yet. The valley, which is situated between the hill-forts and the river, as well as the upper river terrace, was built up by the homesteads of craftsmen. The activity of certain social groups is clearly distinguished by the numerous artifacts and ecofacts. For example, the residence of a duke was identified by the abundance of especially luxurious imported goods. Meanwhile, the number of finds in defensive hill-forts is relatively small but they are distinguished by powerful fortifications. It should be noted that there were no artifacts connected with more intense agricultural activity found in any of the investigated locations, indicating the non-agrarian character of the community. Furthermore, these investigations illustrate the role of social stratification and geography of society – there are obvious cultural and confessional differences of Kernave residents in different town areas. The artifacts discovered in the lower town are clearly of local Baltic origin, whereas the majority of artifacts discovered in the upper terraces are continuations of the Baltic jewelry traditions. It may be that two different Hanseatic towns (inhumation and cremation) could be related with the communities of different confessions. Therefore, the research shows that in Kernave there was a clearly socially stratified urban community, which is characterized by cultural and religious syncretism, unique material culture and a combination of pagan and Christian worlds.

TH1-34 Abstract 10
Uncovering Medieval Urban Planning: the case of Oslo and Magnus Lagabjet

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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 Lagabjet bylv, in the light of the ongoing archaeological excavations. Issued in 1276, Magnus Lagabjet bylv regulated both the use of space and behavioural practices, aiming to exercise control over both cities and populace. Here, we examine the extent to which the various articles in this piece of legislation can be identified in the architectural record. Can ‘good citizens’ be recognised, or is there evidence for a gap between de jure and de facto practice? 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 Neolithoid Settlement Nucleation on the Great Hungarian Plain

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Keywords: Great Hungarian Plain, Neolithoid 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 Neolithoid archaeological record of the eastern Carpathian Basin indicates a settlement distribution of spatially discrete nuclei with multi-tiered settlement hierarchies surrounding therefore unprecedented, sizeable centers in the region. In this paper, we focus on tell and large Late Neolithoid 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 Neolithoid brought about novel social mechanisms and institutions to assure community integrity in these large demographic, economic and political centers. We argue that considerable differences in their layout reflect a high degree of variability and resilience within similar egalitarian societies. The paper also addresses whether nucleation processes generated by exogenous causal agents resulted in a significant increase in social and economic complexity, or whether increasing social and economic complexity led to population nucleation.

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TH1-34 Interpreting the Archaeological Record

TH1-34 Interpreting the Archaeological Record
TH1-34 Abstract 12
Nucleated settlements in the Eneolithic of the south-eastern Poland?

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At the beginning of the fourth millennium BC in south-eastern Poland (historical province of Lesser Poland – Polonia Minor) appears a new architectural and cultural 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- or 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 in western Lesser Poland are the classical example of such correlation; i.e. they are known from phases IV and V of the site at Bronocice, the Przeciszewo district (ca. 2700-2600 BC). A phenomenon of this kind has also been observed in Lesser Poland beyond the TRB. For example, in the large settlement in Złota, the Sandomierz district (ca. 2900-2800 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 Złota culture. Other sites of this culture are cemeteries and numerous cemeteries. Therefore, it can be assumed that this resulted from 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 complementary analyses 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 role within the settlement or economic units of the periods 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.

TH1-34 Abstract 13
Organizational variability of Bronze Age nucleated settlements in Hungary: a long-term approach

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Keywords: Bronze Age, fortified settlements, Hungary

Presentation Preference - Oral

Large, nucleated settlements – tella, hilltop sites, fortified settlements – are ubiquitous phenomena in the Bronze Age of Europe and specifically the Carpathian Basin. Recent research on micromodel 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 presentation is to provide an analysis of the changes of such nucleated settlements throughout almost 2000 years of the Bronze Age (2600/2600–800/700 BC) with respect to their internal structure. It also remains, and internal and microregional organization principles. Data on changes in settlement structure and changes in the locations of major centres 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, southwestern and southeastern part of the Carpathian Basin of 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 periods 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.

TH1-34 Abstract 14
Spatial patterns of Nuragic sanctuaries inside settlements and in the countryside of Sardinia

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Keywords: GIS analysis, landscape archaeology, Nuragic culture

Presentation Preference - Oral

Sardinian Bronze Age and Early Iron Age Nuragic monuments are renowned as impressive examples of a community effort. Nevertheless, the motivations and social organization of the communities behind the joint efforts in creating those enormous and sophisticated built structures are still debated and barely understood. The Nuragic civilization developed in the Middle Bronze Age and Early Iron Age, from about 1900 – 730 BC (IMB to EIA). Nuragic settlements were spread over the entire island (more than 6000 are still visible in the landscape), and the Nuraghes can be subdivided into monoto and multi-tower. In later times (Final Bronze Age, FBA) the use of Nuraghes declined, while complex villages arose – most times nucleated villages distributed around Nuraghes, but also in new places in the landscape.

In contrast, sacred monuments or areas are less frequently identified. While for the earliest phase of the Nuragic civilization no mere sacred places can be identified, they gradually become visible in the widespread burial of giant tombs and in megaron temples. From the beginning of the LBA a preference for fonts and wells can be observed, furnishing in water sanctuaries of finest mansion in the FBA and EIA. The sanctuaries are of different characteristics, some of them being quite remote while others were integrated with Nuraghes and Nuragic complexes. A few of them are rather large, consisting of different buildings, partly surrounded by huts, built for large groups of visitors (sometimes called ‘federal sanctuaries’, e.g. Santa Christina- Paulilatino or Santa Vittoria – Serris); others are more domestic, only suitable for smaller congregations. In the LBA the collective workforce seems to be shifted from the Nuraghes to the sanctuaries. Additionally, a change in the skills and preferences of mansion can be observed. Though the actual building of the Nuraghes ceases, they survive partly in conversion also as sacral monument of stone that was previously built in many of the sacral and/or megaron places. The refined religious practices observed somewhere display changes in collective understanding of their surroundings manifested in the exploitation of fonts and wells. The processes are not fully understood, and were probably influenced by intensified contacts with other cultures of the eastern and Western Mediterranean.

The study researches the interaction of the sanctuaries with different natural and cultural aspects within GIS. The reference to water, other resources and infrastructural aspects are investigated, as well as the clusters of settlements they relate to, but also to other cultural patterns such as votive deposits (differentiating local and imported materials). In case studies it also takes into account the patterns of sanctuaries located close to or within settlements, and the ways in which they were incorporated into new settlement foundations or added to existing settlements. Attempts to interpret the Nuragic civilization and their features are numerous and manifold. Scholars claim models from elite structures to egalitarian systems. The study finalizes the discussion in the results in regard to different theories currently discussed.

TH1-34 Abstract 15
Chiefdoms’ farmsteads from the Hallstatt period - architecture and structure

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Keywords: Hallstatt period, metrological analysis, spatial organization

Presentation Preference - Oral

In recent years, in the area of Lower Silesia in Poland, several structures dated to the Hallstatt period, called chieftain’s farmsteads were found. They were settlements composed of several buildings arranged around an empty square enclosed by a palpable or a ditch. The number of discovered sites suggests that this was a commonly used form of rural space organization. The comparative analysis showed that these settlements were characterized by repeating structure and layout. A metrological analysis was also undertaken. It was found that a repeating length measurement unit, which was approximately 0.785 m, was applied for both the layout of individual buildings as well as for the arrangement of the whole farmstead area. It was also noted for the layout of the buildings remaining modules were used: a square with side of 4 x 4 units long and a rectangle with sides of 4 x 3 units long. Meanwhile, for determination of the farmstead size square modules with side of 12 x 12 units were used. Similar rules of spatial organization have also been used in the construction of ornaments on pottery and objects of everyday use, the different being a triangle as the dominant figure. In both cases modularity was the basic paradigm of the style. It is also possible to observe the same rules in other regions habituated by people of the Hallstatt culture. The genesis of this style is uniquely associated with the culture of antique Greece of the geomorphic period. The main question concerns the purpose of
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 played a utilitarian role, they might have been 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 Wójcieszów 15. Both a chieftain’s farmstead and an open settlement organized along a communication route were discovered there. 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.

THI-34 Abstract 16
Settlement mounds: A long-term analysis of the settlement organization in the Iron Age

Author - PhD Haue, Niels, Historical Museum of Northern Jutland, Aalborg, Denmark (Presenting author)
Keywords: Iron Age, settlement mounds, socio-economically organization
Presentation Preference - Oral

The settlement mounds in Denmark dates to the Pre-Roman Iron Age and the Roman Period, and the excavation of these complex village sites offers 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 villagers. 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.

THI-34 Abstract 17
Structured villages from the Early Roman Iron Age in central-southern Jutland, Denmark

Author - Dollar, Scott, Sønderkov 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 sites to each other, there are variations in settlement and farmstead layout that show similarities, but also 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 Sønderkov Museum in a limited geographical area of southern-central Jutland.

THI-34 Abstract 18
What does settlement layout tell about the community?

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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 the present case studies, 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.

THI-34 Abstract 19
The creation of powerful places in Etruria

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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, burials evidence indicates the retention of counterweighing political genealogies that apparently contrasted with the apparent centralisation of power in the large centres. The paper will examine the resolution of this tension by matching emerging evidence from the nucleation of settlement (layout and organisation) with evidence for succession amongst political elites and their individual participants (the sequence and content of graves). The variation of this pattern at an interregional level will be added to the complex, often hetaerarchical, pattern of Etruria.

THI-34 Abstract 20
Communication network structure in Latium vetus and Etruria: Two faces of the same coin?

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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 territorial communication networks in Etruria and Latium vetus between the Final Bronze Age and the Archae of the Etruscan Civilizations with a newly developed Network approach this paper shows the similarities and differences between the two regions and contributes to explain why in the Latium vetus and Etruria the system of communication networks prevailed over the rival. Moreover, this analysis suggests a relationship between the hierarchical dynamics of city-states organization (and its corresponding influence on infrastructural decision-making) and the structure of terrestrial routes networks.

THI-34 Abstract 21
The Analysis of Changes in Post-Chalcolithic Settlement at Çatalhöyük

Author - MA Horodeki, Jędrzej, Adam Mickiewicz University, Kołobrzeg, 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 T6 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 place. In the result in my paper, I will indicate the most important economic and social changes that took place in Cătăhiyula. 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.

THI-34 Abstract 22
Comparative Study of Settlement Systems in the Bronze Age and the Medieval Age

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Keywords: Bronze Age, Middle Age, comparative study, settlement structure and using of space
Presentation Preference - Oral

Comparative studies on built environments between prehistoric and historic times at different geographical scales have yielded important results in various parts of the world. In particular, analyses of complementary datasets contributed to a better knowledge of similarities and differences in socio-economic developments at the local scale. However, less effort has been devoted to the matter concerning how abundant historic datasets can facilitate in understanding prehistoric settlement dynamics.

The aim of our paper is to examine settlement nucleation processes at the regional scale during two periods in Northeast Hungary. Two geographically distinctive, neighbouring regions, the Borsod Plain and the foothills of the Bükk mountains, will be included in this study, with particular focus given to the settlement patterns for the specific periods of the Bronze Age (between 2200 and 1600 BC) and the Middle Ages (14-15th centuries AD). We will explore the topography, settlement networks, space and land use, as well as house construction methods in a comparative regional and temporal framework. The economy of these two periods is based on agriculture and the exploitation of the immediate environment. The historical and cartographical sources, landmark inspections, and the well-known road-networks make possible to determine central sites contra villages in the 14-15th century AD in the micro-region. Based on the analysis of building methods, communal spaces, spatial organisation of the homes and the villages, and economic activities in these two periods, we propose a model that will determine critical factors about the Bronze Age settlement pattern (roads, central places, distribute places and activities between settlement).

THI-34 Abstract 23
An exemplification of the socio-political make-up of the Late Bronze Age polities from Hungary

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Keywords: Bronze Age Hungary, Fortified settlement, Landscape, hierarchy
Presentation Preference - Poster

In the area of the Békés-Csanád loess table and the Banátin, SE Hungary and W Romania, a series of large fortifications enclosed by ramparts and ditches emerged in the period of 1300–1100 BC (Rei. BrD–HaA1). These huge structures, often hundreds of hectares large, got into the focus of Hungarian and Romanian research only in the past decade (have got into the focus of Hungarian and Romanian research only from the past decade). The fortifications are surrounded by a series of smaller rural settlements, forming a three-tiered settlement hierarchy, indicating a fairly complex society. The function of these settlements is debated to some degree, as they have not yet yielded substantial domestic remains, and their interpretation as refugia or ritual centres is also possible. This new type of settlement indicates significant although, up till now hardly known social and economic transformations in the last centuries of the 2nd millennia BC, in the Late Bronze Age. In my poster I will summarise the results of the research focusing on one of these fortifications, Makó-Ríkyó–Csápažvar and its hinterland. This small, 42 hectare large fortified site is investigated within the framework of a wider, micregional settlement study and will be interpreted in terms of the socio-political make-up of the Late Bronze Age polities.

THI-34 Abstract 24
More than meets the eye: burial monuments and "landscapes of power" in late Iron Age Britain

Author - Minkevicius, Karolis, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: GIS, Iron Age, Landscape Archaeology
Presentation Preference - Poster

As human beings, the desire and necessity to "change" landscape has been with us from the beginning of our existence. From the basic acts such as hunting or setting a campfire, to a more complex ones like constructing a transcontinental canal, our actions have been constantly changing the landscapes we inhabit. In prehistoric Europe these changes usually were an unintentional by-product of other activities. However, it is becoming increasingly evident that this was not always the case. Landscapes play an active part in societies, rather than being a passive reflection of (some of) their actions. They influence and are influenced by social interaction and social structure. Throughout the history numerous societies have used this phenomenon to their advantage. Here it is being suggested that such landscape control strategies can also be observed in the later Iron Age in eastern Britain. During this period the re-emerging cremation burials 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 burials 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.
**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, ethnoarchaeology, environment, society, building traditions

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**Abstract**

Most often, the archaeologist underlines 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-economic context and technical constraints, presenting ethnoarchaeological and archaeological examples of earthern constructions in different European contexts. First of all, the observation of modern wattle and daub structures is used to outline the relationship 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 are used to draw the attention to the social significance of the employment of different building techniques and materials. 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 constant, but the identification of raw materials is just a first analytical level for the archaeologist. We need to know an effort and explore in deeper the relationship between raw materials, technical choices and social context. In fact, each peculiar technical solution is often a solution among various other possibilities. The aim is to turn the archaeological reasoning and stress the technical variability in our approaches, to show the limits of the environmental setting and the role played by cultural choices since the Neolithic and early Bronze Age towards the ceramic-like burnt daub remains used during and in the Middle Ages.

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**TH1-35 Abstract 02**

**The Aftermath of Mud Houses: Degradation and archaeological site formation**

**Author** - Dr. Friesem, 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 coupled with various microscopic laboratory-based analyses. The paper supplies guidelines to the identification of occupation deposits, occupation deposits, thatched roofs and degraded mud brick material. The results of this study presents the importance of combining macroscopic and microscopic analytical methods to distinguish between various infill sediments in order to enable better interpretation of archaeological mud structures.

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**TH1-35 Abstract 03**

**Burning Down the House – Experimental Chalcolithic house construction and destruction by fire**

**Author** - Johnston, Stuart, Durham University, Durham, United Kingdom (Presenting author)

**Co-author(s)** - Gaydarska, Bisserka, Durham University, Durham, United Kingdom

**Keywords**: building and destruction of the Chalcolithic house, experimental archaeology, fire

**Presentation Preference** - Oral

During the summer of 2014, two 2/3rd-sized timbers-framed wattle-and-daub houses similar to those constructed on 8th century BC Cucuteni-Trypillia settlements, including the Trypillia mega-sites, were built in Nebelevka, Kinogodi Oblast, Ukraine by a joint British and Ukrainian team of archaeologists and craftspersons. One of the houses was deliberately destroyed by fire in May 2015 to study the results of its collapse and the potential formation of the ceramic-like burnt daub remains so often found during archaeological excavation of Cucuteni-Trypillia sites from the Balkan Chalcolithic period.

Observations of the collapse of the two-stone houses have given new insights to the processes forming the archaeological record and cast doubt on accepted theories of the formation of these huge Chalcolithic settlements which are as large as 320 ha. The most surprising result concerned the very large quantities of firewood needed to burn the house completely. Combined with experimental work carried out in the United Kingdom using the same materials, this experiment has presented evidence which challenges existing theories of house construction. By adopting test methods to measure the strength of concrete, masonry, and rammed earth construction materials, the effort of heating on the material strength of daub construction material was investigated in a series of compression and shear tests. The results challenge the theories that controlled burning of wattle and daub structures was used deliberately as a construction technique in Tripolye-Cucuteni houses.

The Nebelevka house-building and -burning experiment is the latest in a long line of experiments that supports the notion of deliberate house-burning at the end of a house’s use-life.

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**TH1-35 Abstract 04**

**Build with earthen materials. The eneolithic site of “Ca’ Nova di Minerbio” (Bologna – Italy)**

**Author** - PhD Boccia, Pasquale, Soprintendenza Archeologica dell’Emilia Romagna, Bologna, Italy (Presenting author)

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**Keywords**: building and destruction of the Chalcolithic house, experimental archaeology

**Presentation Preference** - Oral

The eneolithic settlement identified at “Ca’ Nova di Minerbio” (B015) in whose excavation has not yet finished, can be dated in a Copper Age phase, during which there was a massive presence of the so-called ceramic “a squame”. The archaeological excavation shows how different construction techniques have been used to realize the identified structures: a wooden planking supported by vertical poles and completed with daub was employed to build the walls; earthen materials were used to shape floors and several fire structures as well. We present here the rectangular “structure 1” (2 meters wide and over 6 meters long), formed of at least two closed spaces, and built with earthen materials. The employed technique is probably similar to cob, coupled with a wooden load bearing framework. The residential function of the structure 1 is still not sure, mainly for the small size of the spaces (2 rooms sized only 23 m²). The building shows traces of fire. A technological analysis has been carried out, using a geoarchaeological approach, in order to understand the different choices in raw material selection and the employed building techniques. After an accurate characterization of the stratigraphy on the field, several micromorphological samples has been collected on both preserved...
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)
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**Keywords:** Bronze Age, cooking platform, plaster

**Presentation Preference:** Oral

The Bronze Age site of Oratino – La Rocca is located on a small terrace beside the southern slope of a rocky hill that dominates the eastern side of the high 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 this sections will allowed to characterize composition and firing temperatures allowed to identify potential sourcing areas of clays that have been compared with archaeological material composition to establish the provenance of raw materials.

TH1-35 Abstract 06
Technical evolution of adobe building materials and work specialisation at Ra’s al-Hadd HD-6 (Oman)

**Author:** - Dr. Azzar, Valentina, UMR 7041 ArScAn - Vepmo, Nanterre Cedex, France (Presenting author)
**Keywords:** Adobe composition, Grain size distribution, Work specialisation, Early Bronze Age, Oman

**Presentation Preference:** Oral

Earthen materials are introduced in Oman at the end of the 4th millennium BCE, when a series of technological evolutions mark the transition to the Early Bronze Age. The very beginning of such transformation, however, remains scarcely understood from the point of view of settlement life and activities, as the Haft period is mostly represented by thousands of graves, while very few settlements are known throughout the area. The site of HD-6 has been the object of a detailed large-scale excavation, showing both the emergence of solid architecture and a diachronic evolution in adobe building materials.

Aiming at a better understanding of such evolution, chemical-mineralogical and granulometric analyses of earthen building materials related to the different occupations of HD-6 have been performed on a series of samples. The results suggest that the differences in mud-brick fabrics were a result of mixing and tempering and are not indicative of different raw material sources. Together with the technical characteristics of buildings, such differences show the evolution of building materials and methods of construction used on site, hinting at increasing specialisation of work and of the workforce.

TH1-35 Abstract 07
Clay, wood and stone - Neolithic architectures on the channel sea shore, at Lillemer

**Author:** - Laporte, Luc, CNRS, Rennes, France (Presenting author)
**Co-author(s):** - Bizien-Jaglin, Catherine, CeRAA, Saint-Malo, France

**Keywords:** Copper Age, Dwellings destroying or burning, Osmium culture

**Presentation Preference:** Poster

For the most part of the researchers the house is the main important social, ideological and economic entity of the society in Copper Age in S-E Europe. The materials used to built, the form, the inner space structurering, were seen like being representative
for different archaeological cultures. The moment of building, the utilization and the abandonment are the most important markers of the final chapters of a building life time. The excavations from Hîrova and Borduani, both tells in S-E Romania, provided important information concerning the Copper Age lifestyle, more precisely the history of the Gumelnita housing. The most frequent construction technique though consists of a trench in the bottom of which are driven a number of wooden stakes, fairly close together, supporting a lattice of branches to receive the clay. The walls and the floors are plastered with layers of different clay preparation. Usually having two rooms, each has its own rectangular oven. During their lifetime the houses have often been repaired and sometimes, modified. Disposed in rows, the buildings are separated by passageways. Generally, the final period of their evolution started with the moment when the dwelling ceased to be used by its inhabitants on that purpose. The archaeological information demonstrates that the end of their evolution is not the same for all dwellings. Some of them were abandoned and decayed in time, others were intentionally destroyed and others were intentionally fired. The diversity of all these situations can be interpreted like the result of different causes, and suggest a more complex spiritual life of the communities of the Gumelnita culture in Vth mil. BC.

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 (Gutherz, 1975). Both plains and karst wetlands were inhabited territories ever since the Neolithic era. However, the raw material resources that are directly available do modify the builders' choices and highly affect the housing types. In the garrigues areas, one can find a large number of houses that have walls made of dry stones. Conversely, on the coastal plain, unbaked clay architecture was proven on several sites, such as La Capoulade (Mauguio, Hérault) or Mitra (Garons, Gard). Though, this kind of geographical determinism ought to be further qualified. Indeed, cases were seen where environment constraints have certainly been overcome by technical and cultural traditions and had a direct impact on the builders' choices. In the Rhône plain, several dry stone houses were found. Yet these structures are established on soft substratum (Jallot, 2011). Likewise, in karst areas, the discoveries of the use of a combination of stone and mud are numerous. It is true that until recently, and particularly in karst environments, the excavation of settlements was essentially based on the recognition of remains from long-lasting materials – which often precluded mud remains. But new problematics are emerging thanks to the improvement and the adjustment of excavation methods specifically relevant for the study of mud construction materials. Boussargues (Argelliers, Hérault), located in the core of Hérault's garrigues, contained wattle and daub vestiges directly associated to dry stone wall remains. They actually are roof elements (Chazelles, 2008). Forthousisse (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 (Jalot, 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 (Fourichon, 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 recurrentes, 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.

With the finalisation of the last pan-European Common Agricultural Policy (CAP), discussions are already looking at how it can be reviewed and reformed, ahead of developing the next CAP, due in 2020. Successful integration of heritage concerns into both the existing and next CAP scheme is dependent on advocacy, coordinated effort and building partnerships with stakeholders across the Landscape, Environmental, Ecological, Agricultural, Forestry and other Rural Land Use sectors. This will involve encouraging recognition of the importance and sensitivity of heritage, moving away from narrow definitions of landscape as primarily being natural and ecological concerns and embracing their historic and cultural dimensions, recognising and exploiting shared agendas between heritage and other sectors and successful cross working with legislators and practitioners on partnership sectors.

The first part of this session will focus on successful examples of interdisciplinary partnership working, where the heritage sector has successfully integrated heritage management with landscape and/or other rural land use aims, objectives and management. It will explain how these partnerships came to be successful and overcome any obstacles to a successful outcome, and any issues that remain unresolved.

The second part of the session will explore how we can use these shared experiences to improve our practices and build a coordinated approach and roadmap to CAP reform.

The session will bring together government regulators and policy advisors from across Europe, academics, non-national government representatives and field practitioners.

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New approaches to engage farmers with buried archaeological heritage in the UK

Author - Weibber, Henry, University of Bristol, Bristol, United Kingdom (Presenting author)
Keywords: Engagement, Farming, Heritage Management
Presentation Preference - Oral

There have been a number of connections and interactions between the subjects of archaeology and agriculture throughout their histories. From the agronomic development of soil phosphate tests and their application by Arrhenius (1931) to archaeological sites, to the observed damage of archaeological sites by agricultural machinery. These connections have not always been pleasant, but most certainly have not always been unsavoury either.

Never the less, interactions between many farmers and archaeological practitioners often are based on mutual agreements, friendships, legislative enforcement or stewardship advice. This research presents a new approach to engage farmers using soil science; the growing knowledge base and understanding of our archaeological heritage, and the explosion of agricultural technologies to map and manage soil variability.

Through a case study approach, this research will gather data from both agricultural sources and archaeological sources to understand any implications that archaeological sites have on the surrounding soils. Could these implications be relevant for farm management and if so how might they engage farmers in ways that haven’t been done before? How do they interact with current stewardship options? With new approaches it may be possible to encourage more farmer, or ‘farm management’, engagement with buried archaeological heritage and promote more tangible understandings of cultural sites to the agricultural community.
Managing rural landscapes in southern England - two case studies

Managing rural landscapes in southern England - two case studies

Integrated Cultural Landscape Planning at Ancient Corinth, Greece

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.

Managing rural landscapes in southern England - two case studies

Integrated Cultural Landscape Planning at Ancient Corinth, Greece

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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 Lechaeum, the ancient city, and the mixed industrial and agricultural region of the plain. It the village of Ancient Corinth and its agricultural outskirts which are situated the remains of the ancient city, and 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 viable for visitors. The planning group is an official committee of the Ministry of Culture, Hellenic Republic, consisting of staff from the Inspectorate of Antiquities of the Corinthia, Ancient Corinth, Greece.

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TH2-02 Abstract 03

Good Intentions and Bad Practice; conflicting values in heritage protection

Author - Campbell, Stuart, National Museums Scotland, Edinburgh, United Kingdom (Presenting author)

Keywords: Heritage Crime, Heritage Management, Portable Antiquities

Presentation Preference - Oral

The concept of heritage crime is often summed up by the image of the experienced and professional looter, motivated by financial gain and with some level of technical knowledge. While this model may apply to high profile cases of looting this paper will concentrate on less obvious sources of harm to the historic environment, in particular that grey area where bad practice or carelessness on the part of an individual can cross the line into criminal behaviour. This paper will focus on cultural attitudes, or different cultural perceptions of harm and importance which can lead to damage being downplayed or not seen as serious on the part of the perpetrator. This paper draws on experience of working directly with members of the public who find objects, not least metal detector users, and will draw on experiences which are often not discussed or considered at policy level. This paper will consider the assumed role of the market in driving looting, arguing instead that much behaviour is driven by ‘single actors’, the finder or looter also being a collector, and the desire being to keep rather than to sell an object. Individual motivations include a complex mix of culture and preconceptions which might mean a site is damaged or an object not reported, often by individuals who act with good intentions. The cultural considerations which make an individual consider the law of little importance (while not considering themselves a criminal) will also be discussed. Running through all these issues are divergent and competing perspectives of why the past is important, and how legislation that seeks to protect the past may be perceived by third parties in a wholly different light.

TH2-02 Abstract 04

Museum Security: How big a threat is crime?

Author - Dr. Thomas, Suzia, University of Helsinki, Helsinki, Finland (Presenting author)

Co-author(s) - Grove, Louise, Loughborough University, Loughborough, United Kingdom

Keywords: Europe, Heritage crime, Museum security

Presentation Preference - Oral

Museums are an integral part of the cultural life of societies. Many house archaeological material, functioning as repositories for the archaeological record, as well as sites of public education and dissemination. In addition to their intangible value, many collections may also have considerable financial value, and pose a temptation to thieves. In recent years, high profile art thefts from museums, embellishment by museum staff, and even, regrettably, acts of terror, have drawn attention to the vulnerability of museum institutions as sites of crime and catastrophe. Museum security professionals are seriously challenged to respond to such threats, often working with less than ideal resources and budgets. There is also a developing scholarly literature around heritage crime in the context of museums (e.g. Benson and Fouché 2014, Hardy 2015, Grove and Thomas 2016). Yet threats from crime – perhaps the most visible in terms of media attention - are only one category of security issue that museums must be aware of. Personal security, safety threats from accidental damage, risk of fire or natural disaster, digital security, and crime – perhaps the most visible in terms of media attention – are only one category of security issue that museum professionals must be aware of. Furthermore, ethical considerations such as the ICOM Code of Ethics guidelines on discussing security issues must be considered.

TH2-02 Abstract 05

The fight against underwater and land archaeological looting in Spain. One research and development project

Author - Professor Yáñez, 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 the example of 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 fight against archaeological looting seems to lack the sense of unity required. The inadequacy of many legal instruments, such as the Spanish Historical Heritage Act, other cultural legislation, and the Penal Code is very well known, as there are claims to reform this legislation. However, 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 considered in future. This project is divided into two principal tasks:

- The first task 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 fight against this wide spread social problem, made as a result of the research project.

  B) To make public, a structured body of data from different geographical areas referring to the handling of complaints about archaeological looting from what, for the moment, are only available in administrative, judicial, police files that are difficult to access.

  C) To provide tools to facilitate the fight against underwater and land archaeological looting, such as training the staff involved (members of the Security Forces of the State, judges, officials, managers, etc.), and social awareness. Improving the public response to archaeological looting involves ensuring access to these goods for future generations.

In this communication the most important research results conducted in recent years will be presented.

TH2-02 Abstract 06

Greater awareness as prevention measure against illegal turnover of archaeological artifacts

Author - Kairiss, Latvian Academy of Culture, Riga, Latvia (Presenting author)

Keywords: archaeological artifacts at risk, crimes against cultural heritage, looting of archaeological sites

Presentation Preference - Oral

Although Latvian official criminal statistics does not contain data on illegal obtainment of archaeological artifacts, significant amount of illegal excavations (especially in the ancient burial places) and publicly available information regarding internet trade of protected artifacts implies that national archaeological heritage is endangered. According to data provided by State Inspection for Heritage Protection every year about 20-25 criminal proceedings are started regarding looting of archaeological sites.
Different methods are being used in order to prevent and combat illegal obtainment and trade of archaeological artifacts – from explaining the significance of cultural heritage until improvement of legislative acts and introducing more severe punishment for correspondent offences. Proper implementation of any method could lead to positive results, however it is usually hard to find relatively efficient and at the same time speedy solution.

One of practical solutions of the problem has to do with enhancing awareness regarding protected archaeological artifacts and related issues because it would not be correct to assume that legislative acts already contain all the information needed for different audiences (e.g. buyers and traders of artifacts, persons who are interested in history, law enforcement officers etc.). Thus in December 2015 several cultural, law enforcement institutions and other institutions controlling turnover of cultural objects, under the guidance of Latvian Academy of Culture, started the development of “Digital catalog of Latvian archaeological artifacts at risk”.

The “Digital catalog of Latvian archaeological artifacts at risk” contains graphic and textual information regarding the most endangered national archaeological artifacts, as well as other information deemed to be useful for different audiences which could come into contact with archaeological artifacts.

The presentation will give insight into aspects of illegal obtainment of Latvian archaeological artifacts, characterize the “Digital catalog of Latvian archaeological artifacts at risk” and opportunities of its usage.

**TH2-03 Abstract 01**

**ICOMOS’ Charter on Interpretation of Cultural Heritage Sites: The Global Strategic Approach**

**Author**: Hodges, Sue, ICOMOS ICIP, Port Melbourne, Australia (Presenting author)

**Co-author**: Deufel, Bonnyrigg, United Kingdom

**Keywords**: Cultural Heritage, ICOMOS ICIP, Interpretation

**Presentation Preference**: Oral

ICOMOS’ Scientific Committee on Interpretation and Presentation of Cultural Heritage Sites (ICIP) is responsible for the review and promotion of the ICOMOS charter of the same name, adopted by the General Assembly of ICOMOS in 2008. Interpretation is defined as all activities intended to heighten public awareness and enhance understanding of cultural heritage sites, including publications, online content, and on-site installations such as panels and immersive multi-media experiences. As such, interpretation plays a key role in facilitating people’s engagement with heritage and telling diverse heritage stories in an attractive, informative manner. However, public and private decision-makers around the globe have varying degrees of awareness of interpretation as professional heritage practice, and there are varying professional standards in different countries too. The aim of ICIP is therefore to define and promote the basic objectives and principles of interpretation and to be a global advocate for professional interpretation of cultural heritage sites.

At the end of 2015, having appointed a new board of officers, ICIP began a strategic review of the Charter and the committee’s main activities. This session will discuss the charter in the context of this review and wider developments within the fields of interpretation and heritage more broadly. In particular, the session will contextualize the principles and objectives of the charter for interpretation, and consider recent challenges to what has been described as a Western approach to heritage management and their implications for the Charter and the discipline of interpretation.

The session will outline the strategic priorities established by ICIP for the next three years on the basis of the review, and introduce participants to the activities that have been planned in response. A specific consideration of the session will be the global application of interpretive principles to meet local requirements. The purpose of the session is to familiarise participants with the ICOMOS Charter for the Interpretation and Presentation of Cultural Heritage Sites and the discourse of interpretation, and to highlight where ICIP’s work may link in with participants’ own professional practice and organisations.
Moesgård Museum - considerations on an upcoming exhibition

Author: Dr. Linas, Jette, Moesgård Museum, Odder, Denmark (Presenting author)
Keywords: Display, Exhibition, Medieval
Presentation Preference: Oral

Moesgård Museum is the among the largest and is certainly the newest archaeological and ethnographical 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 army in the World.

Designed by Henning Larsen Architects, the exhibitions hall has won several international awards, 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 (ASCSA), has produced a wealth of academic publications. Part of the mission of the ASCSA, however, in addition to producing research, is to disseminate the results to wider audiences. Just nine years ago, Corinth Excavations began facilitating occasional educational programs in the museum and on the site of Ancient Corinth for Greek schoolchildren and teachers on a variety of subjects. For example, a program held at the Asklepieion included a dramatic interpretation of Epidauros healing inscriptions.

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.

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.

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 the leading centre for marine engineering in the world. Although Govan has enjoyed two periods of greatness, for nearly a century it has experienced a prolonged economic decline and accompanying social disintegration.

Perhaps the clearest sign of social decay has been the collapse 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 to build 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 interest and responding to government agendas of sustainability and economic growth.

“Know thyself!” or visitor experiences in open-air museums (case study of Belarus and Lithuania)

Author: Charapian, Nadzeya, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: communication, open-air museums, visitor experiences
Presentation Preference: Oral

Archaeological 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, 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.

Presentation Preference: Oral

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Managing the archaeological heritage

and the strategies to connect it back to its community aims at presenting and analysing the needs, the goals, the risks, the achievements and the failures of the renovation project of a its population made of Eastern-Europe citizens, and is the birthplace of the Abbot Tommaso Silvestri, the founder in the late 18th

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Heritage reforms at national level, on the other hand the pattern seems to be less consistent at a regional and local level, where

protection, seems to be the only successful guideline today. If, on one hand, this seems to be the main issue of recent Cultural

Community, Diversity, Local Museum
Trevignano Romano, Italy (Presenting author)
- Dr. Cella, Elisa, Museo Civico Etrusco Romano di Trevignano Romano,

the most important museums in the world, the Museum of Olympia, as a vehicle of sophisticated museological practices that will

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.

Open up again: a local museum by the lake and the strategies to connect it back to its community

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 based on the social and educational role of these institutions.

For those archaeological Italian museums traditionally created and intended as defences of their collections, the need of a Copernican revolution, the shift from a point of view mainly focused on the multiple ways of fruition, rather than those of mere protection, seems to be the only successful guideline today. If, on one hand this seems to be the main issue of recent Cultural Heritage reforms at national level, on the other hand the pattern seems to be less consistent at a regional and local level, where different political, economic and cultural strategies create a multifaceted and changeable reality. Is it possible to turn this element of weakness into a strength, considering differences as the chance for plural narrations?

The management of the Etruscan and Roman Museum of Trevisanogno Romano, located by the touristic shore of the Bracciano lake, North of Rome, recently changed its strategic assets in the name of diversity and inclusion. That is a challenge for a local museum that just a few years ago has been defined as a ‘silent institution, not in contact with its people and its territory. It is possible to involve the community, 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? Trevisanogno Romano has 10% of its population made of Eastern-Europe citizens, and is the birthplace of the Abbot Tommaso Silvestri, the founder in the late 18th century of the first Italian school for the deaf: inclusion and accessibility seem to be the natural keywords of its mission. The paper aims at presenting and analysing the needs, the goals, the risks, the achievements and the failures of the renovation project of a local museum with the ambition of playing an active role at both social and identitarian level, intending the process of audience engagement not just as a mere economic tool.

The Euphronios Krater: from the illegal Art Market to the Rebirth of a Museum

A forty years long journey allowed the return to the place of origin of an admirable work, which has reinvigorated the fortunes of a museum and of a local community. The Euphronios or Sarpedon 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 VII-VI BC the population was around 35,000 people. The city is pretty well known thanks to the number of Etruscan necropoleis deployed along her 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 necropoleis and then quite easily sold on the international art market: what usually happened to the Euphronios krater, purchased by the Metropolitan Museum of Art for the substantial price of one million dollars in 1971 after adventurist viecchiades that led the artwork from Cerveteri to Zurich and then to New York. A legal controversy involved 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 the Euphronios’ kraters, another was 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 Restored: Recovered Masterpieces at the National Museum of Villa Giulia in Rome and they were supposed to enter the permanent collection.

The location of the kylix and the krater in Cerveteri is the result of collaboration between the City of Cerveteri, the Southern Lazio and Etruria Archaeology Superintendence and the Lazio Region. On the tenth anniversary of the UNESCO recognition of the Etruscan necropoleis of Banditaccia (2014), the krater has been transferred for a month at the Centra 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 kylix also close to the krater. On 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.

Curring the Vilnius Museum of Antiquities

In this presentation, I seek to historicize the curating of the Vilnius Museum of Antiquities (today’s National Museum of Lithuania) in order to highlight the role museums played in the challenge between nationalism and imperialism in the nineteenth-century Russian empire. Debates about display and curation were central to the rise of archaeology in that epoch, and in Russia, they were also closely associated with the fifteen archaeological congresses, meeting every three years from 1869, were the singular academic and/or professional conferences held in Tsarist Russia; the 9th was held in Vilnius in 1893.

In the 1840s, when archaeology was first beginning to blossom, beginning as more of a vocation than a science, Count Eustachy Tyszkiewicz and his brother Konstantin moved from simply collecting Italian art to excavating approximately 200 barrows around their native Logidyk, in present-day Belarus. The Russian word for what we call “amateurs” translates literally as “lovers,” and this better captures the sense of this first generation of essentially noblemen who combined a passion for archaeology with similar fixation with ethnography and history. In 1842 the Tyszkiewich brothers opened three rooms in one of their palazzos into the first local Museum of Antiquities, more than a curiosity shop. It was visited by more than 1,000 people in its first year. In 1856, in concert with the anticipatory liberalizing policies of new Tsar Alexander II, the collection was transferred to more space in the Library of the former University, which had been closed in 1832 following the Polish rebellion. Unfortunately for them, the second Polish rebellion of 1863 prompted the closing of this Commission, thereafter designated as only intended to be “temporary” and the redistribution of much of the museum to others, primarily Moscow’s Rumiantsev Museum, a critical repository of historical artifacts.

One of the first orders of business following the rebellion was to re-curate the museum. Count M.N. Miuraev, who would receive an honorary “Vilenskii” added to his surname in recognition of the fervor with which he instigated the de-Polonization of the Northwestern Region (Lithuania and Belarus) organized a commission for the inspection of the objects on display in the Museum of Antiquities. The clash between Tyszkiewicz and the Commission, and the subsequent congress, illustrate the use of archaeological artifacts to dispute an identity during the Age of Empire.
In 2013 “Dagen samhälle”, a magazine for decision makers in the public sector wrote: “The trend is hopeless. 19 Swedish municipalities have shrinked every year for two decades. Twelve of them may have died out before the turn of the century. In 2010, Ljusnarsberg and Strömstad will be the first in line for the precipice, if the population continues to decline at the same rate as now.” Imagine being a citizen in Kopparberg, the small town in the municipality of Ljusnarsberg, and waking up to that announcement! Well, you probably wasn’t surprised, but still. My municipality has a sentence, a death sentence and a given date when it’s all good, by to pack the things and leave.

Several of the inhabitants in Kopparberg wasn’t asked at all when national media cabled out the message. And the inhabitants in the other small municipalities in the former so proud mining district of Sweden is not asked for any opinion either. Meanwhile, a group of eleven artists that bought an old mine in the area thought “Hey, what about the locals, asylum seekers, art, music, heritage and the future of this place?” And suddenly, one year afterwards I was standing on an ice cold day with a director, journalist, artist, biker, a 23 year old dentist from Syria, an old man from Iraq, the local drunk, councilor and a bunch others, making an archaeological excavation of a public pinnboard, 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 abow 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.

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. Deprivation 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, both financially and socially.

The second example is from the small town of Kopparberg in Sweden. Kopparberg is a mining community located north of Stockholm, with a population of about 10,000. The town has a rich history, with mining operations dating back to the 16th century. In recent years, however, the town has experienced a significant decline, with many businesses and residents leaving.

In 2013, Kopparberg was selected as one of 15 communities in Sweden to participate in a pilot project aimed at revitalizing the local economy. The project involved the establishment of a community archaeology program, which aimed to engage the local community in the study of their own heritage.

The program was led by a group of local archaeologists, who worked closely with community members to identify and excavate archaeological sites in the area. The results of these excavations were then used to create a new museum, which opened to the public in 2015.

The museum has been a great success, with over 50,000 visitors in its first year of operation. It has also helped to increase awareness of local heritage, leading to renewed interest in the town and its history. Today, Kopparberg is a thriving community, with a strong sense of local identity and pride in its heritage.
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

Non-professional archaeology was an integral component of the development of the archaeological profession in England. As the profession developed it distanced itself from the amateur sector and, on occasion, the relationship became fractious. However, now both sides have matured and harmony is reining more widely, although the relationship is still complex. Local archaeology societies played, and still play, a key role in the historic mediation process, bringing these two parties back together, but what are local archaeology societies, what do they do and why do they do it? They are rarely discussed or credited in archaeological literature but in order to bring total harmony it will be crucial to understand them and the impact that they have. Local archaeology societies in England range from county societies, who produce journals and manage museums to small ‘hobby’ groups with a primary interest in excavation and from metal detector clubs to groups that focus purely on archival research. Often they use elements of professional practice but sometimes components are missing. This can have a crucial effect on their impact. Using case studies gathered from the perspective of both amateurs and professionals in the south of England, this presentation will discuss archaeological discoveries made by and the research processes used by local archaeology societies. It will also consider the impact of their communication within the profession as well as the wider public.

This will demonstrate that not only do local archaeology societies have significant impact on archaeological understanding and on the archaeological profession but that they have even greater potential. By bringing clarity of understanding about local societies, this presentation will also demonstrate that the distinction between amateur and professional archaeologists is a little blurred in ways that professional archaeologists might not expect.

TH2-04 Abstract 03

Issues of metal detecting in Finland

Author - Dr. Wasman, Anna, University of Helsinki, University of Helsinki, Finland (Presenting author)

Keywords: communication, metal detecting, public engagement

Presentation Preference - Oral

In Finland, the use of a metal detector is usually allowed without a separate permit, even though it is regulated by such laws as the Antiquities Act (1963). The Antiquities Act protects ancient monuments, including a protected area around monuments of 2 meters. According to this same Act, finds over 100 years must be delivered immediately to the National Board of Antiquities (NBA) or a Provincial Museum. The finder must also provide information regarding the location of the find. The NBA can then decide if they want to redeem the find to their collections or not. Even though there have been reports in the media of “nighthawking” in Finland I argue that most hobbyists want to detect responsibly. However, it’s clear that the legislation is out of date. The law and regulations are also difficult to interpret, creating frustration on both sides.

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 redemptions 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 - Niiksaari, Marianna, National Board of Antiquities, Helsinki, Finland (Presenting author)

Co-author(s) - Kultinen, 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 - Linevich, 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 masonic clans. The main way of replenishment of these collections was redemption or confiscation.

Another relationships with stone shaft-hole axes formed in the rural environment. Peasants have seen their pragmatic and magic sense in this category of artifacts. Since the XVIII-XXI centuries ethnographers noted the existence of different popular legends about the origin of the stone axes, described their used by peasants.

There was a surge of interest in archaeological finds in the 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 thousand.

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 museums sometimes has better collection of stone axes when 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.

TH2-04 Abstract 07

Finland, metal detecting, stray finds
Sight from the East Europe

science. In my poster I want to present some examples of these communities. Information could help to understand better archaeological work to the non-professionals and to involve more people in archaeologists introduce new information and last discoveries and try to do this using 'nonprofessional language'. These archaeologists, users, could learn a lot about archaeology. In the VK there are many communities and pages, where professional

The purpose of this paper is to introduce to archaeologists the social network vk.com, which is wide spread in Eastern Europe. There are a lot of communities and events, which present their information and materials in the Internet. Thanks to them non-archaeologists, users, could learn a lot about archaeology. In the VK there are many communities and pages, where professional archaeologists introduce new information and last discoveries and try to do this using ‘nonprofessional language’. These information could help to understand better archaeological work to the non-professionals and to involve more people in science. In my poster I want to present some examples of these communities.

The road to a working party is paved with good intentions

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.

The EIA Directive and Archaeology: the example of England

The EU Directive on ‘Environmental Impact Assessment’ is a Europe-wide instrument, but it is given effect through the legal systems of individual member states. Implementation ‘on the ground’ is then affected by the organisational arrangements and professional approaches in each country. This paper will examine how the EIA Directive has been ‘transposed’ into English law, how it is implemented in practice in England, and how this has affected the professional practice of archaeology there. The paper will also consider whether there is scope for future improvements of the Directive itself, or of the ways in which it is implemented.

It is hoped that this paper, 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 disregarded, 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.

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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.
25 YEARS LATER: CHANGES AND CONJUNCTURES IN PREVENTIVE (DEVELOPMENT-LED) ARCHAEOLOGY IN FORMER ‘EASTERN’ EUROPE

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) - Horvat, Milan, VIA MAGNA Ltd., Vrškci, Slovenia

Presentation Preference - Oral

Until 1990 and the abolishment of socialist/communist regimes in ‘eastern’ European countries, archaeological service (institutions and practice) in protection of cultural heritage was fully in the hands of state bodies which had to plan funds in their state budgets for performing their duties. These funds were normally coming from taxes, and then redistributed. The principle polluter-payer 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

Keywords: Eastern Europe, preventive archaeology, rescue archaeology

25 years of Preventive archaeology in the Czech Republic

TH2-07 Abstract 02

The situation in the Czech Republic is characterized by the beginning of the economic crisis in year 2008 boom in the number of questions should also be posed here – who, in what status, and to which degree, participates in the market of preventive archaeology as private entrepreneur? Do we speak of real entrepreneurs or ‘disguised’ public institutions? Is ‘open’ participation of public actors (e.g. model of NRAP in France) securing better control? And, what, are in the end of the day, the benefits for heritage, and benefits for actors, and public?

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 are represented.

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 licences). The Monuments and Historic Sites Act also deals with archaeological cultural monuments, protection of archaeological sites in spatial decision-making process, individual finds and other relevant archaeological issues. Legal regime of archaeological finds in museums is regulated in Museums 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.

25 years of Preventive archaeology in the Czech Republic

Author - Mgr. Kucharcik, Milan, Labry o.p.s., Praha 9, Czech Republic (Presenting author)
Co-author(s) - Simký, Raděj, ZP o.p.s., Praha 1, Czech Republic

Presentation Preference - Oral

The presentation will be held in the Central European University in Budapest, in the framework of the conference "Managing the archaeological heritage in Eastern Europe: Legislation and institutional basis in Slovakia". The presentation will focus on the development of preventive archaeology in the Czech Republic. The focus will be on the legislative framework, institutional structures, and the role of state and private actors in the management of archaeological heritage. The presentation will also discuss the challenges and changes in the field of preventive archaeology and the role of the Ministry of Culture in the management of cultural heritage in the Czech Republic.

Keywords: archaeological heritage, law, Slovakia

25 years of Preventive archaeology in the Czech Republic

Author - Dr. Michalík, Tomas, Cultural Heritage Consulting Ltd. / Slovak Association of Archaeologists, Trnín, Slovakia (Presenting author)

Presentation Preference - Oral

There is a need to study the development of preventive archaeology in the Czech Republic over the last 25 years. The presentation will focus on the legislative framework, institutional structures, and the role of state and private actors in the management of archaeological heritage. The presentation will also discuss the challenges and changes in the field of preventive archaeology and the role of the Ministry of Culture in the management of cultural heritage in the Czech Republic. The presentation will be held in the Central European University in Budapest, in the framework of the conference "Managing the archaeological heritage in Eastern Europe: Legislation and institutional basis in Slovakia".

Keywords: archaeological heritage, law, Slovakia

25 years of Preventive archaeology in the Czech Republic

Author - Prof. Novaković, Predrag, University of Ljubljana, Faculty of Arts, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Horvat, Milan, VIA MAGNA Ltd., Vrškci, Slovenia

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Keywords: archaeological heritage, law, Slovakia
Archaeological Heritage in Lithuania after 1990s: Defining, Protecting, Interpreting

Author: Dr. Poškienė, Justina, Vilnius University, Faculty of History, Vilnius, Lithuania (Presenting author)

Keywords: archaeological heritage, assessment, protection

Presentation Preference - Oral

Legislative decisions facilitated notable changes in the field of cultural and archaeological heritage protection in Lithuania after 1990s. National legislation was essentially modified twice: in 1995 and in 2005. Significant changes can be observed in the field of defining (accounting, assessment and listing), protecting (regulations on excavations’ procedures or “protection through documentation”, preservation of archaeological remains in situ), as well as interpreting (by state bodies and public) of the archaeological heritage.

There are approx. 3000 archaeological heritage objects listed in the state Register of Cultural Property. The procedure of listing has been changed several times after 1990s. Since 2005, a heritage object is listed in the state Register of Cultural Property after an assessment council decides that a property is in the need of legal protection. The significance, the valuable properties of objects or sites of cultural heritage are assessed, and the boundaries of territories are defined by the immovable cultural heritage assessment councils as well. The specialized assessment council for archaeological heritage was established in 2012. State administrative and technical resources were concentrated mainly on preparation of new documentation type for already listed heritage objects, and thus led to a certain stagnation of inventorying of new archaeological objects. Nevertheless, data exchange between the state Register of Cultural Property and the Real Estate Register should be mentioned as an important achievement in matters related to 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.

Implementation of La Valletta convention: the Croatian perspective

Author - PhD Sirovica, Filomena, Archaeological Museum in Zagreb, Zagreb, Croatia (Presenting author)

Keywords: Croatia, in-situ preservation, preventive archaeology

Presentation Preference - Oral

European Convention on the Protection of the Archaeological Heritage, released by the Council of Europe in 1992, had a significant influence on the practice of development-led archaeology in Croatia. Ratification of the Convention in 2004 and its implementation in legislation brought drastic changes by which archaeology became a direct participant in planning of spatial and infrastructural development. But the changes did not include the full range of requirements needed for the successful practice of preventive archaeology.

Considering this problem it becomes observable that the attitude expressed in the Convention considers prevention as a preliminary step to the preservation of cultural heritage, and, rather than through salvage archaeological excavations, acts through active participation in the early stages of planning procedures. This process requires a developed set of tools which enables informed decision-making on the treatment of archaeological remains. As a part of the same process, concept of care and protection of archaeological monuments is being replaced with an approach directed towards the management of archaeological heritage where the main focus is placed on the issue of long-term sustainability and thereby the issue of in-situ preservation of archaeological heritage.

As Croatian archaeology is still not turning in that direction, this paper will be focused on consideration of factors which can fulfill the requirements for implementation of efficient preventive archaeology, but also the ones which are currently preventing Croatian archaeology in changing attitude towards sustainable heritage management.
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 larges 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-author(s) - Kajlanac, Adnan, Faculty of Philosophy of University of Sarajevo, Sarajevo, Bosnia-Herzegovina
Keywords: Bosnia and Herzegovina, recovery, preventive archaeology, heritage protection

Presentation Preference - Oral

Organization of archaeological heritage services, museums and education in Bosnia and Herzegovina, after the end of Yugoslavia, and especially after the establishment of the post-Dayton peace agreement (1996) radically changed to the situation until 25 years ago. Four major determinants can be seen today, all closely connected with the general state of the country itself are:

Highly fragmented territorial and administrative organization: One organization on state level, two on lower, entity, level, as well as one on level of 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 financing for basic operation

Inadequate (outdated) infrastructure: lack of trained people, equipment, unfinished institutional development.

Political situation: Because of the political deadlock over financing of $7 cultural institutions on state level. National Museum of Bosnia and Herzegovina was closed for almost 3 years, and other institutions that previously enjoyed state sponsors 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. Rospecty, 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 relation 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 admitttedly 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 mean to be a contractual archaeologist in Romania?

Author - Dr. Simion, Mirabela, Romanian National History Museum, Bucharest, Romania (Presenting author)
Co-author(s) - Vasilescu, Floarea, Vanderlay Arhae, 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 obligations 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 - Csíka, Szabolcs, Hungarian National Museum, Budapest, Hungary (Presenting author)
Co-author(s) - Nagy, Sándor, 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 been 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 upheaval 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 practice of preventive archaeology in Hungary.

TH2-07 Abstract 13

Management of rescue archaeological research performance in Slovakia

Author - Dr. Homak, Milan, VIA MAGNA s.r.o., Vrútky, Slovakia (Presenting author)
Keywords: management, preventive archaeology, Slovakia

Presentation Preference - Oral

Archaeological research has transformed during the last 25 years into a complex of legal regulations defining the course of field research. The current reality is that the biggest share of the field activity is not aimed at targeted scientific research, but at rescue archaeological researches. As a consequence, field archaeologists are becoming producers of findings reports and, in general, they have no time left to be what they studied to be - i.e. scientists. In case of positive archaeological research the subject of professional and non-professional discussions is the quality of performed research, treatment and processing of findings. It can be also assumed that rescue and advance archaeological researches will be on the wane in relation to transformation of building
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 Krahes: From a chance find to an archaeological protected site

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Co-author(s) - Memish, Mrgan, Archaeological Service Agency, Tirana, Albania
Co-author(s) - Porja, Ajob, Archaeological Service Agency, Tirana, Albania
Co-author(s) - Zoto, Rudina, Archaeological Service Agency, Tirana, Albania
Co-author(s) - Gala, Ibrahe, Archaeological Service Agency, Tirana, Albania

The village of Krahes is situated in the district of Tepelenë (Albania). Two graves were discovered occasionally during tourism 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, 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 result of the creation of a new archaeological site that requires protection as part of the preconditions of the law article. 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 in 2018) of the establishment of ASA). One is affiliated with the Institute of Cultural Monuments. Since 2008, ASA have followed the procedure for 9 archaeological chance finds.

The village of Krahes is situated in the district of Tepelenë (Albania). Two graves were discovered occasionally during agricultural works by a farmer who informed the local authorities (Regional Division of National Culture, Gjokaç). The archaeological excavation results. The preliminary study of the archaeological material and method of construction, dates both graves around cent. 3 - 2 B.C. During the excavation process the team (ASA and RDNC Gjirokastër) conducted a survey around the area measuring approximately 3.5 hectares. A high intensity of finds (tiles, bricks, pottery sherds and some rubble walls) was encountered on surface. Taking into serious consideration this potential, the MCA agreed to give to the area the special status of the protected zone. More precisely, its borders were established by another fieldwork campaign. This new status will indeed prevent possible damages by construction projects or agricultural works.

The archaeological survey covered an area of 1 hectares divided in 12 tracks. Within it, 6 hectares yielded high intensity of data and was given the status of the protected zone.

The archaeological material found during the survey consists of fragments of tiles, pithoi, transportcontainer, utensils and pottery coated with bitumen. The relative chronology based on the above material indicates three periods of occupation for Krahes: Hellenistic, Roman and Late Antiquity.

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 benefited 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-Academy 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 modeling of architecture, sites and objects, aerial reconnaissance, manipulation with large data sets and virtualization of heritage). Until very recently, all these techniques were greatly lacking in every days practice of preventive archaeology, or there were limited to the academic research. Poster will present the results and case studies of the CONPRA project.

TH2-07 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

Despite the fact that the law has not been changed for years, the workload in preventive archeology is constantly growing. More investment leads to a growing number of excavations, and consequently to the growing number of small finds to be documented. Motivated by the needs for fast and accurate documentation, we developed a new system for documenting finds from preventive archeology excavations.

In comparison to the traditional way of documenting archaeological artifacts that is represented by technical drawing and photographing that require a certain skill and are time-consuming to a certain degree, we are using a new approach.

We decided to use a 3D scanner, with system based on digital cameras and structured light. From the completed 3D models, we provided horizontal cross-sections (profile-lines) for documentation, as it would be done by manual drawing. The advantages of working with 3D models are high accuracy and speed, as for a 3D model and cross section. This process also provides photos of the artifacts.

Advantages of this way of documenting will be presented, as well as wide use of its results. Not only that the technical documentation from excavation can benefit, but also the presentation of artifacts.
MANAGEMENT OF ARCHAEOLOGICAL SITES IN TURKEY: PROSPECTS AND FUTURE

Friday, 2 September 2016, 14:00-16:00
Faculty of History, Room 217
Author - Bouassasse-Khan, Didier, Metu/Odtu Yerlesim Arkeolojisi Anabilim Dalı, University College London, London, London, Unifad Kingdom (Presenting author)
Co-author(s) - Prof. Evciyes, 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 sites directors involved in field archaeology in Turkey: their involvement not only as stake holder on the management of archaeological site during the field seasons but also pre- and post-excavations and survey. The aim of this session would be to create awareness for the needs for site management for archaeologists in association with local authorities. It is also hoped that cross-fertilisation between archaeologists and heritage managers would lead to fruitful exchanges on the variety of processes and methods for managing archaeological sites. The session organisers hope to attract participation to the session from Turkish and international archaeologists and practitioners concretely involved in archaeological field work in Turkey. The ambition is to select the best papers to be published in a specially edited volume of CMAS Journal (Conservation and Management of Archaeological Sites).

TH2-09 Abstract 01

Archeological Management: New Cycle of Archaeological Research at Ani

Author - Asst. Prof. Dr. Aktıre, 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 “Ani school” of medieval Armenian architecture. While part of the excavated material has been preserved in the Museum of Antiquities of Ani and later in the History Museum of Armenia in Yerevan, several of the documented monuments were later devastated in wars, earthquakes and by vandalism.

After the establishment of the Republic of Turkey, sporadic excavations in the oldest-settling deadly season and ramparts were followed by a new cycle of research under Turkish excavation directors, revealing the later Islamic layers of the city, while parallel efforts of foreign experts expanded knowledge on rock-cut architecture beneath Ani plateau and in the surrounding basins. Devast of later settlement, Ani currently stands as an exemplary relic historic city of the medieval period that consists of a south-eastern Anatolia archaeological site

This proposal aims to share the efforts, in the past two decades, towards the protection of this highly vulnerable heritage property, since the inception of Ani’s Cathedral in the inaugural watch list of the World Heritage Fund in 1998. International restoration and conservation activities undertaken at the site, since then, have involved several nongovernmental organizations that provided expert and funding support. Urgency interventions have followed the recommendations of an advisory committee of experts from the Middle East Technical University (METU) of Ankara, established in 2006 by Turkey’s Ministry of Culture and Tourism. The third cycle of archaeological research that has started in 2011 follows these priorities, in context excavations around the site, 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.

During the archaeological research that has been carried out on a continued basis since 1995 at Elaiussa Sebaste in the South Eastern coastal part of Turkey, extensive restoration activities were realised on all of the structures brought to light to assure the conservation and safeguarding of the site’s archaeological heritage. These interventions have achieved in arresting the deterioration of the site and the impounding real estate speculation while allowing to open three monumental complexes to the public (theater, agora and proto-byzantine palace) with the setting out of visitor’s paths with view points offering more complete visibility, with panels located at the entrance of the archaeological area and inside, displaying plans, reconstructions and drawings that help understand the stratification of the complexes and the visible structures.

However safeguarding and valorisation are necessarily linked to the creation of an Archaeological Park with different itineraries, to be realised in collaboration with the local and Regional Administrations that will allow to enhance in a sustainable way the extraordinary cultural heritage of this area of Turkey. This project must impose the indispensable town planning and in order to protect the precious archaeological and physical landscape of Elaiussa from new building constructions in sensitive areas and from illegal dumping.

At present 4 different itineraries have been designed – on the basis 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 valuation project of the Necropolis road between Elaiussa and the near ancient city of Korykos (modern Kızılaş) was started during the 2015 campaign with bush clearing and careful cleaning carried out by the Mesin and Erdemli Belediyesi.

The results that have been obtained so far are very promising for the pursuing of the program to extend the visitor’s itineraries and valorisations.

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 crowning 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 02

Elaiussa Sebaste: safeguarding & valorization of a south-eastern Anatolia archaeological site

Author - Prof. Equini, Eugenia, Sapienza Università di Roma, Roma, Italy (Presenting author)
Keywords: Elaiussa Sebaste, safeguarding, valorisation
Presentation Preference - Oral

The proposed paper aims to offer a working ground to exchange of experience on these and complementary topics around the cases of Ani.

TH2-09 Abstract 03

Protecting and communicating Arslantepe: work in progress to save and narrate an early state centre

Author - Dr. Balossi Restelli, Francesca, Sapienza University of Rome, Rome, Italy (Presenting author)
Co-author(s) - Frangipane, Marcella, Sapienza University of Rome, Rome, Italy
Co-author(s) - Tuna, Ayşün, İnönü Üniversitesi, Malatya, Turkey
Keywords: conservation, site management, Turkey
Presentation Preference - Oral

The archaeological mound of Arslantepe, in the outskirts of the city of Malatya, has been included in the UNESCO tentative list of world heritage sites in April 2014. The site is under regular archaeological excavation since 1961 and has yielded unprecedented data and finds concerning various periods of its history, but mostly that of primary state formation (end of the IV millennium BCE).

An early palatial structure still standing and in excellent state of preservation is the main testament left by this system and it is today unique in its kind worldwide. For this reason an open air museum has been designed by the Italian Archaeological Expedition and inaugurated in 2011. Since then the site is officially open to the public and local awareness has increased significantly; in 2015 a 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 Arsl’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 aarcheologists 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 emergency 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.
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

Presentation Preference: Oral

Conservation management at urban and rural archaeological sites in Turkey is usually spearheaded by accredited architects and planners. As in other countries, archaeologists have often tended to work in isolation, away from the responsibilities of the larger- term management and conservation of their sites. It is becoming more common, however, for archaeologists, architects and other conservation professionals to work more collaboratively in the name of site management/conservation. But what are the driving forces behind these initiatives? Is it the interests of a specific director or a team member? Or is it triggered by the local authority or a funding body? Or perhaps a new national discourse? The Ministry of Culture and Tourism’s recent requirements that all archaeological excavations increase their conservation measures, and their quest to have more sites inscribed on to the World Heritage List, have certainly had influence.

Another issue is the significant differences in the way conservation is viewed and practiced in sites across Turkey. While some concentrate on building conservation and site presentation, others may go beyond and look for ways to engage local communities in conservation processes. This paper will discuss the changing approaches and practices in the conservation and management of archaeological sites in Turkey by focusing on inter-disciplinarity, collaboration and participation in archaeological conservation through past and current foreign-run projects at several sites across the country including Aphrodisias, Çatalhöyük, and Kaman-Kalehöyük among others.
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 being produced from development-led archaeology which initially overwhelmed the traditional systems of analysing and disseminating the results of archaeological investigations and which required an evolution in the systems and methods relating to archaeological research design and fieldwork investigation. But are these new modern systems really as different as we think they are? How does the nature of development-led archaeology impact the results of archaeological fieldwork investigations: results that form the basis of our interpretation and understanding of the archaeological record?

The European Research Council funded English Landscapes and Identities Project based at the University of Oxford is a ‘big data’ project that combines local, regional and national datasets to illuminate continuity and change in settlement and use of the English landscape over a 2500 year time span, from the middle Bronze Age to the Doomsday Survey. The project database currently holds over 900,000 records relating to archaeological fieldwork in England; the vast majority of these records have been generated since 1990. It quickly became apparent that the English Landscapes project was not just documenting the past, but was also fundamentally changing our understanding of the past. The project has focused on developing new methods and approaches to the analysis of large datasets, with a particular emphasis on the use of digital technologies to facilitate the analysis of large datasets.

The project has also explored the impact of development-led archaeology on the landscape and the impact of the fieldwork on the archaeological record. The project has also focused on the role of the archaeological record in shaping the future of the landscape and the role of the landscape in shaping the future of the archaeological record.

Archaeological excavations normally take place in connection with infrastructural development such as house building, road construction, laying cables and pipes, and installing tanks. I suggest that the changes in the management of the medieval towns has had an impact on both the way the rescue excavations has been carried out and the scientific research. Until 1990 the research was focused on the medieval objects and the development of the towns, with the remains of houses, property boundaries and roads. Since 1990s the Norwegian Directorate for Cultural Heritage has had a policy to preserve medieval archaeological remains in situ and allowing piling through the layers as a fundamentation for houses and roads. This has encouraged research on monitoring culture layers in situ and the development of research related to nondestructive methods. Since 2013 a new railroad project in Oslo has resulted in a huge rescue excavation across the medieval town. New methods are applied in the field. How will this impact a new generation of researchers and the future management of the medieval towns?
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 archaeology perspective, these issues are complex and the problem will therefore be discussed within the context of the Czech archaeological discourse concerning the earlier prehistory. Two types of large-scale excavations will be compared: 1. Non-rescue excavation of the Neolithic site at Bylnik, which started in the late 1990s and lasted nearly fifty years; 2. Rescue excavations of the Kolín city road bypass, which was carried on in 2008. Results of both types of excavations will be presented exemplifying changes in archaeological research management.

TH2-10 Abstract 07
Modern technologies in Polish Archaeology – A Case Study of Central Masovia 2009 – 2014
Author - MA Wiśniewski, Mariusz, Wojewódzki Urząd Ochrony Zabytków w Warszawie, Warszawa, Poland Co-author(s) - Olech-Sliż, Agnieszka, Institute of Archaeology, University of Warsaw, Warsaw, Poland (Presenting author) Keywords: LDAIR, 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 investments causes steady, high number of archaeological projects to be carried out in recent years. These are conducted on different scale from one day watching briefs up to road scheme projects covering large previously underdeveloped areas around the city of Warsaw, and are carried out both by local archaeological teams and units from other parts of the country. A common factor is almost exclusively commercial character of works, 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 Maxowin Vodnikstäd 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 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 and its certain aspect.

TH2-10 Abstract 08
Rescue Archaeology in Romania. Past and perspectives
Author - Magureanu, Andrei Mircea, Institute of Archaeology Vasile Parvan, Bucharest, Romania (Presenting author) Co-author(s) - Dr. Magureanu, 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 also 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 direction. But one is theory and other is practice. Did the practice evolve into the same direction and with the same speed? Preventive archaeology or rescue archaeology was part of archaeological practice before 1989, also. Today, both represent a more and more important way to produce historical knowledge. So, there are differences? What those differences are? Importance into cultural strategy of 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.

TH2-10 Abstract 09
Rescue Archaeology in Russia: the radical shift of the 1990s, and its consequences
Author - Dr. Engovatova, Aiya, Institute of Archaeology of Russian Academy of Sciences, Moscow, Russian Federation (Presenting author) Keywords: change in legislation, rescue archaeology, Russia Presentation Preference - Oral

In Russia, the beginning of the 1990s was a turning point in the history of the nation. Massive changes took place in the political, social and legal spheres over an area which made up one-fifth of the world’s landmass, with a population of over 170 million people (including the USSR, Bulgaria, Hungary, Poland, Czechoslovakia and other nations). The resulting shift to a market-based approach in the cultural sphere (including archaeology) was both significant and controversial. During the period of the economic and political crisis in the early and mid-1990s, the amount of archaeological research being conducted fell overall, including rescue archaeology – primarily due to the situation which had gripped the entire country. In 2002 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 situation changed rapidly, due to the fast pace of economic growth. These changes were clearly demonstrated by the pace of issue of permits for carrying out archaeological works. This inevitably raised questions about revising the methodology with which such rescue archaeology was conducted, and ways of optimising it. A system of regulation had evolved over many years, in which scientific regulation underpinned the methods employed when researching archaeological sites – identification on-site, and a method for presenting the scientific documentation which applied across the entire country. These norms apply to rescue archaeology too. There are no ‘short cuts’ available in these methods. Attempts to bring in systems of ‘observation’ as a subset of ‘rescue’ archaeology methods can be considered successful only in the cases of research into later, mixed-use 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 businesses accounted for a considerable rise in the proportion of research being conducted by non-state firms involved in rescue archaeology – from 1% in the early 1990s, to 40% in 2012. This pace of change is intrinsically connected with the way in which the tax system operates in Russia. For state organisations (departments of the Russian Academy of Sciences, museums, universities) the system of taxation remains in place, in which there are no tax-breaks. However, in 2004 the Russian Federation brought in a tender scheme for a wide range of different services – including archaeological services. The primary consideration under which such tenders were won or lost, was the price quoted for their completion. 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 Legislativie Measures of the Russian Federation which prevent illegal activity in the field of archaeology”.

TH2-10 Abstract 10
A protection system of archeological heritage in the Tver Region in Russian Federation
Author - Khokhlov, Alexandr, 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 Saint-Petersburg. Three big rivers start on the territory of the region – the Volga, the Western Dvina, and the Oka; the Dnieper has its source nearby. The region turned into a historical crossroad, where the waterways to the Baltic, the Black, and the Caspian Seas started. This region was popular among different population groups from the Late Paleolith 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 (archeological) 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 archeologists worked at the State Museum and the University. Small excavations and searching for the new monuments to be carried out. The protection system of the objects of the cultural heritage in the Tver Region was established in 1999. The law of 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 archaeologist. A rapid development of the construction business led to a great amount of preventive excavations. Tver State University solved a problem of the necessity of young archeologists training. About 10 state and commercial organizations dealing with the preservation of the archeological heritage work in the Tver Region nowadays. To sum up, 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, 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 12
Moscow Monasteries: new stage of the archeological investigations (2003–2015)
Author - Belova, 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: Late Middle Ages, Early Modern times, Moscow monasteries, new investigations
Presentation Preference - Oral
Archaeological investigations of the Zachatievsky Alekseevsky monastery (Datochenka) 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 the investigation of the objects of an archaeological heritage, about the state national objects' register and the encouragement of the liability of the territory of archaeological sites, this law contains norms and regulations new to the Russian legislative practice: about the territory of the objects of an archaeological heritage, about the state historical and cultural expert evaluation, about the mainstay in the archeology of the objects of an archaeological heritage, about the state national objects' register and the encouragement of the liability of the objects of an archaeological heritage. 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 11
"Amateur" archaeology, legal or not?
The experience of a legislative practice in Russia
Author - Sapyrykina, Irina, Institute of archaeology RAS, Moscow, Russian Federation
Co-author(s) - Zelentsova, Olga, Institute of archaeology 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 backers. It took years of a purposeful activity of the specialists in archaeological heritage conservation for a society to realize the value of the losses of the pillage of archeological sites. In 2014 in Russia the federal act N315 was adopted, directed to the heritage rescue and consisted of the assets on criminal liability of "grave robbers" (up to 6 years). Apart from the asset of the encouragement of the persons doing the illegal excavations on the territory of archeological sites, this law contains norms and regulations new to the Russian legislative practice: about the territory of an object of an archaeological heritage, about the state historical and cultural expert evaluation, about the mainstay in the archeology of the objects of an archaeological heritage, about the state national objects' register and the encouragement of the liability of the archeologists. The report is about the analysis of the practice in the application of the federal act 315 for the last two years from the moment of its adoption.

TH2-11 Abstract 02
Cultural landscapes in the Cantabrian Mountains: rethinking the future of rural Europe
Author - Dr. González Alvarez, David, Universidad Complutense de Madrid, Espana, Spain (Presenting author)
Keywords: Cultural Landscapes, Heritage, peasant communities
Presentation Preference - Oral
In the region of Asturias (North of Spain), local government chose thirty years ago a terrific successful slogan for promoting rural tourism: "Asturias, Natural Paradise" (from Spanish "Asturias, Paraiso Natural"). The logo of this famous campaign shows an idyllic rural drawing with green meadows which are sight through the arches of the early medieval church of Santa Maria del Naranco.

TH2-11 Abstract 01
Growing Living Landscapes
Author - Dr. MacGregor, Gavin, NorthRigh Heritage, Glasgow, United Kingdom (Presenting author)
Keywords: Archaeology, Future, Landscape
Presentation Preference - Oral
As an introduction to the session, From Archaeological Pasts to Living Landscapes, I will provide some context as to why archaeologists should be concerned with contributing to the growth of living landscapes. As such, the paper will consider the ramifications to archaeological practitioners of the increasing need for articulation of the management of archaeological and historic environment assets with other tools and instruments which seek to deliver more sustainable landscape management. Ultimately, it will outline some perspectives and areas of practice which could be developed further as opportunities for future innovation in growing archaeology and historic environment as part of living landscapes.

TH2-11 FROM ARCHAEOLOGICAL PASTS TO LIVING LANDSCAPES
Friday, 2 September 2016, 09:00-18:00
Faculty of History, Room 211
Author - MacGregor, Gavin, NorthRigh Heritage, Glasgow, United Kingdom (Presenting author)
Co-author(s) - Dr. Stagno, Arna Maria, University of Basque Country, Spain
Co-author(s) - Dr. Murtagh, Paul, CAVLP Heritage, New Lanark, United Kingdom
Presentation Preference - Regular session
The management of archaeological and historic environment assets increasingly articulates with other tools which seek to deliver more sustainable rural landscape management. A range of landscape scale planning and management tools are currently being applied in Europe including Biosphere Reserves, Ecomuseums, Landscape Observatories, Landscape Partnership Schemes, Landscape Plans, Landscape Programmes and World Heritage Sites. We wish to critically explore how archaeology, historic environment and cultural heritage currently sit within such tools:
• How are archaeological, historic environment and cultural heritage assets weighted and prioritised (e.g. in contrast to ecological or social values)?
• What opportunities does archaeology and historic environment offer for sustainable economic development in rural landscapes?
• How can archaeological (and historical ecological) research help to historically characterize environmental resources management practices, based on local actors and local knowledge, to offer new tools for management of rural areas?• What are the benefits and challenges of living traditions and heritage produce in sustaining resilient cultural landscapes?• What opportunities do archaeological assets provide for building broader sustainability and legacy?
• Are there examples of past land tenure and stewardship from which lessons (both negative and positive) can be learnt in future management of landscapes?
• How successfully have communities been engaged and involved in the development and delivery of such tools?
• How successful have such landscape planning and management tools been at creating legacies and sustainable approaches to more integrated landscape management?
We welcome papers which address some of the questions above, either through case studies on experiences, broader critical reflexion on landscapes management policy and tools, or by exploring opportunities for future innovation.

TH2-10 Abstract 02
Cultural landscapes in the Cantabrian Mountains: rethinking the future of rural Europe
Author - Dr. González Alvarez, David, Universidad Complutense de Madrid, Espana, Spain (Presenting author)
Keywords: Cultural Landscapes, Heritage, peasant communities
Presentation Preference - Oral
In the region of Asturias (North of Spain), local government chose thirty years ago a terrific successful slogan for promoting rural tourism: "Asturias, Natural Paradise" (from Spanish "Asturias, Paraiso Natural"). The logo of this famous campaign shows an idyllic rural drawing with green meadows which are sight through the arches of the early medieval church of Santa Maria del Naranco.
in Oviedo. We could imagine herds of cattle grazing in the green landscape which is commonly associated with Asturias, but, nevertheless, there is no people in the image. Accordingly, most of the campaigns made since then by the regional institutions and tourism agencies have firmly established 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 assumed that the energy invested by the local communities in working the lands is the main agent in the modelling processes of landscapes in these mountains through the last 6000 years. At the same time, cultural narratives, the sociopolitical contexts, and their historical roots are central in the relations we (contemporary Europeans) establish nowadays with the rural landscapes. But, are these ideas sufficiently considered by state and regional-level governments in the management of European landscapes?

It seems clear that, rather, this ‘natural paradise’ is actually an artificial image in which the cultural aspects should have a more significant weight. The rural landscape is 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.

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**TH2-11 Abstract 03**

**Environmental archaeology in rural landscape and heritage management: experiences in Liguria (Italy)**

**Author** - Pescini, Valentina, University of Genoa, San Gimignano, Italy (Presenting author)

**Keywords:** environmental archaeology, environmental management, rural landscape

**Presentation Preference - Oral**

Since 1970’s re-naturalisation strategies are currently in use in Italy aiming at the preservation of current environmental conditions or even restoring an ahistorical and aprioristic ‘natural’ balance. These strategies are the results of rural landscape polices and environmental management that have adopted a ‘perceptive approach’, and are exemplified in general policy documents such as the EU’s Common Agricultural Policy (CAP) and Salmonsbury in the UK, which represent 2 of the case study sites involved in the ‘Resituating Europe’s first towns’ (REFIT) project funded by the Joint Heritage European Programme’s (JHEP), Joint Heritage Initiative (JHI). The project represents cooperation between Durham University (UK), Bibracte EPPC (France) and Universidad Complutense de Madrid (Spain), alongside associated partners from outside archaeology (including wildlife management, farming, natural 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.

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**TH2-11 Abstract 05**

**Living Archaeological Sites in Modern World: Discussions on Ancient Rural Heritage in Turkey**

**Author** - Aydin, Fuad, 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. The last experience deals with the historical characterization of a local landscape, comparing material features with a perspective reading linked with the establishment of a literary park in Western Liguria.

All of these researches are a direct response to a question of ‘applied history’: the results of this work have been applied in environmental planning and in the historic characterization of the rural landscape, agro-silvo-pastoral landscapes and local products.

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**TH2-11 Abstract 04**

**Engaging stakeholders, shaping practice: Strategies for sustainable cultural landscape management**

**Author** - Dr. Tully, Gemma, Durham University, Durham, United Kingdom (Presenting author)

**Co-author(s)** - Dr. Moore, Tom, Durham University, Durham, United Kingdom

**Keywords:** Cultural landscapes, Engaging stakeholders, Sustainable management

**Presentation Preference - Oral**

Understanding and integrating stakeholders as the active creators and beneficiaries of cultural landscapes is an essential but under-developed element of sustainable heritage research.

Through work focusing on some of the most significant monuments in European history (Late Iron Age oppida: c.200BC-AD600), this paper will explore how communities (including farmers, small-medium enterprises (SMEs), wildlife organisations and residents) understand, experience and shape cultural landscapes. The work will focus on the cultural landscapes of Estagon and Salmonsbury in the UK, which represent 2 of the case study sites involved in the ‘Resituating Europe’s first towns’ (REFIT) project funded by the Joint Heritage European Programme’s (JHEP), Joint Heritage Initiative (JHI). The project represents cooperation between Durham University (UK), Bibracte EPPC (France) and Universidad Complutense de Madrid (Spain), alongside associated partners from outside archaeology (including wildlife management, farming, natural 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.

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**TH2-11 Abstract 06**

**Archaeology and landscape policies of rural areas. First results of a project in Southern Europe**

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**Keywords:** Cultural Heritage, Local Practices, Rural Archaeology & Historical Ecology

**Presentation Preference - Oral**

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.
Cultural landscapes and territorial management: the case study of Madrid

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Keywords: Cultural Landscapes, Madrid, Tourism
Presentation Preference - Oral

The Community of Madrid (this is the name of the administrative region of Madrid) is one of the main tourist regions in Spain, with a very specific identity which is closely linked to the use of cultural heritage. In this cultural heritage, both of a rural and urban character, is protected by several laws and articulated into several typologies. As in other parts of Europe, this heritage constitutes an important factor for the quality of life of local people; and, at the same time, needs to be turned into an asset for regional development. Our proposal presents a way to approach the management of these areas, and it is done within the project “The historical and ethnographic importance of the salt springs in the Madrid region. Nowadays different areas are considered by the regional Historical Heritage Law under the denomination of “cultural landscape” or other classifications of territorial character (such as “historical place” or “archaeological area”). Such areas have been identified and protected as exceptional examples of the human and environment relationships during time. The protection of such “areas” or “landscapes” means a qualitative change in the conception of the character of the heritage and facilitates connections and links with the global process of territorial management (through links with environmental laws, or normative of environmental impact...). This challenge is a driving force for the public administrations and an opportunity to increase the benefits (social, economical, environmental) of archaeological heritage. Our proposal aims to explore these issues, and to analyze the opportunities that the archaeological past offers for sustainable economic development in rural areas. Our approach will focus on the tourism use of these heritage areas and its role in the context of the environmental and social politics of the region. On the background we aim to make a critical reflection on landscapes management policy and its convergence with promotion and valorization strategies.

Through Rural Living Landscapes to Ethnoarchaeological Reflections of Salt in Eastern Romania

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Keywords: rural immaterial heritage, Salt-scapes, traditional practices
Presentation Preference - Oral

Salt, due to its diverse properties, is found in all the dimensions of the human communities. This is proved over time by numerous archaeological findings, Greek and Latin and some modern documents, as well as by current human behaviour determined by the abovementioned natural resource.

The Eastern Romania, a region rich in salt, has a privileged position in European landscapes and even worldwide, due to the high quality of all the saline occurrences. The most common are the salt springs, of a great value, first of all because they were known, appreciated and exploited since Neolithic times. These springs came to be used progressively in various aspects, from their role of condiment to the symbolic dimension of the product obtained by crystallisation of the liquid salt. A special situation is highlighted by the continuity of the traditional practices of exploitation of brine from salt springs in the rural world of Eastern Romania, still at a high level of intensity.

However, because the area determined by the presence of salt and his community are threatened by a rapid globalisation and by a forced civilizing, it is necessary to draw attention over the risk of the irreversible loss of many of these practices that make a unique intangible heritage.

This paper aims to highlight the human behaviour that is defined by the collective mindset of Eastern Romania rural societies, through a diachronic approach, under several aspects, for identifying some ethnoarchaeological paths for an archaeological interpretation.

Ethnoarchaeological heritage and cultural landscapes: a case-study from the Western Alps

Author - Dr. Carrer, Francesco, Newcastle University, Newcastle upon Tyne, United Kingdom (Presenting author)
Keywords: Ethnoarchaeology, Cultural Landscapes, Tourism
Presentation Preference - Oral

Landscape management is a key-aspect of European policy. Cultural landscapes are described in the European Landscape Convention as bearers of important identity values, and their protection is expected to have a crucial impact on environmental sustainability (preservation of biodiversity and traditional products, prevention of soil erosion and geomorphological instability, etc.) and the safeguard of local communities.

Ethnoarchaeology is placed at the core of this cultural and political framework. Ethnoarchaeological inferences provide crucial insights to understanding archaeological landscapes and their evolution, but they can also contribute to the protection, management and planning of traditional landscapes in Europe and abroad. Despite these potentials, the impact of ethnoarchaeology is still quite limited outside archaeology and outside academia.

This paper wants to address all these theoretical and methodological issues, using a case-study from the Western Alps: Val della Brignola, an upland valley (>1800 m asl) in the Cuneo province (Italy). The local landscape is dotted with various types of pastoral structures: dry-stone pastoral cabins (gaias) and cellars for cheese-maturing (selle). Most of these gaias and selle are still exploited by local herders. They were recorded via remote-sensing, fieldwork survey and historical maps. Archeological excavations within the gaias of Val della Brignola suggested that this pastoral landscape dated back at least to the 16th century. Interviews with the local herder provided information on its function and use.

The historical and ethnographic importance of the gaias of Val della Brignola, and the interest shown by policy-makers, members of the local communities and tourists for this research, suggested that the results of the project could be used for protecting and managing this site and the pastoral landscapes within which it is embedded. This paper focuses mainly on the initiatives that have been undertaken to preserve these pastoral huts and to make them a point-of-interest in the touristic hiking tracks.

From the loss of a city, to the discover of Archaeological Heritage: the modern story of Palaestrina

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Keywords: Heritage, Italy, Protection
Presentation Preference - Oral

Modern archaeological history of Palaestrina, city of ancient origin near Rome, started in the mid 1700s, when the first discoveries of tombs and archaeological materials were carried out in the territory; after a successful brackets linked to the promulgation in 1802 of one of the first laws of Italian protection, the Pacca’s Editic, in the second half of the 1800 the city became a popular destination of Italian and foreign antique dealers, in particular French and Germans, who devoted to systematic excavations, almost never scientific, to recover the precious fabric of the Colombella necropolis. This pirate-logic excavations and recovery of materials went on until the middle of 900, when, after World War II, the city, like the whole of Lazio Region, was the scene of uncontrolled speculations that put a strain on so called ‘lost city’ and in the countryside: in the 1960s Palaestrina became famous in the newspapers as an example of poor land protection, culminating in the 1970s, with the opening of a painful legal case, which led to important arrests of staff of the Ministry of Culture too, turning the spotlight on the low, even zero, control that had threatened to destroy the heritage of the city and its territory. Since then a wiser management of the municipality, with a plan that has managed to create buffer zones in areas considered at archaeological risk, has allowed a more fine-grained control of the territory and the execution of archaeological excavations in areas hitherto little studied or known. Being the city that threatened to destroy his goods in the 1960s, with the last elections in 2013 the Municipality...
The siege of the Dutch town 's-Hertogenbosch in 1629 has been an important moment in the war between catholic Spain and the

The landscape of 's-Apia Antica, characterized by ruins of imposing monuments immersed in the vast countryside, doubtlessly preserv es some of the richest cultural heritage of the ancient world; whose fascination has been celebrated by artists and writers since the Renaissance. For centuries these archaeological ruins have played the role of generic memories, beautiful fragments creating romantic panoramas, findings decontextualized from their environment, waiting to be looked at, dreamed of, but uninterpreted, except by specialists. The lack of reception of their historical value by the community has led to the abandonment of archaeological sites; and, therefore, the past has been seen as an immovable, faraway, meta-historical, idealized, unalterable reality that can only desperately store or regret, or even (as has been the case so far) simply be ignored. For these reasons, although since Napoleonic times different plans have envisaged Via Appia as becoming a great archaeological park between the Roman Forum and the Alban Hills, this idea has been threatened by private interests, such as housing construction. Even after the creation of the Park in 1888, the aims of which are, however, at most naturalistic, 95% of the area has remained in the hands of private entities. Moreover, the traditional approach of Italian institutions to the cultural heritage, based on the concept of preservation, conservation, and protection, has increased the gap between archaeology, on the one hand, and communities, on the other, over the past decades.

In occasion of the decision taken by the Italian Ministry of Culture to finally transform this area into a national archaeological Park, in the last few years the landscape management has participated in critical reflections on this paper as a management policy and tools analysing the significance that archaeology could have for local communities in the creation of a shared identity based on a common landscape and focusing on the incapability public use of archaeology, which as such must be defined, properly designed, and clearly explained to define new opportunities for building broader sustainability and legacy. In view of the future management of Appia Antica Park as an archaeological Park, inhabitants’ current aspirations and needs in the negotiation of what they feel to be “their own” past and culture with institutions and policymakers will be examined. This political perspective will be used to develop a critical reading of the state of archaeology in the Park, illustrating practical examples of “active protection” of its landscapes and identifying, in the changing process of the appropriation of the past, some key elements for the recovery of a shared memory. Hence, a public approach to the management of the Park will be proposed that could promote cultural growth, including a proper debate between archaeology and communities, supporting territorial planning and envisaging new forms of development and democracy, all indispensable elements that can finally transform a landscape of ruins into a living landscape.
Managing the archaeological heritage in the Iberian LandscaPEs (THALES)

Author - Dr. Sarabia, Julia, University of Alicante, Alicante, Spain (Presenting author)

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, we focus on the analysis of various types of cultural landscapes of the Iberian Peninsula, especially selected by the morphology of their agrarian systems: one of the most homogeneous expressions of the interaction between man and territory: 1) mountain landscapes of Sierra del Segura (Albacete) and Sierra de Alcarria (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 Hellin (Alicante), the Valle del Vinalopó (Alicante) and Vega Baja del Segura (Alicante), characterized by exploited agricultural environments without interruption from antiquity to the present day, but with different strategies (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.

Landmarks and landscape in the South Eastern Sicily

Author - Dr. La Terra, Lia, Novara, Italy (Presenting author)

South Eastern Sicily provides a privileged view for the analysis of the impact on the culture of “Sikels”, thanks to its huge variety of indigenous settlements dated to the Iron Age and concentrated around the Ionian coasts, which were early visited and occupied by Greek colonies. Nonetheless, the archaeological debates and researches have been always concentrated in a Greek point of view, leading indigenous archaeology as a “niche archaeology”, where sites are even not well preserved and inserted in the archaeological potential resources.

For these reasons, I would like to focus on the analysis of the indigenous sites of the Hyblean Area. The portrait that has been revealing forces me to leave the well-known ethnic classifications and characterizations, getting close to the concept of “hybridity”. In fact, Greeks and indigenous people have developed an interactive dialogue that highlights the creation of a “third space” or “middle ground” that is not indigenous nor stranger, rather a cultural melange generated by the meeting between the two parts, well visible in the social exchanges, osmosis of ideas and material culture.

Re-centring the specificity of the indigenous archaeology could be an important way to reconsider also the archaeological landscape nowadays and promote new strategies of development of the area. In fact, the case of the South eastern sites are emblematic to describe a shared situation for a considerable number of sites in the Region that are affected by lack of funds and absence of great managing plans. Investigating further the relationship between sites and their natural landscape might be very interesting. Prehistorical sites in Sicily (e.g. Pantalica, Cassibile, Thapsos, Monte Finocchito) are set on beautiful and breathable scenarios where the boundaries between archaeological landscape and natural-rural landscape are full of overlaps and possible links. This fact could suggest the idea of possible integrated landscapes where naturalistic tracks, rural traditions and archaeological sites are linked together in unified managing plan for preservation and tourism. It is still detectable the complete harmonisation of archaeological remains into the rural landscape and the landmarks of rock-cut architecture, still used nowadays in agriculture, as a reference for the ancient deep relationship between humans and landscape and an ancestral proof of the respectful use of the land that the rural civilisation of the area has been promoting since its origins.
### TH2-13 Abstract 01

**Protect or perish: On the outlook for the young and the old in a museum’s collections**

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**Co-author(s):** Denham, Sean Dexter, University of Stavanger, Stavanger, Norway

**Keywords:** bio-archaeology, child/adult relations, ex-situ preservation

**Presentation Preference - Oral**

High infant 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 skew 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 past, 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 grandparental and grandchildish visiting museums together. None the less, museum outreach programs, activities and research communications rarely highlight this aspect of child- adult relationships in the archaeological narrative about the past.

The research program BEVARES (Biological Environmental and Archaeological Interdisciplinary Research on life course, material culture and materiality in human depositions), at the Museum of Archaeology, University of Stavanger, Norway, seeks to address issues surrounding the recovery and curation of organic materials from archaeological contexts, particularly those involving the preservation of human biological remains. Our project within the program focusses on previously excavated material in the museum’s collections which has either not been analysed at all, or not been analysed using up-to-date techniques/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 childhood mortality was a fact of life in the past, and chronic illness was common. However, taken in conjunction with other research, this indicates that the elderly 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 charnel oratoire associated with different forms of material culture, in spatial analyses or in any other aspect of archaeological research? How is the evidence approached, integrated and presented in the professions of cultural heritage management? By focusing on these relationships we hope to bring the elderly out from the shadows while also remembering that children in the past would have interacted with adults beyond their parents - just as they do in the present.

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### TH2-13 Abstract 02

**Mother-child relations in Early Bronze Age Lower Austria**

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**Co-author(s):** Applstiy, 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 (Inglice, Unterwölbting 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.

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### TH2-13 Abstract 03

**Grandparents in the Bronze Age?**

**Author:** Dr. Applstiy, Jo, University of Leicester, Leicester, United Kingdom (Presenting author)

**Co-author(s):** Rebay-Salisbury, Katharina, Austrian Academy of Sciences, Vienna, Austria

**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 late 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 roles 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 use a case study from the Early Bronze Age Tratalastal 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, wellexcavated 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.
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 Aegean cultures. Integrating ethnographic data with a systematic study of material remains from the study of burials (including simultaneous adult-child ones) to iconographic sources and textual references, the aim of this paper is two-fold: a) to provide a comprehensive account of the diverse attitudes towards childhood and the elderly in the region during the Late Bronze Age; and, b) to shed light on the interactions between children and elderly both at household level and at the medieval to early Christian burial grounds.

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 0-7 years. Research points to the fact that children in the ancient Greek household - the oikos - grew up in an extended family with multiple relationships with parents, grandparents, siblings, friends, slaves and caregivers. The theories of alloparenting and multiple caregiving are introduced to give insight to the complex world of children and their peers in the ancient Greek oikos.

This research has been published in: Sommer, M. & Sommer, D. (2015). Care, Play and Socialization in Ancient Africa – A Developmental Childhood Archaeological Approach (DK: Aarhus University Press).

TH2-13 Abstract 06
Circle of Life? Aspects on youth and old age in Viking Age and Medieval Scandinavia
Author - Phd Mejshim, 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 archaeological records. In medieval provincial law codes, a clear distinction between man slaughter (killing an equal, a free adult male) 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 defilenessence of these household dependents is expressed in terms of limited capabilities, which, is argued, is a relevant definition also in academic discussion.

In the burial records from Late Viking Age and Early Middle Age, graves of elderly, impaired, sick people and children in many cases differ from those of the productive adults. One specific phenomenon is approached in this paper, namely the use of amber amulets. Amber has been used as protective agent in Viking Age, i.e. as amulets attached to swords. A similar understanding and interpretation arises from the study of burials (including simultaneous adult-child ones) to iconographic sources and textual references, the aim of this paper is two-fold: a) to provide a comprehensive account of the diverse attitudes towards childhood and the elderly in the region during the Late Bronze Age; and, b) to shed light on the interactions between children and elderly both at household level and at the medieval to early Christian burial grounds.

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-AD1700. The separate burials, distinct from those of the sparsely populated rural burial record in that they are all inclusive, i.e. include series 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 “elderly” 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 fulfilling 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/ethnographic research pertaining to the museum’s collections and exhibitions, a new light may be thrown on historically “inconspicuous” social groups such as the aged and the young, irrespective of time periods.

TH2-13 Abstract 08
Interpreting Multiple Interments in Irish Medieval Burial Grounds
Author - Dr. Murphy, Eileen, Queen’s University Belfast, Crumlin, Northern Ireland, United Kingdom (Presenting author)
Keywords: funerary archaeology, relationships, skeletal remains
Presentation Preference - Oral

Burials that contain the remains of two, three or even larger numbers of individuals are occasionally discovered during excavations of medieval Christian burial grounds in Ireland. In the majority of cases the remains are of neonatal infants – perhaps indicative of a multiple birth – in which the infants did not survive, while other examples may comprise the burial of two or more adults. In other instances a full-term foetus remains within the mother’s abdominal region and clearly died prior to delivery. Cases also arise in which a neonate has been interred with an adult female, and it seems likely that many of these may represent cases where both a mother and her baby had died shortly after delivery. Other examples have been discovered in which an adult male was buried with an infant or an older child was buried with an adult. This paper will explore the evidence for multiple burials in 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, Mississippi State University, Starkville, United States of America
Keywords: bioarchaeology, Reform Church, Transylvania
Presentation Preference - Oral

Bioarchaeologists have added a great deal to what is known about past peoples from numerous time periods and geographical periods. Recent contributions to the field have pushed scholarship in exciting new directions thanks to theoretical and methodological frameworks which include both the youngest and oldest members of society. Bioarchaeologists are now exploring questions related to both infants and the invisible elderly; however, few archaeological contests present scenarios where both cohorts have been recovered together. Indeed, few scholars have addressed questions related to the interactions of people who lived at the extremes of the human lifespan, as these contexts seem to have eluded 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 Teleác, Romania. The majority of these interments date to the 17th century and do not appear to have survived long after birth. In addition to the neonatal individuals, the remains of an elderly female individual were recovered from the same stratigraphic context. In this talk, the relationship between these individuals will be explored and tied to a growing body of literature investigating the archaeology of the Reformations.

TH2-13 Abstract 07
The old and the young in the Icelandic early Christian household cemetery
Author - Zeega, Gudny, Skagafjörður 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-AD1700. The separate burials, distinct from those of the sparsely populated rural burial record in that they are all inclusive, i.e. include series 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 “elderly” 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 fulfilling 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/ethnographic 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.
Beliefs. This study advocates the use of individual-specific age estimates, allowing for better differentiation of '45+ older adults', middle age (Milner and Boldsen 2012). The results imply that uncertainty does not increase indefinitely, contrary to previous ages circa 40 and 70, as could be expected due to individual variation, but age range lengths plateaued and decreased after the presence of older individuals from archaeological material, distorting our views of agency in past societies. This poster seeks age indicator methods used to estimate age-at-death, we must accommodate for the variation using age ranges which 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 of spinal degeneration of the vertebral bodies, caries and tooth loss as compared to elderly males who show a significant decrease or stagnation in these conditions. Other females however have in common with younger adult females the severity of spinal osteoarthritis in the facet joints in comparison to the young male - elderly male grouping which is less affected. Females generally appear to be more affected by disease, yet elderly females of this population are particularly haunted by ill health which ultimately may have made their deaths and presence in this cemetery more likely. Death also is an important aspect of this women's identity. Other forms of identity are highly important in gauging age differences and relationships between young and old. Age only becomes visible through the growing, gendered or diseased body as a medium in the social experience of age. The archaeological interpretation of osteological data shows that Wetwang Slack age groups have various relationships to one another depending on sex, health or even affected body location. This trait of age estimate, sex affiliation and disease status 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

The absence of elderly in research is not simply a question of attitudes but also methodological limitations. Intrinsic 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 can better identify the elderly using osteological age-at-death methods.

A known-age-at-death sample from the Finnish skeletal collection, held at the Finnish Museum of Natural History, was tested using Transition Analysis, the Buckberry-Chamberlainauricular surface method and the Sueych-Brooks pubic symphys method. All three methods performed well, however only Transition Analysis, a statistical method relying on Bayesian probability, could be used to observe characteristics of age ranges due to its functional principles. The greatest uncertainty lies between ages circa 40 and 70, as could be expected due to individual variation, but age range lengths plateaued and decreased after middle age (Milner and Boldsen 2012). The results imply that uncertainty does not increase indefinitely, contrary to previous beliefs. This study advocates the use of individual-specific age estimates, allowing for better differentiation of 45+ older adults, which in turn will improve understanding of the entire life course and bring much needed attention to the elderly, inviting them to the sphere of social agency and interaction.
greater community participation in caring for this resource the Heritage Council of Ireland has launched a pilot Adopt a Monument Scheme in 2015-16. The experience gained from this will be shared at the round table. At the time of writing this scheme, learning from work in Scotland, has progressed from an open public call for entries to selecting monuments and communities. Further details will be available in September.

TH2-14 Abstract 03
Community Outreach and Engagement through Archaeology Fairs

Author - Dr. Thomas, Ben, Archaeological Institute of America, Boston, United States of America (Presenting author)
Co-author(s) - Langlitz, Meredith, Archaeological 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 aims of the archaeology fairs are to promote a greater public understanding of archaeology, raise awareness of local archaeological resources, and bring together proximate archaeological groups with a shared outreach goal. In this presentation, the authors will discuss how the AIA fair model was developed through feedback cycles that include evaluation, data analysis, reflection, and trial and error, how it evolved, and how it is spreading to other groups around the world. To date, 26 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 inform thousands of people through this popular outreach activity. The overall aims of the archaeology fairs are to promote a greater public understanding of archaeology, raise awareness of local archaeological resources, and bring together proximate archaeological groups with a shared outreach goal. In this presentation, the authors will discuss how the AIA fair model was developed through feedback cycles that include evaluation, data analysis, reflection, and trial and error, how it evolved, and how it is spreading to other groups around the world. To date, 26 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 inform thousands of people through this popular outreach activity.

TH2-14 Abstract 04
The “archaeological path” in the interdisciplinary research in Polish Jurassic Highland

Author - MA Majerek, Magdalena, Nicolaus Copernicus University Torun Poland, Toruń, Poland (Presenting author)
Co-author(s) - PH Lawrowicz, Olga, University of Lodz, Lodz, Poland
Keywords: archaeology, Jurassic Highland, interdisciplinary research, places of memory and forgetfulness
Presentation Preference - Oral

The project, called Places of memory and forgetfulness: Interdisciplinary research in northern areas of the Polish Jurassic Highland, involves carrying out research in areas that can provide insights into 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, Łeśno, Mśłow, Olsztyn, Przyrów. The project adopts an interdisciplinary perspective based on the results of modern cultural anthropology, and refers to the new trend in archaeology focused on the study of modern times (XIX-XX centuries). Reflection these two disciplines is supplemented and verified through the knowledge of local history and the history of art.

The project distinguished three complementary research paths: anthropological, archaeological, historical/archival and a common path. Cultural anthropologists use the photographs, written materials, archives, and documents and available publications. For them, the source of knowledge about the past and the present is primarily oral history, heard stories from encountered people. Within the queries historical researchers collect general information about the regional history, as well as about specific places and objects, often not adequately developed in the academic literature. In the discussed archaeological path aim is to attempt to answer the following question: whether in a particular place are material elements of culture capable to confirm, deny or modify the knowledge of the past emanating from collected stories. Archaeological diagnosis was divided into two stages: reconnaissance and non-invasive research (including aerial surveys).

In the first stage of the archaeological diagnosis, archaeologists investigate the available source base and makes an initial reconnaissance of the municipality. Then divide objects (places), which have been proposed for research by anthropologists, into three categories: A - objects studied non-invasive methods, which does not require detailed documentation; B - objects studied non-invasive methods, requiring accurate documentation; C - objects studied non-invasive methods, requiring accurate documentation subject 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 excavations 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 - Lautumaa, Vesa, The National Board of Antiquities, Helsinki, Finland (Presenting author)
Co-author(s) - Ollus, Taru, The National Board of Antiquities, Helsinki, Finland
Keywords: Local involvement, Media, Tourism
Presentation Preference - Oral

In June 1996 paleolithic stone tool was found in Susiluola cave in western Finland. As the first known paleolithic site in Scandinavia it received plenty of attention in national media. Soon after the first find was revealed and reported in media, the site was visited by thousands of people and local economics was boosted by the visitors. Tourism flourished. Hats, t-shirts, food, 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 accused to be a hoax. Critics grew stronger also in the media. Debate cast a long shadow over the site and affected the public opinion. Attraction faded away and tourism collapsed. Last excavations season was in 2008. The debate concerning the authenticity of the finds and cave as a paleolithic is still 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 overenthusiastic start can lead to very disappointing end for all parties involved.

TH2-14 Abstract 06
My Home Ground - past and present

Author - Jyri Madsen, Lene, Museum skanderborg, Skanderborg, Denmark (Presenting author)
Co-author(s) - Dissing, Nina Bangbro, Municipality of Skanderborg, Skanderborg, Denmark
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Keywords: Art, Ownership, Storytelling
Presentation Preference - Oral

Escape is a concept that adds energy and historical context to newly developed suburban sites. When an excavation site has been "emptied" for historical data by the archaeologists and the area has been developed for modern life, it is important to tell the unique story of the place to newcomers as well as the people who already live around the site. This can be done in many ways. Our experience is that bringing in Art into the process lifts the story-telling - and a work of art as well as the presence of an artist at Work - result in increased local communication and also make the site a point of interest for tourists. The concept eScape combines art, archaeology, past and present and creates and communicates art on sites with strong archaeological evidence combined with the scientific excavations. 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 - Archeklo Lesel, Krietta, Pirkanmaa Provincial museum, Tampere, Finland (Presenting author)
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Keywords: cooperation, local people, openness
Presentation Preference - Oral

Giving is having! Everybody is winning! The project is implemented under the National Programme for the Development of Humanities funded by the Ministry of Science and Higher Education in Poland.
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.

During the last EAA-meeting in Glasgow, the idea rose to re-create an EAA commission on illicit trafficking of archaeological heritage. Our round table is organised by the Working group of this commission.

Antiquities as the ‘hottest invest’ (TIME-Magazine, 12/2007) are one of the biggest problems of archaeology. Finds deriving from unauthorised excavations, metal-detecting, robberies of museums/public collections, appear on the market with faked provenience, and are legally sold. The majority of illegal/illicit finds that enter the market, seemingly entirely legally, go unacknowledged by archaeologists. Only rarely do such finds later surface and only few, like the spectacular find of the Bronze Age Nebro-dio, are acknowledged by the wide public. In the case of more mundane finds this rarely ever occurs.

Today, the internet offers an easy and growing platform for rapid exchange of archaeological artefacts, the sheer volume of sales making it hard to keep track of newly advertised finds and sales. Thousands of archaeological artefacts are daily presented through mediums such as ‘treasure hunter’ internet platforms, advertised and sold online through outlets and sold through licensed auction houses.

The reaction of archaeologists has been to largely ignore this market. But the volume of finds entering the market reached already the point where we must begin to address the lack of knowledge, and to what degree our legitimate archaeological finds corpus is any longer truly representative, and whether it alone remains valid for future research.

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 notary confirmation on family heritage.

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 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.
The systematic and inspiring raising of social awareness through the educational (equally pedagogy and andragogy) museum function about the flaws of decontextualized archaeological material and the inestimable (non-material) value of archaeological heritage itself is certainly the best long-term protection method because, frankly, lack of knowledge jeopardizes heritage the most.

However, my praxis taught me that this approach, in which I firmly believe and in which I actively participate for years, will never fully eradicate malicious predators who will, despite everything, continue to use archaeological heritage for personal profit. It seems that the combination of constant development of social awareness with the sharp and well-defined legislative is the closest we can get to the ultimate annihilation of misusing archaeological heritage.

The formation of a universal national (or wider) acquisition policy in archaeological museums is the first preventive step. The narrative of such a policy not only protects, but encourages sale of archaeological finds and objects and non-expert excavations which result in individual decontextualized finds acquired/received by the museums with public funds.

A policy on collecting written through a consensus in the archaeological profession could deter all potential malicious collectors, not leaving room for them to manipulate ‘family heritage’ and, on the other hand, should not discourage well-intended donors and legal possessors to give their finds over to museums. A high-quality and publicly available 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.

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TH2-16 Abstract 02
Illicit trafficking of archaeological heritage in Croatian post-war and transitional context

Author: Curator Drmić, Ivan, Archaeological museum in Zagreb, Zagreb, Croatia (Presenting author)
Presentation Preference – Oral

The looting and illicit trafficking of archaeological heritage has a long tradition in Croatia, though most of these illegal activities have been concentrated in a few key centers. One of these black spots is the city of Sisak, which developed on the ruins of the Roman provincial center Siscia and has provided seemingly inexhaustible archaeological material for all sorts of dealers and smugglers since the second half of the 19th century. The attitude of professional institutions, primarily museums, towards these activities varied between the 19th and 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 pieces probably entered the illegal market. A more recent problem is the phenomenon of illegal metal detecting. In some cases it is conducted by war veterans who are protected within local communities because of their contribution to the defense of the country. There are some attempts at coordination between local museums and these “enthusiasts”, but it seems that such relationships are still not clearly defined.

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 amphoras, 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.

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TH2-16 Abstract 03
Can local people preserve cultural heritage?

Author: Munawar, Nour A., University of Amsterdam, Amsterdam, Netherlands (Presenting author)
Keywords: Conflict, Cultural Heritage Under Threat, Local People
Presentation Preference – Oral

Cultural heritage has fallen under the threat of being damaged due to armed conflicts, and destruction has increasingly become a major part of daily news all over the world. This phenomenon is not limited to specific geographical areas, but it includes various countries as much as it contains different ways and tools of destruction such as looting, bombing, illegal excavations, occupation of armies, and illicit trade. In response to these disgraceful actions, procedures have been taken to protect cultural heritage from being damaged. However, the preservation process cannot be done individually; it has to be done through institutional order. As it is well-known, governments are the main responsible stakeholder of preserving cultural heritage - as they are representing the people and protecting their properties especially in times of conflict. Local people have been considered as one of the most important stakeholders of cultural heritage.

In the meanwhile, local populations are not able to preserve cultural heritage without theoretical overviews, practical information or even being informed about the value of their heritage. Hence, the necessity of creating a combination of benefits among the different stakeholders became an urgent necessity.

The ongoing armed conflict in Syria and Iraq has progressively damaged numerous of cultural heritage sites, especially in the cities of Aleppo – Syria and Mosul – Iraq. The escalated violence did not avoid the museums, immovable and movable sites and even intangible cultural heritage was either damaged or completely demolished.

In this paper, the author is going to present samples of cultural heritage destruction in Syria and Iraq. Also, he will present a plan to increase the awareness of local people – as one of the stakeholders - in a way that helps to protect cultural heritage under threat.

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TH2-16 Abstract 04
Metal Detecting on Dutch WWII conflict sites

Author: MA Van der Schriek, Max, Vrije Universiteit Amsterdam, Amsterdam, Netherlands (Presenting author)
Keywords: Conflict Archaeology, Illegal excavations, Metal detecting, illicit trafficking of Cultural Heritage
Presentation Preference – Oral

Dutch academic interest in the heritage of World War II (WWII) has been limited until recently. Attention for the subject is much greater in the wider community. Unfortunately, this interest is also expressed in many illegal searches and excavations. Metal detecting is a hobby that has been vilified by many archaeologists as an uncontrollable threat to the proper study of the past. During this presentation I will discuss if an effective cooperation is possible between archaeologists and metal detectorists concerning this fragile heritage. What are the benefits and drawbacks?

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. However, archaeologists and metal detectorists are working increasingly together. In some cases, metal detector 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.

Given the historic indifference of professional archaeologists, and the fact that little is done to protect this vulnerable heritage formally, Dutch legislation should be adjusted to permit properly framed conflict archaeological research. Conflict archaeologists play a vital role with regard to the preservation of these sites and relics.

The ultimate question to be asked is this: are metal detectorists potentially an ally or an enemy of conflict archaeology? Is their activity always destructive, or can their interest and enthusiasm be harnessed to work with professional archaeologists, to the benefit of both sides?
CLIMATE CHANGE AND HERITAGE: IMPACT AND STRATEGIES

TH2-17 Abstract 01

Threats to Heritage and the Distributed Observing Network of the Past: A Northern View

Author - Prof. McGoey, Thomas, Hunter College CUNY, New York, United States of America (Presenting author)

Keywords: Climate Change and Heritage: Impact and Strategies, Climate Impact, Heritage Loss, Northern Presentation Preference - Oral

Climate change is impacting archaeological sites all over the world, as rising sea levels, increasing storminess, wind erosion, and a range of extreme weather events damage sites and monuments. These processes are ongoing, and in northern and alpine regions the threat of rising soil temperatures and "melting middens" broadens the threat to take in sites far inland. In SW Greenland, recent survey data indicates only a handful of sites retain once excellent conditions of organic preservation (three of nearly a hundred sites sampled). In the Bering Sea and N Alaska sites spanning thousands of years are going into the sea across broad coastlines. 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 the 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. Martens, Vibeke Vandrup, NRU - Norwegian Institute for Cultural Heritage Research, Oslo, Norway (Presenting author)

Keywords: in situ preservation, mitigation, Northern Norway Presentation Preference - Oral

Future climate change is expected to raise sea levels, increase temperatures and change the overall precipitation patterns, with a potentially great negative effect on preservation conditions. How should cultural heritage management respond to these threats? In order to prepare adequate mitigation schemes, it is necessary first to know exactly what is at risk. In the case of heritage, it is often trying to preserve, what state it is in now, and what the conditions for in situ preservation are. Degradation of archaeological remains depends on environmental conditions. Which measures may be taken to mitigate the predicted climate changes and ensure continued in situ preservation of heritage sites? Should they be covered, or can changes in soil chemistry be stopped? Studies in Northern Norway are used to demonstrate impacts and possible mitigating actions.

TH2-17 Abstract 03

Climate Change and its Impact on Cultural Heritage

Author - Dalen, Elni, 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, Skjærgaard 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 Skjærgaard 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. 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 coastal heritage as climates change

Author - Graham-Allsop, Elnor, University of St Andrews, St Andrews, United Kingdom (Presenting author)

Co-author(s) - Dawson, Tom, University of St Andrews, St Andrews, United Kingdom Co-author(s) - Hambly, Joanna, University of St Andrews, St Andrews, United Kingdom

Keywords: coastal Archaeology, Erosion, Scotland Presentation Preference - Oral

Managing coastal heritage as climates change.
Scotland’s vast coastline contains a wealth of archaeological sites, many buried under shifting sand dunes which has led to remarkable levels of preservation. Coastal erosion, accelerated by climate change, is impacting on thousands of these invaluable heritage assets. In recognition of the severity of the threat, the SCAPE Trust was established with a remit to research, conserve and promote the archaeology of Scotland’s coast.

Since the mid-1990s, Historic Scotland (now Historic Environment Scotland), has sponsored a series of Coastal Zone Assessment Surveys (CZAS) of the coastline in order to quantify the condition and threats to Scotland’s coastal archaeological resource. These surveys have targeted vulnerable areas and covered over 40% of the entire coastline. As well as assessing the geology, geomorphology and erosion risk of coastal cells, more than 11,500 heritage sites have been recorded. A prioritisation process taking account of a site’s value, vulnerability and condition this dataset and classified nearly 1,000 sites as requiring attention.

Following prioritisation, SCAPE initiated the Scotland’s Coastal Heritage at Risk Project (SCHARP), which worked with members of the local community to update and enhance this data, focusing on high-priority sites. The citizen science approach created a network of volunteers to monitor vulnerable sites in the dynamic coastal zone. As monitoring alone does not save threatened sites, SCAPE has also worked with community groups to undertake action at locally-valued sites. As preservation in situ is impractical or impossible in many coastal locations, the main aim is to rescue as much information as possible from these sites. A variety of strategies, from innovative digital recording and excavation to relocating and reconstructing sites have been deployed. The next project aim is to reference the updated data generated by SCHARP against the set of national research questions presented in the Scottish Archaeological Research Framework. This will ensure that research is undertaken at sites that will otherwise be destroyed, creating a ‘research/rescue’ framework. The potential of these vulnerable sites to answer research objectives will be shared with the international archaeological community.

A second aim is to map the updated data against the National Coastal Change Assessment. This project has plotted past change to the coastline and maps future susceptibility to erosion; and the result of the mapping exercise will inform future management of the coastal archaeological resource and highlight national and local priorities for further work.

This paper will present the impact of coastal processes on Scotland’s archaeological heritage, examine use methodologies employed to mitigate the sites threats face, consider the application of citizen science to the problem of coastal erosion and give case studies of some of the differing strategies used to preserve vulnerable coastal sites by record.

TH2-17 Abstract 06
Identifying and Mitigating Climate Change Impacts on Heritage Assets in the Trent Catchment, UK

Author: Dr. Knight, David, York Archaeological Trust, York, United Kingdom (Presenting author)
Co-author(s): Howard, Andy J., Landscape Research & Management, Bridgnorth, United Kingdom
Keywords: Climate change, Heritage assets, Landscape analysis
Presentation Preference: Oral

In the UK, the devastating summer and winter floods of the last few years have brought sharply into focus the changing nature of weather patterns, the challenges of future flood risk management under such extreme scenarios, and the need to develop robust strategies for the preservation of the cultural heritage resource. Inevitably, when such disasters occur, emphasis is often placed upon individual localities or groups of built assets and the development of solutions that consider both contemporary and modelled geomorphological processes. While the impact of these major floods on heritage assets has gained some prominence in the media, much of the damage to the cultural heritage resource goes unrecognised as its impact on ‘invisible’ subsurface remains that may be recorded and monitored only by intrusive or remote sensing techniques.

Identification of the range of heritage assets within river catchments and of spatial and temporal variations in the archaeological and palaeoenvironmental resource can assist study of past climatic and environmental changes. The environmental impacts of human activity and the responses of communities to geomorphological processes and events. Particularly in industrial landscapes, such work also has the potential to identify the legacy of past pollution and its impacts upon ecosystems and future geomorphic thresholds.

While the historic environment record has the potential to inform environmental managers, it is important that the archaeological community adopts a holistic approach to examining landscapes, within clearly identified research frameworks that provide equal weight to individual sites and more expansive terrain units. This paper provides an example of such a framework, developed within the Trent catchment along the riverine corridor dominated by the historic mills of the Derwent Valley Mills UNESCO World Heritage Site and supported by Historic England and Derbyshire County Council. This has assisted in the development of toolkits to help characterise the geoaehnological resource, establish its potential for elucidating past landscape changes and develop strategies for responding to future natural events.

TH2-17 Abstract 07
Submerging Heritage: Forecasting Climate Change Impacts to Set Preservation and Research Priorities

Author: Dr. Heilen, Michael, Statistical Research, Inc., Haymarket, United States of America (Presenting author)
Co-author(s): - Aitken, Jeffrey, Statistical Research, Inc., Tucson, United States of America
Keywords: archaeological modeling, climate change, heritage management
Presentation Preference: Oral

Globally, climate change represents one of the largest impending threats to the preservation of heritage resources faced today. Some of the most acute impacts to heritage resources are those stemming from rising sea levels and increased storm intensity. These processes are already underway in some areas and will cause increased inundation and erosion of coastal and island resources around the globe. Climate change impacts are expected to increase in their frequency and severity in the coming decades, resulting in compromised integrity and 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; inventorize, 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.

TH2-17 Abstract 08
Sun, wind and rain: renewable and non-renewable resources in Wales

Author: Belford, Paul, Clywd-Powys Archaeological Trust, Welshpool, United Kingdom (Presenting author)
Keywords: heritage management, renewable resources, Wales
Presentation Preference: Oral

This paper will look at two aspects of the effect of climate change on archaeology and cultural heritage in Wales. Firstly there is the need to reduce carbon emissions by increasing the use of renewable energy. However onshore wind and solar electricity generation has polarized 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. Second, very significant damage to archaeological sites has taken place around the Welsh coastline in recent winters. Erosion has sometimes destroyed the historic environment, but it has also enabled new discoveries. The problem has been in providing resources to ensure that the archaeology is recorded or preserved – and one very successful response has been the Arfordir scheme run by the Welsh Archaeological Trusts training large numbers of volunteers to identify and record coastal heritage sites, and the changes that are happening to them. Discussion will focus on the role of archaeological curators, commercial contractors and public bodies in managing these cultural heritage challenges. What impact is climate change having on the cultural heritage, and how effective is the system in Wales at mitigating those impacts?

TH2-17 Abstract 09
Climate change and the effects on cultural heritage in the Netherlands

Author: Kars, Eva, EARTH Integrated Archaeology B.V., Amersfoort, Netherlands (Presenting author)
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 12

An integrated approach to sustainability: eco-cultural heritage practice at Aktopprâki, Turkey

Author - Curtis, Canlit, University at Buffalo, Buffalo, United States of America (Presenting author)

Keywords: community, heritage, sustainability

Presentation Preference - Oral

Community participation and sustainability are now widely recognized as crucial strategies in heritage practice. This paper thus presents a case study that utilises an ethnographic methodology, including interviews with over 70 residents in Akçapar, Bursa, Turkey, the local context of Neolithic-Chalcolithic Aktopprâki Höyük. With the initial aim of trying to understand sustainability and heritage within the terms of the community, newly gained information can now aid in forging a symbiotic relationship between archaeological sustainability, environmental sustainability, and community sustainability.

When discussing what was most valued locally, many noted that Uluabat Gölü was among the most cherished assets in town. The lake, upon which the town is located, has long been a site for traditional community festivals, and is now used as a family picnic venue for locals and outsiders alike. The lake also attained Ramsar status in 1998 for its rich wetlands and extraordinary birdwatching population. However, Uluabat Gölü was also the initial site of industrial development in town over 30 years ago, with the first factories to open operating on the lake edge. These factories deposited waste in the lake, and with time, a place that had been a local source for recreation, fishing, and irrigation became nearly unuseable.

In recent years, local government measures to more strictly regulate factory pollution, as well as efforts to clean the lake spearheaded by a local university, have begun to improve the water quality in the lake. However, at the same time, many note that the local government has not made a significant effort to maintain and develop the shore of the lake for the public or for visitors, with littering a continuing problem. Indeed, many locals noted the untapped potential of the lakeashore for attracting tourists, especially considering the existing tourist attraction of Golyazı island just a few kilometers away at the center of the lake. As such, Uluabat lake is a valuable resource for local and international tourism, and could support additional measures for its maintenance, protection, and management, there are clear pathways here towards the parallel dialogue of archaeological heritage. Similarly, the archaeological site has been threatened by factory development and can be a valuable community and tourist resource. There is therefore significant potential for archaeologists to engage in this broader dialogue of sustainability that includes environmental resources and community concerns. By including the lake in our management strategies, with such simple measures as a litter collection campaign by the excavation team, we can make headway in sustaining a valuable natural and community resource. Moreover, we can open up our site and the region to the benefits of not only heritage tourism but also ecotourism. Consequently, with an integrated approach to not only the sustainability of heritage, but also climate, environment, and community, we can make greater strides toward success in sustainability strategies overall.
PREVENTIVE ARCHAEOLOGY, SCIENTIFIC RESEARCH
AND ECONOMIC DEVELOPMENT

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, University of Paris I, Paris, France (Presenting author)

Keywords: commercial competition, Preventive archaeology, scientific research

Presentation Preference: Oral

While the term “heritage” normally refers to the transmission of property within a family, the term Cultural or Archaeological heritage refers to a national or ethnic community. Although national identities in the modern sense of the term only appeared in the early 19th century, there have 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 distanced, is central to the conception of society. In “common law” Anglophone countries, and especially the USA, the State has never been completely legitimate. This view was further reinforced in the 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 cultural heritage, who should pay for excavation to conserve it. They become “clients” who chose between different producers, in this case the private companies doing archaeological excavation. This view has had disastrous consequences in terms of research, since many excavations carried out through Cultural Resource Management have never been studied or published. It also has ethical and political consequences for our conception of our common past. France offers a good (or sad) example of such an historical evolution, since commercial competition was introduced in archaeology in 2003.

TH2-19 Abstract 02
25 Years of Development-led Archaeology in England:
Strengths, Weaknesses, Opportunities and Threats

Author: Trow, Steve, Historic England, Southampton, United Kingdom (Presenting author)

Keywords: Archaeology, Development-led, Planning

Presentation Preference: Oral


While the issuing of a piece of technical planning guidance may seem like limited cause for celebration, it did in fact mark the beginning of 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’ (preventative) archaeology is still regularly contrasted to ‘research archaeology’. In the UK the former is done largely by commercial organisations (contractors), the latter mainly by universities and community groups with public or charitable funds. This use of language takes a considerable shift in intent over recent years, from both archeological 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 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 assets, their 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 trainable to take them late in a project options and design process.

How can archaeological curators and contractors integrate research into large scale development projects and avoid slipping into mechanical processes which simply translate and transform remains to archives? We know what we should do but require an understanding of practice and an articulation of the narrative in which our jobs are situated. Without being able to tell to ourselves the story of our role in the archaeological research process we can neither defend our position nor critically assess our success.

Where across complex landscapes with patchy existing information should archaeologists deploy their time and other people’s money and attention? This paper discusses the application of professional judgement and expertise to the identification of key research issues both within and 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 point first.
The 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 austerity measures. In other cases the functioning of preventive archaeology is simply prejudiced by new public austerity measures. Therefore, it is crucial to develop new strategies and approaches to ensure the sustainability of the sector in the face of these challenges.

Keywords: preventive archaeology, sustainable development, economic crisis.
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 the framework of the Swiss political system in which 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 arrangements and there is no single political entity responsible for its applications. Therefore, preventive archaeology is an iterative and monolithic ideal model to be established. On the contrary, preventive archaeology consists of several paradigmatic principles related to heritage preservation. Moreover, these principles can be applied very differently from one political state to another.

In conclusion, if we accept that the current state of preventive archaeology is not an end in itself that need to be protected, but that it constitutes a paradigm of research concerned with the preservation of cultural heritage, we should then recognize that the manner in which preventive archaeology is organized can be regularly re-negotiated within civil society so that it is adapted to the evolution of the research context and, last but not least, to our scientific ambitions.

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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. Stauble, Harald, Heritage Office Saxony, Germany, Dresden, Germany (Presenting author)

Keywords: archaeology, economic development, 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 archaeologiacal management of large scale invasive developmental projects the economic conditions as well as the societal acceptance after the 1990s differed in comparison with post-war Europe. This may partly be an effect of the Valetta Convention from 1992, which was itself a result of many years of convincing work, but it also coincides with the socio-political and economic changes in East Europe, which surely helped the signatures and the later ratification of it. Anothe 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 aspect 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)

Co-author(s): Coakel-Torello, Richard, Statistical Research, Inc., Redlands, United States of America

Keywords: archaeological 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 110 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 archaeological projects that are authorized by Section 106 of the Act have resulted in the creation of a broad range of heritage management tools, including records of site locations, archeological surveys, and assessments of the impacts of proposed projects. The implementation of this model will not only achieve a decrease in the number of archaeological rescue or emergency interventions, but will also allow to design archaeological research based on its knowledge, without it being the decision of the public or private civil work.

Moreover, project planning and management is often focused on reducing costs within a competitive environment. While many projects are typically based on preventive archaeology, 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 to archaeology and the potential for conducting research within two different regions of the United States – coastal southern California and the desert Papagoa of southern Arizona – by developing regional research programs, accumulating data from numerous small projects to achieve appropriate scales 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.

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**TH2-19 Abstract 11**

The system of organisation of Czech archaeology

Author: Mark Jur, Jan, Institute of Archaeology of the CAS, Prague, v. i., Prague, Czech Republic (Presenting author)

Co-author(s): Unger, Jiri, Institute of Archaeology of the CAS, Prague, v. i., Prague, Czech Republic

Keywords: Czech Republic, Legislation, Preventive Archaeology

Presentation Preference: Oral

The currently effective heritage law in the Czech Republic entered into force already in the year 1987. Even though the law was created in the environment of socialist state, it was designed in a very progressive way. Despite the fact that the law was not significantly revised since it had become effective it still fulfils the majority of obligations that the Czech Republic undertook to do by joining the Valetta convention in 2000.

However, lawmakers in the year 1987 could not envision the fundamental political as well as social transformations that occurred in the Czech Republic two years later, in the year 1989. The changeover to a market economy as well as significant increase in building activities brought much higher demands on conducting rescue archaeological field works. This progress has resulted, among other things, in increase in number of applications for issuing new licences entitling to conduct the archaeological field work. Besides museums and universities, private companies appeared. So far, altogether 110 public as well as private companies possess the licence to conduct the archaeological research. Implementation of the principle “the polluter pays” has caused that the licenced organizations are using the rescue archaeological field work as one of their major financial sources.

The Institute of Archaeology of the Academy of Science of the Czech Republic holds in organisation of the Czech archaeology a privileged position. The Institute is the only organization entitled to conduct archaeological field work directly by the law. Furthermore, it has the right to significantly influence the issuing of a new licence to conduct archaeological research (the power of veto), collect information regarding the ongoing archaeological field works, archive Excavation reports and, to a certain degree, to control their quality. However, the effective law does not stipulate any evident standards of archaeological research and, thus, its quality varies significantly in the Czech Republic.

As far as law-making process is concerned, unclear specification of regulations, rights as well as obligations on the side of not only licenced organizations but also developers, property owners and state administration represents fundamental problems of the Czech archaeology. This state of affairs can be solved only by passing of a new law.

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**TH2-19 Abstract 12**

Rethinking Preventive Archaeology: classification of the land as a starting point

Author: Quevrol, A., Spain, Complutense University of Madrid, Madrid, Spain

Co-author(s): Castillo, A., Complutense University of Madrid, Madrid, Spain (Presenting author)

Keywords: Interpretation, Land planning, Mediation

Presentation Preference: Oral

Around 30 years ago we started researching the topic of archaeological heritage management in Spain and the necessity to adopt preventive measures concerning archaeological studies in the context of civil works. We used the adjective “preventive” for the archaeological studies. In this context, and we developed a specific model (published in 2007). But, we have observed the proliferation of usages of the "preventive archaeology" (PA) term as a synonym for salvage archaeological, rescue archaeological, emergency archaeological, as a result of preventive policies, etc. We argue once again here, the idea of Preventive Archaeology as a planned strategy. Land classification (in an urban sense), including its archaeological potential, is the first and main step. In our model of preventive archaeology, it is possible to combine research, development infrastructures and the contributions of the Malta Convention. Our proposal is based on the European standards on Environmental Assessments (Strategic Environmental Assessment Plan and Environmental Impact Assessment for projects) to establish Reserve Zones ("untouchedness") and Caution Areas (for interim protection of construction projects) in the territorial planning of European territories.

The implementation of this model will not only achieve a decrease in the number of archaeological rescue or emergency interventions, but will also allow to design archaeological research based on its knowledge, without it being the decision of the public or private civil work.
TH2-19 Abstract 13
Preventive archaeology from 2010 onwards in Hungary – legal background and the reality

Author - Bozóki-Emrée, Katalin, Government Office of Budapest Capital, Budapest, Hungary (Presenting author)
Co-author(s) - Woll, Dr. Maria Pia, Istituto Beni Culturali, Bologna, Italy
Keywords: development-led excavations, legal system, reforms
Presentation Preference - Oral

Hungary has signed the Malta Convention among the first countries (1992), built the Convention’s main principles already into the first cultural heritage law (1997. CXL) issued after the political turn (1989), nonetheless the Convention itself just later (2000) became part of the national legislation. Preventive archaeology – in modern terms – appeared around the 1990s and quickly became the dominant way of excavating, the number of development-led excavations was the highest around 2006/2010. The history of this “evolution” from a few aspects was already discussed by archaeologists mainly in foreign publications, conferences (e.g. EPAC, EAC volumes, ACE project) – unfortunately such a debate is still missing on national level, the characteristic elements of this process, the special interest of the different actors have not yet been analysed. In this paper we focus on the period from about 2010 till now, the period that is characterised by a radical reorganisation of heritage administration under the aegis of the overall government-reform, the shutdown of the INRAP-like field service (established in 2007). The recent changes (including the accreditation of excavation institutions and firms) foster the building up a free-market like system in case of development-led large scale excavations: legal “reforms” were introduced in favour of better predictable excavations and investments and for the “benefit” of the citizen. We try to confront theory and practice to outline the problems that should be resolved.

TH2-19 Abstract 14
French preventive archaeology in a European context

Author - Salas Rosenbach, 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 its 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 enforced by the corporatism of the state archaeologists. However, the urgency of the economic crisis hitting Greece hard since 2009, and the recently added huge refugee crisis is putting a dangerous strain on archaeology. Is state archaeology going to survive the crisis?

TH2-19 Abstract 16
Is preventive archaeology compatible with scientific research?

Author - Dr. Depaepe, Pascal, Inrap, Amiens, France (Presenting author)
Keywords: Economic Crisis, Preventive archaeology, Scientific Research
Presentation Preference - Oral

Preventive archaeology is now, in Europe, certainly the main source of archaeological data, about 90% in some countries, and each European country has a more or less strong legislation about archaeology and cultural heritage. A common point of these laws is the possibility of a commercial archaeology beside an academic one. Therefore many private companies have emerged especially since 2000. But preventive archaeology has been strongly affected by the global economic crisis since 2008. In this paper I will examine if preventive archaeology is efficient in a scientific point of view, not only in a cultural heritage point of view, in western Europe and especially in France.

TH2-19 Abstract 17
Birth and infant death of preventive archaeology in Italy

Author - Dr. Guermandi, Maria Pia, Istituto Beni Culturali, Bologna, Italy (Presenting author)
Keywords: archaeological heritage safeguarding, Preventive archaeology, Public administration reform
Presentation Preference - Oral

The consequences of the crisis - far from being outdated - led to a profound rethinking of the methodological, social and institutional framework in which archaeological discipline has operated in recent years on a European level. For a large majority of EU countries, this framework had its political and legislative basis in the Malta Convention of 1992. A profound change has occurred in the 24 years since the Convention, particularly in the past 8-10 years, which have witnessed a rapid change in the framework of reference from multiple points of view. The philosophical-political context has changed: with the beginning of the new millennium, the policy documents concerning cultural heritage, on both a European and international level, have made a radical shift away from the previous approach focused on objects, sites monuments towards a conception of heritage founded upon the demands, expectations, interests and needs of the populations. Almost simultaneously, a gradual, but extensive redefinition of the spaces of public intervention in all sectors has taken place throughout Europe. This has made it necessary to redesign the institutional framework of archaeological practices in many EU countries.

The situation in Italy is at the same time specific and exemplary: the grotesque delay in the ratification of the Malta Convention, which took place only recently - May 2015 - reflects how far behind legislation is in general when it comes to archaeology. There is no specific legislation and archaeological practices are governed by directives that are highly ambiguous, when not downright conspiratorial, archaic, manifestly insufficient and ridiculously and pointless 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.

Now of this of course relies on good scientific techniques, it is comparison archaeology and relies on experience and gained know how and personal interpretation. Modern archaeology has made great strides in adopting a more vigorous approach to the process of interpretation. Thus Specialists and technician capable of performing Geochemical, X-ray, Geological, Landscape and Environmental analysis are viewed with suspicion and are perceived as being expensive, confusing in the ambiguity, and perceived as costly and not commercially justifiable.

Commercial units want cheap labour, trained in a few cost effective techniques that lead to lower costs and higher profits based on archaeological methodology that would not have seemed out of place in the 1960's.

This paper aims with the aid of a few case studies to show that this perspective is incorrect and in fact good and thoughtful application of scientific archaeology can not only establish where and what archaeology is on the site with minimal intervention, but in combination with geophysical analysis can establish the best and most cost effective way to investigate and evaluate it. This is not to say the numerous 30m or 50m x 2 m trenches across a site on a consultant whim doesn’t work but I will argue that a targeted environmental and scientific preliminary investigation will lead to a more cost effective and beneficial method of examining our historic environment to the benefit of all.

TH2-19 Abstract 19
Preventive archaeology in Austria
Author - Mag. Dr. Krienn, Martin, Bundesdenkmalamt, Krems, Austria
Co-author(s) - Dr. Steigberger, Eva, Bundesdenkmalamt, Krems, Austria (Presenting author)
Presentation Preference - Oral
The present article deals with the structural changes that have taken place within Austria’s archaeological heritage management in the last few years. Issues such as the current state of human resources and general tasks of the Federal Monuments Office’s Archaeological Department are covered. Special emphasis is placed on the rise of commercial archaeology as well as on the “Guidelines for Archaeological Measures” introduced in 2010. The presented data clearly show that the restructuring of archaeological heritage management in Austria since 2010 has shown positive effects. The concentration on core competences, the abandonment of direct excavation activity and the assignment of archaeological personnel to each of the respective state departments has intensified the level of regional supervision and has lead to a considerable increase in archaeological measures taking place. Furthermore the quality of excavation documentation and their data integrity has improved through the introduction of the “Guidelines for Archaeological Measures”.

TH2-20 Abstract 01
Destination management of heritage sites and towns in Croatia
Author - IA Mihelic, Sanjin, Archaeological Museum in Zagreb, Zagreb, Croatia (Presenting author)
Co-author(s) - Komlo, 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 archeological 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 at the Archaeological park Emona (Ljubljana, Slovenia)
Author - Zupanek, Bernardo, Museum and Galleries of Ljubljana, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Bregar, Tamara, Museum and Galleries of Ljubljana, Ljubljana, Slovenia
Co-author(s) - Komšo, Darko, Archaeological Museum of Istria, Pula, Croatia
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

TH2-20 Abstract 03
I SEE SOMETHING THAT YOU CAN’T SEE. MULTIDISCIPLINARY APPROACHES IN ARCHAEOLOGICAL TOURISM
Thursday, 1 September 2016, 09:00-13:00
Faculty of Philosophy, Room 107
Author - Williams, Annemarie, Bern, Switzerland (Presenting author)
Co-author(s) - Jisk, Sonja, Institute for History, Vienna University, Vienna, Austria
Co-author(s) - Dunning Thierstein, Cynthia, ArchaeoConcept, Biel, Switzerland
Keywords: management, multidisciplinary, tourism
Presentation Preference - Regular session
During last year’s EA conference the Working Party (WP) Integrating the Management of Archaeological Heritage and Tourism was founded. The outcome of this Working Party would be creating European guidelines for archaeological tourism for Europe and beyond, maintaining and sustaining an information platform and professional network. Like the WP this session is aimed at creating a multidisciplinary dialogue and raise awareness of the benefits and possible conflicts of archaeologists and professionals from other relevant disciplines working together in archaeological tourism projects turning them into a meaningful experience for the general public. We welcome participation and input from all stakeholders, including archaeologists, tourism specialists, local communities and other civic partners to discuss issues on the management of these projects and to present good practice examples of such multidisciplinary projects.

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the heritage of Emona into the life of modern Ljubljana, and to enable this, the renovation of infrastructure in the park was carried out, together with interpretative aids and public programmes.

As tourists were one of the weakest groups of our visitors, we designed a marketing plan with them in mind, and started to collaborate with the local tourist board, Tourism Ljubljana, and designed a tourist programme together. We also included local entrepreneurs and artists in some other programmes and workshops. Owing to these changes and endeavours, we had a 25% growth in foreign visitors to the Park. However, we did experience tensions and misunderstanding due to differences in understanding of the 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 Emōna and similar enterprises in the future.

TH2-20 Abstract 03
Looking for archaeology in an official tourism sustainable method.
Examples from two Spanish villages

Author - Castilfó, Alicia, Complutense University of Madrid, Madrid, Spain (Presenting author)
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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 across the whole of 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 have tested this methodology in two villages with a rich cultural heritage: Cazorla (Andalusia) and Sigüenza (Castilla La Mancha). As a 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.

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 Archeologie, 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 Ipsé de Bruggen, an institute for people with multiple disabilities. Due to new medical insights and growing individualism, ideas have now changed regarding the relationship between clients and the rest of society. Cuts in health care also influence local changes and the treatments available. This and other developments made Ipsé de Bruggen decide to realise more interaction between clients and visitors on the Hooge Burch.

The ambitions of both the limes network and Ipsé de Bruggen resulted in a joint venture on the Hooge Burch, with the objective of establishing a first-class visitors’ center combining an exhibition with a Roman trail on the Roman part of the estate.

After forty years, the discovery of the Roman barges has led to the realisation of a first-class limes visitor centre, partly run by people with mental and physical disabilities. Limes Visitor’s Centre NIGRVM PVLLVM opened its doors at April 15th 2016.
TH2-20 Abstract 07
A journey through time: sensory tourism in the context of archaeological museums in Poland

Author - Dr. Paweła, Michał, Adam Mickiewicz University, Poznań, Poland (Presenting author)
Keywords - archaeological museums, Poland, sensor tourism
Presentation Preference - Oral

Whereas previous studies in tourism promoted vision, current research claims a holistic approach to sight, hearing, smell, taste and touch in order to develop effective communication with visitors and create conditions to enhance tourist experiences. Consequently, sensory aspects of tourism have recently been in focus as an important dimension in the process of facilitating positive tourist experiences. Among others, also the archaeological museums embrace resources rich in multi-sensory stimuli that are more often utilized in the planning and marketing of appealing tourist experiences.

This paper aims to present the “sensory site” of archaeological museums in Poland. The key axis of considerations is choosing to which degree they respond to the sensory tourism tendencies.

The trends discussed are illustrated by selected examples. I am referring here to the long-established archaeological museums in Poland as well as newly-opened exhibitions as “Following the traces of the European Identity of Oracov”, as well as innovative trends such as those realised in the “World of the Slavs and Vikings” or “The Slav Myth.” It is not a systematic analysis, but shows certain noticeable trends in archaeology museums: in the presentation of the artefacts, in educational projects, including the introduction of reconstructions, reconnaissances, museum lessons, etc. It also addresses the issue of a modern technology offering a visitor a different perspective on the confrontation with archaeology and monuments.

It also rises some crucial questions, for example, how contemporary archaeological museums support the multisensory nature of tourist experiences? If the measures undertaken are to make the exhibited artefacts more attractive, or whether they are competing with it? And the new ways of displaying and presenting knowledge about the past drawing society closer, encouraging aesthetic experiences with relics of the past, the discovery of ancestors and increasing scientific knowledge? Or do they turn attention away from the items on display? Finally, what is the real purpose of the “sensory” development of contemporary museums?

TH2-20 Abstract 08
Museums in Central Asia: The Role of Cultural Institutions in disseminating Information

Author - Dr. Jarosz, Katarzyna, University of Logistics, Wrocław, Poland (Presenting author)
Keywords - digital divide, museum, tourism
Presentation Preference - Oral

The countries of Central Asia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, or Uzbekistan have great tourist potential both for foreign visitors and companies who might be interested in investing in tourism. A key factor making the place so attractive for tourists is its history, starting with the Silk Road, which dates back to Roman times (Buyers, 2003), continuing with renowned scientists and scholars of the Medieval world, through the dominance of the nomads, the Russian empire, the Soviet era. If we add the beauty of nature, landscapes, cultural, archaeological and heritage unique attractions, hospitality of people, arts and crafts of the region, it is easy to understand why this region can be considered as a unique and very attractive tourist destination. However, one common denominator in all the studies is that all these countries, to a different degree, lack proper infrastructure and have not developed proper mechanisms to attract more potential visitors and tourists.

One of the most often quoted sentences in the literature on the tourism industry is that Information is the lifeblood of tourism. It has been clearly demonstrated in numerous 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 museums in the region in question are situated in its capital.

The object of the present analysis are historical and archaeological museums in five countries: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. For each country two museums were chosen for the analysis. The criteria of the choice were as follows:

- State museums
- Possessing archaeological, ethnographic or historical collections
- At least one of the museums in every of the country in question is situated in its capital.

TH2-20 Abstract 09
One’s destination is never a place, but a new way of seeing things: Touring a Heritage Trail

Author - Leonor, Perez Ruiz, University of Valladolid, Valladolid, Spain (Presenting author)
Co-author(s) - Soto de Prado Otero, Catalina, University of Valladolid, Valladolid, Spain
Co-author(s) - Ruiz del Artedo Moro, Maria, CISC, Madrid, Spain
Co-author(s) - Borregoquiro Betrag, 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 Bloem 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 Cantón, Pisuerga, Duero and Tormes rivers were blown. Through “the worst scare I was ever in”, as Wellington put it, the allied army gained a moral dominance over the French not renouncing to it ever again.

We identify, categorize and analyze the route and its highlights in order to create materials which may serve as a means to gain a deeper sense of the Spanish culture and heritage. These materials will be used to foster this touristic route which may be useful to students interested in learning Spanish L2 while experiencing the country’s historical heritage.

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 Touring the Battlefield, the Peninsular War in Castilla y Leon, our didactic proposal covers language use, cultural knowledge and intercultural competence, while contributing to the valorization and management of our region cultural landscapes.

TH2-20 Abstract 10
Exploring the touristic image on World Heritage Archaeological Sites of Europe through the Web

Author - Babii, Bogdan, Móstoles, Spain (Presenting author)
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Co-author(s) - Alvarez López, Mael, Complutense University of Madrid, Madrid, Spain
Keywords - Perception and Interpretation, Tourism, World Heritage Site
Presentation Preference - Poster

Within the context of collaboration of the cultural heritage management research group of the Complutense University of Madrid and according to the interest awoken by the Archaeology and Tourism Working Party, we present this poster with the intention of making a first approach of how the touristic agencies operating on the Web treat the archaeological visit. Following the UNESCO criteria regarding the world’s regional division and the reasons for declaration, we selected the settlements recognized for their archaeological dimensions as World Heritage Sites in the European context and which are accessible to visit. Through a series of charts and quantitative analysis we are going to present which ones are the main references for the touristic industry when encouraging the visit and how much of that quantity is similar to the discourse transmitted by those who work in the research of these archaeological sites. The poster aims to show the differences or the confluences between the scientific discourses and those generated by the touristic 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.
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- Livaja, 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 Sv. Trojica hill fort, the Museum succeeded in its intention to raise awareness of the local population and the governing bodies about the rich natural and cultural heritage of the area, and to actively include the community into the forming of its presentation through education activities. In the long run, the Museum wishes to include all potential stakeholders - cultural and natural heritage-related institutions (Palenica Nature Park, Velo Bit 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 of, or for any reason, able to communicate their needs, the Museum constantly strives to offer a broad frame of possibilities, ideas and cooperation models in which such needs of local community and local stakeholders are detected, recognized and outspoken and, after all, always treated with special attention and respect, and, whenever possible, fulfilled in a whole for the benefit of all included participants.

This synergistic, general-heritage and interinstitutional approach includes all three functions of heritage-related institutions (research, preservation and communication) for the overall benefit of the local community and society as a whole.

TH2-21 Abstract 01
Sustainable Heritage and archaeology: a blessing or a curse?

Author - Dr. Andersson, Anna-Carin, University of Gothenburg, Gothenburg, Sweden (Presenting author)

Keywords: Archaeology, Heritage, sustainability

Presentation Preference - Oral

This aim of this short and reflective presentation is to encourage to even more reflexivity. The paper has been encouraged after a vivid and constructive debate on the academy.edu site initiated by the session organiser. Many people within archaeology and heritage management have commented and given their experiential point of views on the matter of Sustainability. What is "Sustainable Archaeology"? Or even a Sustainable Heritage? Is it really a matter of Heritage? Who’s Heritage? Or is it a matter of how we can protect and ensure the survival of the discipline of archaeology for future generations?

In various societal circumstances it is possible to come across the concept of Sustainability: "sustainable education", "sustainable child-care", "sustainable society", "sustainable development", etc. Who are the stakeholders that have initiated the hankering or demands of Sustainable archaeology in the first place? What is the origin of this concept? In this paper it is argued that it is an awkward "phrase" which occupies valuable time, blurs, which prevents the heritage management sector from more important societal issues to discuss. For instance, how do we make Heritage and Archaeology a more interesting concern for people in contemporary societies?
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 main types of 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 grassroots level of the activists 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 telling (I) 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 become or soon will become the subjects of the archaeological studies. They are the creations of both the righteous (fair, legitimate etc.) and filthy (vile, gory etc.) events. In general, the first category can be seen as recognised and widely described historically, while the second is still shrouded in undertakings and nesciences. It also induces growing public interest and can be described metaphorically as the 'black stains'. That which is unknown and / or unclear as often intentionally hidden can be described as the 'white stains'. That which is shrouded in understatements and uncertainties can also be described metaphorically as the 'black stains'. That which is associated with the painful can be described as the ‘black stains’.

In my presentation I will expose that dimension of the concept of sustainability of archeology, on which as the crucial can be seen the potential of archeology in exploring those ‘stains’ - within the recent past history. In other words I will try to present the merits - of archaeologists’ ability to deal reflectively and responsibly with the material dimensions of ‘stains’ as with the worth attention phenomena of the ‘enduring materiality’ and - of the growing readiness of archaeologists to be socially useful when dealing with the ‘traces of the discarded’ or unspeakable. To do so, I will refer to the specific cases of archaeological inquiry from Poland. To exemplify some of the nuanced arguments, the outcomes of the ongoing project titled "Archaeological revival 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 Rawa and Bzura rivers” will be presented. That transdisciplinary project deals with the unique assemblages simultaneously neglected and marked by wars/sensitive.

Additionally, in relations to the current calls in the human sciences for a "return to things", "evidential turn", "forensic turn", "scarcity" turn", seen equally important as the still growing public needs for "a visible, visible, tangible, touchable past", I will elaborate the reasons for which the Galadrian question on the ways in which knowledge and its effects are affiliated remains current. 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 hardy for the heritage from or acquaintance with the enduring ‘stains’.

TH2-21 Abstract 04

Contemporary archeology - a response to the crisis and social approach towards heritage

Author - PhO Kadja, Kornelia, Universtetv t m. 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 Archaeology clearly describes the expandability and transformation of what archeology is thought to be today. It is no longer a just discipline which deals with 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, archaeologists 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 asks (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 Correction of archaeological impact served to absorb the skilled labor force formed by the new generations of archaeologists from the universities. The economic crisis of 2008 had dire consequences for the Spanish Archaeology. The State paralyzed research, universities were left without resources, scientists emigrated abroad and the archaeological market virtually disappeared by paralyzing the construction boom. Although this fact has hurt the archaeological profession, in these seven years have also emerged processes that allowed for a sustainable Archaeology. Thus, the economic crisis led to a political crisis that has led to social movements claiming an active role as a tool for sustainable development. Politicians, residents, associations and patrons need archaeologists to start projects enhancement of Heritage.

To analyze this phenomenon in our communication we show how it is developing this renewed Community Archaeology in two similar contexts, yet very different. The Basque Country and Galicia are two historic nationalities that make up the Spanish State, two small Atlantic countries do not reach 3 million people, with a culture that differentiates them from the rest of Spain. At both sites the Archaeological Heritage has played a key role as a marker of identity and tourist resource. Galicia is 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 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 new market for archaeologists of Galicia and the Basque Country, who lived since the Industrial Revolution in the last nineteenth century, is the richest region of Spain. The political weight of Basque nationalism has resulted in the strengthening of public policies that encourage the development of local production. Basque politics supports research to enhance and internationalize its economy. Such as livestock, wine production, fishing and tourism, Cultural Heritage is a strategic sector. In turn, today, the development of public policy for reports on the political violence of the twentieth century has opened up a whole field of work for the Archaeology of Contemporary Past becomes a tool for sustainable development (and peace).

TH2-21 Abstract 06

Knowing and understanding the public: a step before planning sustainable heritage managements

Author - Ayan, Ruiz, Barcelona, Spain (Presenting author)

Co-author(s) - Pastor, Ana, Universitat de Barcelona, Barcelona, Spain

Keywords: heritage, methodology, public

Presentation Preference - Oral

In this presentation we discuss some methodological experiences carried out in Barcelona with the intention to study and better understand the interactions between archaeology, heritage and its public with the intention to provide a space of reflection about participatory research in the field of heritage and archaeology. Our main objective is to analyse and explore different methodologies that can allow us to draw up new participative and sustainable strategies for heritage management. Systematic
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)

Presentation Preference - Oral

The exploration of local perceptions of the past by means of a programme of archaeological (visual) ethnography. Special attention is given to educational programmes for school children presented in the local museums and archaeological sites, as these have the potential of local perceptions of archaeology and archaeologists.

A discussion of the main problems faced by the local communities, the endemic causes of exclusion and underdevelopment as well as the further deterioration during the current financial and political crisis.

The formulation of a vision for sustainable growth and for alternative forms of tourism (e.g. agrotourism, ecotourism/cultural tourism), 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.

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.

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Conclusion: We demonstrate that the role of archaeology in the sustainable development of Laconia is critical and essential to the local communities and the future of the region.

Presentation Preference - Oral

TH2-21 Abstract 08
Here I live - interpretations of the past present and future

Author - PhD Synnesvedt, Anita, University of Gothenburg, Gothenburg, Sweden (Presenting author)

Keywords: heritage, interpretation, public archaeology, migration, sustainability

Presentation Preference - Oral

In the suburban area Bergsjön in Gothenburg you will find an ancient remain – a stone Age chamber grave from about 1800 B.C. This sub巴士 is considered one of the most troublesome within the city of Gothenburg. It is dominated by different groups 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.

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Keywords: vocational and educational training, archaeology, nature domains, heritage

Presentation Preference - Oral

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 exploration of local perceptions of the past by means of a programme of archaeological (visual) ethnography. Special attention is given to educational programmes for school children presented in the local museums and archaeological sites, as these have the potential of local perceptions of archaeology and archaeologists.

A discussion of the main problems faced by the local communities, the endemic causes of exclusion and underdevelopment as well as the further deterioration during the current financial and political crisis.

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Conclusion: We demonstrate that the role of archaeology in the sustainable development of Laconia is critical and essential to the local communities and the future of the region.

Presentation Preference - Oral

TH2-21 Abstract 09
Integration of cultural and natural heritage management, developing content for blended learning

Author - MA Travaglia, Andrea, University of Amsterdam, Amsterdam, Netherlands (Presenting author)

Keywords: integrates archaeological and natural heritage management, developing content for blended learning

Presentation Preference - Oral

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Conclusion: We demonstrate that the role of archaeology in the sustainable development of Laconia is critical and essential to the local communities and the future of the region.

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 - Essos, Mikael, Societé de Ciencias Avanzadas, Donostia-San Sebastian, Spain

Keywords: Archaeology, heritage, vocational and educational training, Natural heritage

Presentation Preference - Poster

Contemporary thinking about heritage incorporates a wide range of realities with important economic consequences and which create new socio-economic relationships. Frequently, heritage management professionals are not familiar with the topics that are not directly related to their professional domains. In this context, the development of the project Innovative format of education and training of the integrated archaeological and natural heritage (Anher) funded by the European Commission (Erasmus + 2014-1/PL-KA202-003585) aims to improve skills relating to this wide vision of heritage for practitioners working in both the archaeological and natural heritage sectors. This objective means that the project aims to fill a gap not covered by traditional training systems.

The project is producing a range of innovative didactic materials which bring together an integrated vision of heritage. The binary separation of “natural” and “cultural” landscape results in problematic regional, national and international legal and administrative frameworks and complicates the practice of planning and development.

The project will explicitly address challenges and needs of a vocational education and training (VET) using different methods of distance learning. The didactic content is being produced by applying innovative practices in education and training and providing the opportunity for personalised learning approaches and collaborative online modules. 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 engagement.

The training materials aim to cover the needs of rapidly changing practices in the protection and management of archaeological and natural heritage, as well as recognising the significance of integrated heritage in spatial planning and regional development policies. These materials have been produced following the detailed analysis of the state-of-the-art of training in both heritage fields and the analysis of existing training courses. These analyses made it possible to define the didactical needs of these groups and to apply this in terms of the design of new training contents and methods. The didactic materials cover the most appealing issues of an integrated approach to conservation and management of archaeological and natural heritage and its impact upon planning policies and development. The e-learning modules will aim to improve the competence of professionals employed in both heritage sectors and in local administrations, who may or may not have been previously trained in the area that they have to make important decisions about.
Practical skills training in European Archaeology: survey results

Author: Karl Raimund, Prifysgol Bangor University, Bangor, United Kingdom (Presenting author)
Keywords: practical skills training, results, survey
Presentation Preference: Oral

In preparation for the CTTA round table on practical skills training in European archaeology, a survey was conducted to examine practices in different European countries. The survey had been advertised in TEA and was also distributed by other means. In this paper, the results of this survey will be presented and analysed.

Practical Skills Training in Archaeology - Options for the Future?

Author: Prof. Dr. Lodewijckx, Marc, Leuven University, Leuven, Belgium (Presenting author)
Keywords: fieldschool, 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 methodological, practical knowledge and fieldwork. All universities with an education leading to the degrees of bachelor or master in Archaeology now organize specific practical skills training as a part of the formal educational program. The extend and quality of these activities largely depend on the capacities and commitment of the staff members and on the adequate financial and logistic assets available. Due to many restrictions and different circumstances practical skills education still varies largely from one university to another.

As a result of the continuing financial cutbacks in education and in scientific research, universities often have insufficient resources to organize these activities in a sustainable way. Partnerships with archaeological companies have become a necessity to offer sufficient opportunities for students to learn a numerous technical, practical and administrative skills they need to operate in a highly professional environment. If this is the case, the university staff often has too little control over the quality of the work of both the student and the local supervisor. The good news is that the student can often choose a specific traineeship from a wide range of opportunities, both domestically and abroad. That way, on the long run, the student is much better integrated in the professional world and already able to establish a network for his later employment.
Theoretical and methodological perspectives in archaeology

FROM THE COLOSSEUM TO PALMYRA. APPROPRIATION AND OWNERSHIP OF ARCHAEOLOGICAL HERITAGE IN A GLOBAL WORLD

Saturday, 3 September 2016, 09:00-13:00
Faculty of Philosophy, Room 209
Author - Goli, Maj, University of Heidelberg, Heidelberg, Germany (Presenting author)
Co-author(s) - Ravello Lami, 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) - Pitrucci, Alessandro, University of Rome La Sapienza, Rome, Italy
Co-author(s) - Pacci, 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 society to use archaeological material as resource for understanding the cultural past in pursuit of the “truth”. The vision of the past emerging from analyzing the dynamic nature of appropriation of the past as an intentional process - whose mechanism affects social change - is that uses of the past have to be considered as pointers to competing visions of the future at both individual and group levels. Scientific archaeology also adopts such a vision. The debate on the notion of appropriation and ownership, the role of the historical perspective the correct approach to such eventualities is neither indignation nor the search for consolation. He invited historians and political scientists to reflect through the lens of historical comparison: nowadays, as also historian G. Bowersock noted, religion is such a political landscape- a landscape in which the relevance of the past is fundamental. The theory of differential inclusion argues that as migrants cross the borders into Europe, they will experience a setting which is open to some but closed to others (Richardson 2013). Archaeology is complicit in the creation of this setting, and archaeology as a discipline needs to address border studies-some have already begun to draw comparisons between modern borders and the frontiers of the Roman Empire (see e.g. Lafrenz- Samuels 2008; Hingley 2015). There must be a multi-disciplinary attempt to access and understand all the cultural and ideological barriers resulting in differential inclusion, particularly that occurring in the areas of Europe which still hold something of a liminal identity. Romania is one such place, which although the nation has yet to draw the same numbers of migrants as Hungary or Bulgaria, is a space uniquely set up for such an attempt. This paper will analyze the ideological foundations of Romanies as a European nation, the impact of the Roman Frontier on the lower Danube as a modern border, and start to provide a general methodology for archaeological border studies.


Developing Politics and Attitudes towards Cultural Heritage in Turkey

Author - Dr. Danel, ELF, American Research Institute in Turkey, Ankara, Turkey (Presenting author)
Keywords: Cultural heritage, Turkey
Presentation Preference - Oral

The efforts of protection, preservation and conservation cultural heritage in Turkey are largely dictated by The Ministry of Culture and Tourism. Growing economic investment on the construction of new public museums emphasizes the importance placed on the preservation and the display of the nation’s historical and cultural wealth. These pristine contexts, however, stand in juxtaposition to the hostile landscape—a landscape in which the relevance of the past is fundamental. The theory of differential inclusion argues that as migrants cross the borders into Europe, they will experience a setting which is open to some but closed to others (Richardson 2013). Archaeology is complicit in the creation of this setting, and archaeology as a discipline needs to address border studies—some have already begun to draw comparisons between modern borders and the frontiers of the Roman Empire (see e.g. Lafrenz- Samuels 2008; Hingley 2015). There must be a multi-disciplinary attempt to access and understand all the cultural and ideological barriers resulting in differential inclusion, particularly that occurring in the areas of Europe which still hold something of a liminal identity. Romania is one such place, which although the nation has yet to draw the same numbers of migrants as Hungary or Bulgaria, is a space uniquely set up for such an attempt. This paper will analyze the ideological foundations of Romanies as a European nation, the impact of the Roman Frontier on the lower Danube as a modern border, and start to provide a general methodology for archaeological border studies.


Archaeological border studies: the impact of the Roman Frontier on the present immigration crisis

Author - Hanscam, Emily, Durham University, Durham, United Kingdom (Presenting author)
Keywords: Border studies, Immigration, Romania
Presentation Preference - Oral

The immigration crisis is one of the greatest modern day conflicts currently affecting Europe. In 2015, 1,294,000 migrants and refugees crossed into the EU and claimed asylum. Identity politics significantly impacted their reception, resulting in an often hostile landscape- a landscape in which the relevance of the past is fundamental. The theory of differential inclusion argues that as migrants cross the borders into Europe, they will experience a setting which is open to some but closed to others (Richardson 2013). Archaeology is complicit in the creation of this setting, and archaeology as a discipline needs to address border studies—some have already begun to draw comparisons between modern borders and the frontiers of the Roman Empire (see e.g. Lafrenz- Samuels 2008; Hingley 2015). There must be a multi-disciplinary attempt to access and understand all the cultural and ideological barriers resulting in differential inclusion, particularly that occurring in the areas of Europe which still hold something of a liminal identity. Romania is one such place, which although the nation has yet to draw the same numbers of migrants as Hungary or Bulgaria, is a space uniquely set up for such an attempt. This paper will analyze the ideological foundations of Romanies as a European nation, the impact of the Roman Frontier on the lower Danube as a modern border, and start to provide a general methodology for archaeological border studies.


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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 recognizing 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 archeologists may and should play in these various regards will be drawn, under the peculiar perspective of the authors who experience archeology both in an academic and scientific way, and working as official tourist guides of Rome.

TH3-02 Abstract 05
Interpretative appropriation as religious utopia: Illyrian mythology after communism

Author - Bekteshi, Arba, University of Tirana, Faculty of History and Philology, Tirana, Albania (Presenting author)

Keywords: Illyrian mythology, interpretative appropriation, material encounters

Presentation Preference - Oral

In trying to shift the discourse of Albanian spiritual identity away from a democratic revival of main religious traditions and possible political institutionalizations of culture, a fragment of the academic world hypothesizes for historical spiritual independence. “It is not personal, that which is interior or immaterial: that which is one’s experienced relationship with the sacred; and that wisdom or knowledge which derives from such experiences (Heelas, 2001).”

In this paper I maintain that Albanian analysts are fashioning a post-communist academic discourse in favor of the construction of a unique vernacular transcendental tradition. To highlight the above mentioned casuistry, I reconsider the present day focus on Illyrian mythologicalism 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 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 practices 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 “apostatic respiritualization (Haynes, 2011).”

TH3-02 Abstract 06
Alatri in the Sky with Diamonds

Author - Pintucci, Alessandro, University of Rome “La Sapienza”, Rome, Italy (Presenting author)

Co-author(s) - Gori, Maja, University of Heidelberg, Heidelberg, Germany

Keywords: Alatri, polygonal walls, pseudoarchaeology

Presentation Preference - Oral

In the last decades, thanks to stratigraphic excavations and associated pottery analysis, many Italian opus poligonale monuments have been correctly dated to the Republican Era, deconstructing thus the idea of their belonging to the Archaic period or even earlier. Alatri, a well-known archaeological site close to Rome, is a paradigmatic example of new scientific methods proving wrong old chronologies and theories. The polygonal walls of the city and its acropolis, indeed, date to the 3rd century BC proving wrong the traditional Archaic or even Pelasgic chronology. This new chronological and cultural framework for the old city sparked a passionate debate amongst local historians, who believe that the construction of the Alatri complex pre-dates the Roman arrival in the region. Local archaeology amateurs, 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 parenthesis of the walls to ancient Middle East civilizations, like the Hittites, authoritative and mysterious enough to replace the hated Roman invaders and enough far away not to be perceived as invaders themselves. This paper will focus on Alatri and will address cultural, social, and psychological aspects connected to the denial of the Roman paternity of Alatri monuments. Why the inhabitants of a city of Latium Velus need to seek different and older origins for their city from the ones provided by official archeology? We will also try to explain why – in addition to communicate the scientific results to the society at large – it is important for mainstream archeology to engage with non-professionals amateurs even if the debate occurs in the archaeofantasy arena.
OPEN ACCESS AND OPEN DATA IN ARCHAEOLOGY: FOLLOWING THE ARIADNE THREAD

TH3-03

Thursday, 1 September 2016, 09:00-13:00
Faculty of History, Room 218

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’Brien-Martin, Erin, Society of Antiquaries of Scotland, Edinburgh, United Kingdom (Presenting author)

Keywords: open access, publishing, research

Presentation Preference - Oral

The Society of Antiquaries of Scotland has been an active publisher of Scotland’s history and archaeology since 1792; the Proceedings of the Society of Antiquaries of Scotland (PSAS), has been the primary journal dealing with Scotland’s past in its British and European context since 1851. Publication in PSAS has often been seen by many archaeologists as the ‘end’ of the research cycle: excavation is followed by publication, and the process is complete. However, there is increasing awareness that the final report alone does not tell the whole story, and many readers would also like to examine raw data. In 2001, the Society created a new, fully peer reviewed, freely available online journal, Scottish Archaeological Internet Reports (SAIR), so was an early adopter of Open Access in an archaeological context. SAIR was intended to provide a new, lower-cost publication outlet for detailed archaeological reports; over the last fifteen years it has evolved to include the publication of many different types of projects – including large-scale surveys, gazetteers and conference proceedings – which would not be possible or desirable to publish in print for various reasons.

The Society also runs the Scottish Archaeological Research Framework (ScARF). Launched in 2012, this collaborative project brought together experts from a range of disciplines to compile a peer-reviewed summary of our archaeological knowledge up to that point and agree where future research should be directed. The entirety of Scottish archaeology was split into nine panel reports, all of which are available for free download from the project website or can be viewed on the wiki-style website itself. As such, it is the first framework of its kind in archaeology. The Society is contemplating how best to take PSAS, SAIR and ScARF forward in an Open Access world. Our audiences are increasing, both in number and in variety. There have been over 400,000 downloads from Society’s publications archived 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.

Archaeologists recognise the potential impact that the sharing and re-use of data can bring: the benefits of accessibility, both as open access and open data, are evident for archaeology, given the primary and unrepeatable status of most data sets. Nonetheless, archaeologists have sometimes been reluctant to share their primary research data. An explanation for this could be a research system, both academic and professional, driven by individual reputation expressed in ranked publications. This system could be labelled as a reputation economy. In a reputation economy, it is necessary both to provide adequate formal recognition and to foster network-based interaction.

The recognition for making data available to other researchers means to provide data citations, so on January 2015, the MAPPA Lab of the University of Pisa promoted the first peer review Data Book dedicated to Italian archaeology. The idea was based on the assumption that data need to be treated as a relevant part of the archaeological work, both on the community and individual levels – is crucial for pushing forward the open data agenda.

The paper will give an overview of the current landscape of e-infrastructures and open access resources for archaeological and other cultural heritage research, and highlight institutional and other requirements for further progress and innovation through open data over the next 5 to 10 years.

TH3-03 Abstract 03

Author - Dr. Gattiglia, Gabriele, University of Pisa, Viareggio, Italy (Presenting author)
Co-author(s) - Ancierchi, Francesca, University of Pisa, Viareggio, Italy

Keywords: open access, open data, Reputation

Presentation Preference - Oral

The Reputation effect

The paper will give an overview of the current landscape of e-infrastructures and open access resources for archaeological and other cultural heritage research, and highlight institutional and other requirements for further progress and innovation through open data over the next 5 to 10 years.

TH3-03 Abstract 02

Author - Dr. Gattiglia, Gabriele, University of Pisa, Viareggio, Italy (Presenting author)
Co-author(s) - Ancierchi, Francesca, University of Pisa, Viareggio, Italy

Keywords: open access, open data, Reputation

Presentation Preference - Oral

Requirements for open sharing of archaeological research data

Author - Dr. Geser, Guentram, Salzburg Research, Salzburg, Austria (Presenting author)

Keywords: e-infrastructures, open data, repositories

Presentation Preference - Oral

There are several good arguments for open research data and over the last few years expectations of open sharing of publicly funded data have increased. For example, re-use of data in further research (e.g. based on combined data) is expected to provide much return on investment.

Considerable progress has been achieved with regard to e-infrastructures and services for data sharing, access and (re-) use, but the institutional requirements are lagging somewhat behind. Such requirements include the extension of open access mandates from papers to research data, available repositories adequate for research data, and making sure that data sharers receive the credit they deserve.

Researchers still perceive more obstacles than incentives for opening up their data, including additional effort, lack of academic reward, concerns that data might be misused, and more. Indeed, clear evidence of benefits of data publication, re-use and citation – both on the community and individual levels – is crucial for putting forward the open data agenda.

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 01

OPEN ACCESS AND OPEN DATA IN ARCHAEOLOGY: FOLLOWING THE ARIADNE Thread

Author(s) - Richards, Julian, University of York, York, United Kingdom (Presenting author)
Co-author(s) - Siegmund, Frank, Universität Düsseldorf, Düsseldorf, Germany

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 restructurings 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, still find this 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 Infrastructure 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 is 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 barriers and opportunities: Open Access and Open Data in Archaeology at EAA 2015, and will provide further updates and overviews relating to open access and open data.

TH3-03

Theoretical and methodological perspectives in archaeology

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TH3-03 Abstract 04
Beyond the Pale: grey literature as a method of publication

Author: Dr. Evans, Tim, Archaeology Data Service, York, United Kingdom (Presenting author)
Keywords: grey literature, open access, publication
Presentation Preference: Oral

This paper presents the findings of recent research on the nature of publication and archive in England, based on regional case studies. It presents evidence for the nature of the divide between published and non-published interventions. In many cases, either by accident or design, so-called grey literature is the only written output produced by excavation, including nationally or regionally significant finds. Furthermore, the amount of grey literature often matches or surpasses what may be considered the traditional published record.

Although recent projects have done much to highlight the potential of this corpus, and initiatives such as OSAS and the ADS' Library of Unpublished Fieldwork Reports have made significant strides in publishing fieldwork reports online, the extent of the significance of our grey literature may still be understated. Although the lack of traditional publication may be deemed by some, in contrast to pay-on-access journals and monographs it represents an online and free corpus of information to fieldworkers, researchers and the wider community. It is argued that grey literature is not simply a failure, or a cause for concern, but an opportunity to reverse the traditional crises in publication and to use online systems as part of an evolution in publication strategies of archaeological projects.

TH3-03 Abstract 05
Legacy data and archaeological archives in Europe and North Africa

Author: Dr. Fentress, Elizabeth, Rome, Italy (Presenting author)
Keywords: Archives, Legacy Data, North Africa
Presentation Preference: Oral

Perhaps the hardest data to render open access is that of the archaeological archive, even when, as is not necessarily the case, it is lodged in an institution. A survey of practices for the archiving of excavation data in a number of European countries has revealed that centralized archiving is vanishingly rare, while even university archives of excavation data are hardly easy to access. A particular example of legacy data is offered in this paper, the case of the archives of 150 years of excavations in North Africa. Carried out initially by colonial regimes, many of the archives of these excavations were returned to Europe, where they remain in large part inaccessible to the countries where they were created. No functioning archives were left in their wake, so data collected since then has rarely been properly organized. Many of these archives are in the hands of the descendants of the original excavators, some of whom have sold them, while others have simply left them in the attic. A new project, the North African Heritage Archive Network (NAHAN), is attempting to assemble on one platform the catalogues of as many as possible of these archives, which are found in four North African countries, seven European countries and the US. Under the aegis of ICCROM, the project will build on the ARIADNE infrastructure model to provide information about these resources, in the hope of generating new scholarship on this massive collection of data, and of rendering this information available to the archaeological services of the countries where it was created.

TH3-03 Abstract 06
Digitizing Early Farming Cultures: integrating resources from Neolithic Greece and Anatolia

Author: Dr. Aspilluck, Edeltraud, ÖAW, Vienna, Austria (Presenting author)
Keywords: Neolithic sites and finds, open data
Presentation Preference: Oral

The aims of the project ‘Digitizing Early Farming Cultures’ are to create standardized and integrated research data of Neolithic and Chalcolithic sites and finds of Greece and Anatolia (c. 7000–3000 BC according to Greek terminology), two neighboring and archaeologically closely related regions usually studied in isolation of each other. The data will be made available online ensuring compliance to standards in data production for data sharing (metadata and mapping) and interoperability with related initiatives.

The resources that form the basis for the new dataset include digital resources (site- and pottery- and bibliographic- databases in different formats) and also analogue resources such as unpublished manuscripts, site gazetteers and a pottery collection. The resources result from different projects that span over the last four decades and where different terminologies, typologies and chronologies have been used. In the project we use various methods to integrate the data: creation of a new site database, mappings to CIDOC CRM and digitizing of finds (3D pottery models) and attribution with relevant metadata.

Data is currently published online for 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 users 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, collections, 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 each 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, to make such 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.

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.

TH3-04 Abstract 01

Medieval archaeology in Europe. Chronologies, topics, perspectives

Author - Citter, Carlo, University of Siena, Siena, Italy (Presenting author)

Keywords: Europe, medieval archaeology, Mediterranean

Presentation Preference: Oral

Europe is a small peninsula at the western corner of Eurasia. However, its history is fragmented. There is a general agreement to consider middle ages the period between AD 500-1550, though this is only an agreement among scholars. Terms like late antiquity is meaningful in northern regions, while late Iron age is out of the time span for the Mediterranean. Coherent chronologies have been adopted in each region, but it is not easy to relate all of them one another. Topics are very different too. Christian organisation of towns and countryside is a key issue for the Mediterranean since the 4th c., while in Scandinavia or the Slavic territories it occurs much later. The making of the medieval town has to relate with the Roman past within the borders of the former empire, while it has different roots outside it. Material culture is different too. The impact of stone architecture is different both territories it occurs much later. The making of the medieval town has to relate with the Roman past within the borders of the former empire, while it has different roots outside it. Material culture is different too. The impact of stone architecture is different both territories it occurs much later. The making of the medieval town has to relate with the Roman past within the borders of the former empire, while it has different roots outside it. Material culture is different too. The impact of stone architecture is different both territories it occurs much later. The making of the medieval town has to relate with the Roman past within the borders of the former empire, while it has different roots outside it. Material culture is different too. The impact of stone architecture is different both

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) - Walshe, 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.

TH3-03 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 practice initiatives like PeriodO. As ARIADNE is in its final year, conclusions can begin to be drawn about the challenges faced along the way, and possible directions for the future.

TH3-04 abstract 04

THEORETICAL FRAMEWORKS, METHODS, AND SOURCES TO STUDY THE DEVELOPMENT OF MEDIEVAL SOCIETIES IN EUROPE AND THE MEDITERRANEAN WORLD

Thursday, 1 September 2016, 9:00-13:00

Faculty of Philosophy, Room 209

Author - Citter, Carlo, University of Siena, Siena, Italy (Presenting author)

Co-author(s) - Tavernari, Crocia, Atiliano Gull University, Kayseri, Turkey

Keywords: Europe, Mediterranean, medieval archaeology, theoretical framework, methods, sources

Presentation Preference: Regular session

Studies on medieval archaeology in the Mediterranean regions must relate to chronologies, sources, and material culture which are completely different from those used for Scandinavia, for instance. Northern European regions, in fact, have a close link with the Iron Age, while Late Antiquity is crucial for a comprehensive study of the medieval Mediterranean.

As much as Late Antiquity is strictly connected to the development of Medieval Europe, so are the Byzantine and Islamic worlds. Late Antiquity, Christian, Byzantine and most of Islamic archaeology are thus part of worlds marked by indiscutable and essential connections, albeit researchers often still work within their disciplinary clusters.

This session wants to invite scholars to move past their disciplinary clusters and contribute to a significant development of a shared knowledge among the archaeologists who focus their efforts to study the archaeology of Europe and the Mediterranean regions AD 400 to 1550. The existence of several different chronological fronts for archaeologies, whose purpose is to produce knowledge on the same period, for example, tend to encourage the making of clusters. Researchers would surely benefit from a broader contextualization of the information related to a same period.

The very same date of the end of the Middle Ages is debatable when coming to consider medieval archaeology in connection with the Byzantine and the Islamic worlds.

Thus, the session wishes to open a thoroughly debate on the chronologies, the historical questions, the methods, and the fields of sources archaeologists use in their daily work over a period of 1000 years in Europe and the Mediterranean. In particular, the session will focus on the theoretical framework of each approach, the tools and sources, rather than single case studies, unless they are the bases of a historical model.
TH3-04 Abstract 02
Islamic archaeology: theoretical and methodological issues

Author: Asst. prof. Taşvar, Cinzia, Abdulhamit Gül University, Kayseri, Turkey (Presenting author)

Keywords: Islamic archaeology, theory, methods

Presentation Preference - Oral

This contribution wishes to present an appraisal of the discipline of Islamic archaeology and to analyse and discuss its development and the current trends in the discipline. The origins of Islamic archaeology span a little more than a century and its strong initial relationship with the history of art and monumental architecture shaped its early development; only in the 1980s Islamic archaeology could gain its independence from these fields of study and start facing new challenges such as carving its place within the field of Islamic studies and looking for common approaches with other fields of archaeology. In the last thirty years Islamic archaeology has thus witnessed a great development both in discoveries and interpretation, where it came to apply a long overdue approach to the study of the material culture and the methods of monastic archaeology to the castles of the Middle East. Like other historical archaeologies, Islamic archaeology has often suffered from a sense of inferiority to the written records and has only recently begun to overcome it. One of the first and foremost articles dealing with the theoretical issues of the discipline was published at the end of the 1980s (Ingrao, 1999) and since that moment publications taking a stake of the discipline and its theoretical frameworks have grown (see for example Walmysley, 2004 and 2013; Milwright, 2010; Tonghini 2014).

The presentations aims at identifying the influences different branches of archaeology had on Islamic archaeology and at comparing the research approach of Islamic archaeology with archaeologies from other regions and periods. One of the objectives of the contribution is also to discuss the contemporary and urgent challenges of the discipline. In fact, I believe that Islamic archaeology is essential to help build dialogues between Italian and other countries, particularly Europe, and needs to be recognized as a fundamental element to achieve a comprehensive knowledge of the development of the Mediterranean zone. Finally, present weaknesses of the discipline and future directions will also be debated; particularly, will examine the role of digital technologies in the field of Islamic archaeology.

TH3-04 Abstract 03
Ottoman Mediterranean and its archaeology between two worlds

Author: Dr. Dikkaia, Fahri, TED University, Ankara, Turkey (Presenting author)

Keywords: Ottoman Archaeology, Symbiosis, the Mediterranean

Presentation Preference - Oral

The Ottoman legacy has left a significant imprint on the social and cultural relations in the Mediterranean. The chronological frontiers of Ottoman legacy show a shared knowledge in the Levant, especially in the Levant. But, this legacy and its chronological contexts protect a local and differentiated knowledge, also. Ottoman symbiosis and cohabitation created a symbiosis between its central and peripheral clusters. The archaeological data and its distribution in the Ottoman Mediterranean indicate Ottoman policy and its colonization effects on the social and economic structures. This paper aims to discuss Ottoman knowledge and its archaeological clusters to identify Ottoman Mediterranean and its some problematic and debatable validity in the current modern and nationalist archaeologies.

TH3-04 Abstract 04
Reconciling Islamic, Byzantine & Medieval Lives through Lefebvrean Spaces at Darband

Author: Dr. Shingina, Iryna, University of Oxford, Oxford, United Kingdom (Presenting author)

Keywords: Byzantine and Islamic archaeologies, Medieval Europe, Theoretical Framework

Presentation Preference - Oral

This paper seeks to contribute to the debates regarding chronological and spatial incongruities which exist between the realms of the Islamic, Byzantine, and Medieval archaeologies, and will propose a theoretical framework which helps to reconcile and integrate those fields through archaeological common ground. The basis for this archaeological model is the site of Darband in the Eastern Caucasus – the fortress that marked the frontier between the world of the Christian culture of the Late Antiquity/Byzantine Empire, the Islamic Caliphate, and Medieval North represented by the indigenous people of the Caucasus and the Steppe Nomads. Besides being a fortress and the wall built to separate the above-mentioned worlds for 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 Lefebvrean Spaces, namely at the multiple spaces of representation extant at the times of Darband. “The Production of Space” by Henry Lefebvre (1991) outlines three main categories of space: perceived (physical) space, conceived (mythical, conceptualized, 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 toponography based on the integration of different written records, cartography, iconology compared with the archaeological data giving as result 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 Tajarizo, Carlos, Olipeza, Vitória-Gastiez, Spain (Presenting author)

Keywords: Archaeological theory, Post-imperial period, Social conflict

Presentation Preference - Oral

In the last two decades the debates over Early Middle Ages in Western Europe have been revitalized due to two interrelated processes. On the one hand, the incorporation to the scientific research of a huge amount of new data coming from Commercial Archaeology and the resulting damage to heritage within a capitalist management in pre-crisis times. On the other hand, it has been revitalized because of the introduction of concepts such as “identity”, “religious community” or “ethnicity” within archaeological and historical interpretation of the period. The renewal of identity and ethnic interpretations, almost lost after World War II, have introduced new important and interesting debates, but also recovered others, even though the discipline, in general terms, is still dominated by a kind of naïve empiricism which pays little attention to the social and political implications of the archaeological data. However, as philosophers like Slavoj Žižek 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 reconstruction of some current discussions over Early Middle Ages and, in the second place, to make a social and anthropological interpretation of Early Middle Ages in terms of social conflict and of economic and symbolic adaptation of local communities, overall peasant societies, to the failure of a Roman project of World-Empire. For that purpose, some concepts from Marxist and Critical Historical Archaeology (F. Insoll, 1999) will be used to interpret some key elements of post-imperial archaeology, using the central part of the Iberian Peninsula as a case study within the Mediterranean context. This territory has been recently analysed in a PhD research and is inserted in a Research Project on social inequalities in Early Middle Ages. Thus, domestic architecture, settlement patterns or funerary remains will be analysed within this theoretical frame, trying to contextualise but also to extrapolate conclusions and ideas for other case studies.

TH3-04 Abstract 07
Beyond hierarchy: Common property rights & migration as a factor in rapid change in material culture

Author: Professor Oosthuizen, Susan, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: common property rights, governance, migration

Presentation Preference - Oral

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Sudden and almost complete changes in material cultural are, in archaeological contexts, frequently ascribed to migration. An insular example is the almost complete replacement of Romano-British artifacts by those from north-west Europe in many parts of England in the first few decades of the early fifth century AD.

The paper begins by offering a brief critique of current models for explaining such rapid change in which migration is given a leading role: military cohesion among migrant groups; their apparent resistance to assimilation; replacement of existing leaders by high status immigrants; and ethnogenesis, the deliberate framing of political ideologies aimed at rationalizing territorial control. It notes that all elements of such models take a ‘top down’ view, in which access to power is predicated on status and wealth within hierarchical political structures, and where cultural change is explained in terms of leadership by an elite.

The paper moves to an alternative, experimental, ‘bottom up’ approach to investigating rapid changes in material culture. It begins with the premise that all aspects of a stable, sustainable, agricultural economy depend on property rights over land. Access to and exercise of property rights enable an individual to make a living, offer the opportunity to generate a surplus or acquire goods, and create opportunities for personal interaction with elites through tribute, gift-giving or taxation. An analysis focused on the practical management of agricultural property rights offers the possibility of a ‘bottom up’ perspective on cultural change that anchors abstractions about social relations into the everyday realities of making a living.

The paper then explores the impact of migration on the daily lives of peasant cultivators through their common property rights in agricultural resources. It notes the structural link between property rights and governance, the role of the latter in the regulation, maintenance, protection and enforcement of property rights, and the generalized predictability of frameworks for governing shared resources - in particular their characterization as ‘horizontal’, predicated on equity among all right-holders and exemplified through normative expectations of participation and consensus. It goes on to examine Ravenstein’s (1885) classic conclusions about migrants and the migration process through the lens of common property rights and their characteristic governance structures. It concludes that, however great sudden changes in material culture might be, if there is archaeological evidence for the contemporary continued exploitation of collective resources then it is highly likely that immigrants and their descendants were assimilated into receiving communities and that they were unlikely to have been a driving force in that cultural change.

The argument does not discount the possibility of cultural change as a result of variations in access to resources, wealth and status whether or not as a result of migration. Nor does it challenge the existence of political and social hierarchies. It argues, instead, that the complementary contribution of collective traditions should not be neglected in explaining transformative cultural change. The paper concludes by suggesting the need for more complex, more dynamic, perhaps even epidemiological, models to explain change in the human past.

TH3-05 Abstract 01
Nature: Cultures Heritage, sustainability and feminist posthumanism
Author - Associate Prof. Christina, Fredengren, Stockholm, Sweden (Presenting author)
Keywords: Environmental Humanities, Heritage, Posthumanism
Presentation Preference - Oral
This paper makes use of feminist posthumanism to outline how a range of heritage policies, practices and strategies, partly through their base in social constructivism have a clear anthropocentric focus. Not only do they risk downplaying materiality, but also a number of human and non-human others, driving a wedge between nature and culture. This may in turn be an obstacle for the use of heritage in sustainable development as it deals with range of naturalized others as if they have no agency and leaves the stage open for appropriation and exploitation. This paper probes into what heritage could be in the wake of current climate and environmental challenges if it approached differently. It explores how a selection of feminist posthumanisms challenge the distinction between nature/culture in a way that could shift the approach to sustainability in heritage making from a negative to an affirmative framing.

TH3-05 Abstract 02
Time, Colonialism and the Intricacy of Relational Practice
Author - Professor Corneli, Per, University of Gothenburg, Västra Frölunda, Sweden (Presenting author)
Keywords: Americas, Colonialism, Relationalism
Presentation Preference - Oral
In the context of destructive and fierce colonialism, questions of interaction and relationalism are crucial but also intricate and require subtle means of analysis. In the advent of European Colonialism in the Americas, the encounter is largely one of human exploitive and conflictual interaction, but also a question of humans encountering, relating to new bacteria, new animals, new vegetation. Opening for a fresh approach to these questions require a set of theoretical and methodological tools, which includes thoughts from feminist writers like Brått. But there is also a need to critically examine certain aspects of relationalist approaches, like those developed by Haraway or Barad. The general frame must allow for an intricacy of time, for varied times and processual developments operating in different fields and in different spheres. Resisting certain ideas from Marx, perhaps partly surprising, can prove productive and stimulate new approaches to questions of historical process, class and exploitation.
Where is the Feminism in Archaeology?

Author: Tonge, Joanna, University of Southampton, Poole, United Kingdom (Presenting author)

Keywords: Feminism, Gender, Survey

Abstract:

This poster examines the extent to which feminist theory has been integrated into research and teaching within archaeology. Based on a study of publications and the modules taught by archaeologists who have previously published on gender and feminism in archaeology, the state of the discipline in relation to feminist theory and the complexity and problematic features of the integration of feminism into mainstream archaeology are revealed. The results show that publications which are of interest to feminist scholars are found in many academic journals, yet a notable lack of archaeological publications explicitly assert a feminist perspective. Most publications have a tendency to take either a more neutral approach found in ‘apolitical’ gender archaeology or a post-processual interest in experience, embodiment and phenomenology. Can we then assume that feminist archaeology has successfully managed to integrate into mainstream archaeological thought? Results of a survey of the profession, in particular of academics with teaching posts indicate that archaeological modules which focus on feminism in both undergraduate and postgraduate settings have new fallen by the wayside. By investigating publications of a specifically feminist or gender archaeology together with modules taught at universities across the Western academic archaeology tradition, the results of this research illuminate a post-modern trend to scrap categories and accordingly the marginalisation of those subjects which require categorisation for acknowledgement.

Politics and archaeology in an unecling universe, or feminism without historical binaries

Author: Professor Robb, John, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: evolution, gender, politics

Abstract:

This paper pursues the paradoxes which result from the collision of three facts: (a) Archaeological and historical accounts of the past are often taken as foundational narratives and laden with political meaning, following on from this, archaeologists have a responsibility to make sure that our work is used in productive rather than destructive political ways. (b) We also have a responsibility to say true things about the past. (c) People in the past were often deeply “political incorrect”, with attitudes and practices different from today’s and sometimes no doubt entirely appalling by modern standards. The prehistory of gender relations and the representation of gender in representation. For 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 unchanging, 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: Doctor Martins, Ana Cristina, Faculdade de Ciências Sociais e Humanas da Universidade NOVA de Lisboa, Lisboa, Portugal (Presenting author)

Keywords: Portugal, Theory, Women

Abstract:

In 1958, Lisbon hosted the first National Archaeological Congress. Being itself a novelty in the Portuguese archaeological panorama, this Congress has integrated other innovations, likewise a growing number of women in archaeology. Situation confirmed in the following decade, when the number of women dedicated to archaeology has been more evident. Toward that several political factors that characterized the important ‘60s, influenced largely by changes observed in culture and cross-border mentality, as witnessed young graduates Portuguese archaeologists academically in other European countries.

Bones, Stones, and Names - determining and naming prehistoric men and women

Author: Dr. Fries, Jana Esther, Lower Saxony State Service for Cultural Heritage, Oldenburg, Germany (Presenting author)

Keywords: Binary Perception, Physical Anthropology, Venus

Abstract:

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. These attributions have an immediate effect on the further description and interpretation of the archaeological record.

I will discuss how and why archaeologists (among others) tend to see a (biological) man or a woman in every representation of a human being and even in their physical remains. Besides that the paper examines the long history of naming 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.

The end of archaeology as we know it

Author: Dr. Vogel, Helga, Free University Berlin, Berlin, Germany (Presenting author)

Keywords: Ancient Near Eastern Studies, Archaeology of the gap, Function of theory

Abstract:

One of my favourite thinking-things are the findings unearthed by Leonard and Kathleen Woolley and their workmen in the Royal Cemetery at Ur in what is today South Iraq. The archaeological record of the cemetery (around 2500 BC) is well known beyond the narrow limits of ancient Near Eastern studies part because of the exceptional grave goods, which still provide one important fundament of our knowledge of ‘Sumerian culture’, partly because of the mass burials the excavators came across in some special graves. To my knowledge there is probably no theoretical approach, popular in archaeology the last 20 years or so, that was not used to explain ‘these mass burials, often hardly noticing the actual archaeological record. Now, my approach to make some sense of the findings of the Royal Cemetery was always very material based taking into account not only the ‘special graves’ but the whole Early Dynastic cemetery (roughly 6600 graves). The result is this: scarcely anything fits together and everything seems contradictory. The situation may be summed up in one statement (actually a Detroit based music collective’s motto): UR, this is Underground Resistance, unexplainable. What is the function of theory in such a situation? More than gloss over lack of knowledge? Does it make any sense, for example, to interpret the positions of dead bodies in a 4500 year old ancient grave with Foucault’s concept of ‘docile bodies’? Is it really satisfying to reduce human behaviour to performances of power/ submission? If we want an archaeology that actually respect ancient people, their lives and attitudes, should we not accept the resistance of the dead of Ur against our access/ exploitation? Whom do we serve by producing fantastic ancient worlds (supported by sophisticated postmodernist frameworks) standing on test of clay (literally in the case of ancient Near eastern studies)? I strongly advocate decentralizing perspectives in archaeology. This is an ‘archaeology of the gap’ of blank spaces’ occupied by women and all other ‘subgroups’ usually not represented in the records of ancient Near Eastern archaeology (at least this is the usual attitude that one might also question). But how to theorize the proposed approach and who will fund archaeological projects that only produce open ends and tons of questions?

Helga Vogel, Free University Berlin Email: vogelha@zedat.fu-berlin.de.
Theoretical and methodological perspectives in archaeology

TH3-05 Abstract 08 Contributions of social anthropology to the knowledge of the status of adorned bodies in archaeology

Author: Dr. Belard, Celine, University of Southampton, La Roche sur Yon, France (Presenting author)

Keywords: adorned body, gender archaeology, social anthropology

Presentation Preference: Oral

This paper proposes to present the first elements of a research project taking an interest in the visual effect of adornments, the social status of the body and gender ideology. The main issue is to determine to what extent the social and symbolic status of the body can be understood in death archaeology by means of ethnographic record. Firstly, through different ethnographic data, it is possible to observe how adornments are used to emphasise the different parts of the body according to their aptitudes and their symbolic meanings.

Secondly, the social categorisation and gender ideology related to adornments can be specified in view of social anthropology and in taking into account the notion of intersubjectivity. 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 bodily and symbolic use of buried adornments.

TH3-05 Abstract 09 Was there always a man and a woman?

On flexibility of sexuality in historical Islamic Iran

Author: Prof. Papiol Yazdi, Leila, Neyabod, Iran (Presenting author)

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 violent dominant men. The ones who cry more than speak, feel more than deduct and are always fighting to be controlled by a patriarchal society. Such an image has been seriously produced based on a very recent dichotomy between genders, men and women. Violent dominant men/dominated women.

How much these images can be generalized to the past? During the last decade, the propagated image of Islamic sexuality has been very much challenged by historians. Referring the miniatures, sculptures and wall paintings, the performativity of gender during medieval ages can be very differently described from the recent propagated one.

Chronologically, by the entrance of Islam to historical Iran the change of the solid Zoroastrian dichotomic concept of men/women begun while afterwards the invasion of this region by central Asian Turks made bisexuality normative. Very famous pieces of literature such as Ghaboosnameh [from 10-17 centuries A.D. introduce the only real love, the love between two men or two women. 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 revive the pre-Islamic value. Analyzing pre-modern Islamic Shia’s, it is obviously detectable that there were always ways to put these vast ranges of sexual activities out of punishment frameworks. Archaeologically speaking, such a distinctive gender performativity has been materialized in the remained material culture related to the body such as wall paintings, pottery motifs and miniatures. In the first glance, the flexibility of sexuality would be observed within the manner applying by the painters who have visualized the bodies, there are very few distinctions between the bodies of men and women freely acting, practicing sex and everyday life while the other aspects 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 travel produces difference - telling Nuu-chah-nulth whalebone clubs

Author: Dr. Marshall, Yvonne, University of Southampton, Southampton, United Kingdom (Presenting author)

Keywords: becoming, difference, moral geography

Presentation Preference: Oral

Wilson Duff (1975: 12) opens his book images stone b.c.: “Images seem to speak to the eye, but they are really addressed to the mind. They are ways of thinking, in the guise of ways of seeing.” Duff went on to suggest that the choice of stone as a medium for seeing-thinking was a move designed to place thinking outside of time - and thereby into a world of being (cf Marshall 2000 World Archaeology). In a recent article in the Canadian Journal of Archaeology (2019), Natasha Lyons and I argued in a similar vein for an understanding of objects as spatial ‘telling’ materialised in non-linear, non-narrative and therefore a-temporal forms. Our common ground with Duff is that objects/images are arguments concerning possibilities for being and becoming, not representations of beings.

Using whalebone clubs as my forum, I show in this paper how the Nuu-chah-nulth people of Vancouver Island, British Columbia, create object ‘telling’ (ways of thinking) which set out a moral or ontological geography. Moral travel through this geography constitutes a process of becoming which produces difference (cf Marshall 2012 Feminist Theory). Simple moral travel produces everyday growth and change. But when more fundamental transformation is sought, through engagement with great power or wealth, moral travel is demanding and dangerous. The transformative possibilities of moral travel are calibrated in effort and risk.

TH3-05 Abstract 11 Material feminisms and the question of anthropomorphism in northwest Argentina

Author: Alberto, Benjamin, Framingham, United States of America (Presenting author)

Keywords: Anthropomorphism, Feminism, Materiality

Presentation Preference: Oral

Elizabeth Grosz has argued that new ontologies are essential for new grounds of feminist politics. Anthropomorphism in ceramic forms, often encountered in archaeology, always risks reduction to only a metaphorical expression in which the substance of the thing - its materiality, its ground - is left unquestioned. An absolute divide between fleshly body and ceramic body underlies and results from such reductionism. Addressing the ontological status of sex, gender, and the materiality of bodies, as Grosz has for many years, provides new ways to conceive of different bodies and their relationships.

I bring into focus the potential for new ontologies of bodies informed by feminist and queer approaches to materiality through a study of a collection of anthropo- and zoomorphic ceramics from first millennium AD northwest Argentina. As Grosz suggests, difference is enacted equally through or across ‘natural’ and ‘cultural’ processes, the ceramics can be understood as materialities/bodies that share processes in common with other bodies (flesh, stone, etc.) regardless of the stuff out of which they are made. Anthropomorphism then becomes less a question of resemblance and more one of marking and enacting difference.

TH3-05 Abstract 12 Foreign women – from merchandise to merchant. The change in interpretations

Author: Dr. Koch, Julia Katharina, Lektorat für Archäologie, Preetz, Germany (Presenting author)

Keywords: gender archaeology, mobility, social construction

Presentation Preference: Oral

Grave inventories which deviate from the norm of particular cemeteries are very popular in interpretations about prehistoric social structures. Special cases are people buried with imported grave goods and therefore discussed as indicators for different types of cultural contact and transfer. The focus of the paper is on the change in interpretations of female burials with foreign artefacts in Central European Bronze and Iron Age. In the 1960s the first perceptions of such prehistoric women in the “Hügelgräber”-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 of 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.
Theoretical and methodological perspectives in archaeology

Implementing Intersectionality: Diversity of Viking-Age Shields

Author: PhD student O. Näversköld, Kerstin, Stockholm University, Sundbyberg, Sweden (Presenting author)

Keywords: Identity, Intersectionality, Viking Age

Presentation Preference: Oral

This paper presents parts of my current research, in which I study Viking-age shields using intersectionality as an analytical tool. All though discussed for years, intersectionality as an archaeological analytical method is still relatively unexplored. Hence I will outline some possible methodological implementations of intersectionality with regards to a specific research material, using shields and representations of shields as an example. I will also present some of the identity categories that are visible in the material and how they possibly intersect.

My research explores shields in archaeological contexts along with two- or three-dimensional depictions of shields, how shields are described and in what contexts they occur in the Old Norse literature. By identifying four 'shield categories' I explore how different shields related to identity and social roles as well as practices during the Viking Age.

When analysing the shields with regards to identity and objects as identity markers, I aim to understand how the different shields reflect identities and practices that intersect. Using intersectionality as a multi-dimensional analytical tool for studying power and social hierarchy, by pinpointing different aspects of identity (such as gender, religion, class, etc.) I propose it is possible to identify features that overlap the material/non-material shields. Taking intersectionality as a starting point creates the potential to highlight the seemingly diverse and complex aspects of shields in the Viking Age that previously have been overlooked.

Body, scale and affectivity – reflections based on Viking Age imagery

Author: Prof. Arwill-Nordbladh, Elisabeth, Dept. of Historical Studies, Gothenburg, Sweden (Presenting author)

Keywords: Affectivity, Body, Viking Age

Presentation Preference: Oral

In feminist research, the body is often highlighted as a central node, from which various relational perspectives are organized. In this paper, the question is raised on how the situated body relates to the affective affordances of the small and the larger than life object. Based on a case study of Scandinavian Viking Age miniature objects and rune stone imagery, the situated sensing and experiencing body will be discussed from a perspective of intersecting affective communities.

Interpreting the late Iron Age record in Gaul

Author: FK Lévy, Bérarce, 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 periods of unrest and culture change, as well as the trend towards the interpretation of records through male directives of research strategies, mostly lead to geopolitical and economical models of culture change, and by a self-feeding process, overlook the clues enabling archaeologists to identify in the records, and therefore in future record, the missing links leading to alternative interpretations.

Indicative are the titles of the majority of classical archaeological monographs, "Le pas des legions", "Roman frontiers" (or non-defined genders given the neutrality of linguistic terms “ the god of the Celts”, “Les Celtes”, “Celtic art”.

One could argue that in the process of 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.

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 UK 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 leads to conclude that lack of evidence is proof of absence, however this is no proof of non-existence, and criteria could be inferred from wider context in order to find missing links in further research.

For the purpose of sociological interpretation, 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 Boulicca and her daughters, their subsequent destiny (and maintenance in the status of the dominated).

I wish to underline here that I am not writing in the perspective of “feminist archaeology”, but of the overall stream of French new archaeology.

Newer archaeological discoveries of MLT AND LLT in Gaul may enable us to build up means of identifying clues to define missing links so as to rediscover sociological context and interpret the body of record in periods of acute cultural changes in a different light.

In this paper, some new archaeological data from Gaul enable the distinction of criteria to re-examine older records, and develop by way of contextual, spatial, functional, stylistic, regional and chronological comparison, as I have already devised in previous work, approaches or indices to identify the presence/absence of women in the body of records.

Tied to a wider historical framework, and related to other links, this could allow further interpretative writing on causes for culture change, but separated from pure data analysis. Copyright 14 February 2018

Th3-05 Abstract 13
Implementing Intersectionality: Diversity of Viking-Age Shields
The making and breaking of community on Crete has been considered within the framework of the search for the emergence of a state understood generally in political and economic terms. Thus the refined luxury of Late Bronze Age Cretan palatial culture (1625–1500 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 Chaplin (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 baetyls, and similar features point in this direction. This paper argues that these salients 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 read most broadly, and that parallel to the shifting economic and political structures seemingly centered on significant architecture there was a broader community woven into the environment. Thus when communities dispersed at the end of the Neolithic around 3100 BCE many populations effectively took with them the caves they had occupied and used for burial relocating these as built circular stone tombs or tholoi and eventually erect as house tombs providing the new center for social interaction. Animal vases in the tombs further attests to this lifehistory with nature. The gradual accretion of villas and towns in the territory around the tombs yielded at the transition into the Middle Bronze Age ca. 1550 BCE to a reconfiguration of populations around central court complexes accompanied by the re-assertion of the centrality of the natural world in the peak sanctuaries which arguably served as the center of a larger community that paralleled those admitted to the first so-called palaces, and associated with the increasingly urbanized tombs. Rather than fixed at particular sites community on Bronze Age Crete was fluid and defined by the presence of natural features - by vistas, rocks and caves - as visible as well in the penetration of animals and birds and plants in all media. Three case studies will consider this alternative to looking at the making and breaking of community.

Keywords: community, Crete, landscape
Entanglements of pottery acquisition strategies in the Mycenaean palace at Pylos

Author: Zeman, Piotr, Adam Mickiewicz University in Poznan; Institute of Prehistory, Poznan, Poland (Presenting author)
Co-author(s): - Oral

Keywords: Entanglements, Mycenaean culture, Pylos, Pottery production, pottery acquisition

Presentation Preference: Oral

Theoretical and methodological perspectives in archaeology

TH3-06 Abstract 05

Entanglements of pottery acquisition strategies in the Mycenaean palace at Pylos

Author: Zeman, Piotr, Adam Mickiewicz University in Poznan; Institute of Prehistory, Poznan, Poland (Presenting author)

Keywords: Entanglements, Mycenaean culture, Pylos, Pottery production, pottery acquisition

Presentation Preference: Oral

Theoretical and methodological perspectives in archaeology

TH3-07 Abstract 01

The Place and Importance of the Working Parties & Committees in the EAA

Author: PhD Yalman, Eminie Nurcan, Cultural Awareness Foundation Istanbul CICE-Center for International Heritage Ag, Istanbul, Turkey (Presenting author)

Co-author(s): - Oral

Keywords: EAA, Strategies, Working Groups

Presentation Preference: Oral

Theoretical and methodological perspectives in archaeology

TH3-05 Abstract 05

Entanglements of pottery acquisition strategies in the Mycenaean palace at Pylos

Author: Zeman, Piotr, Adam Mickiewicz University in Poznan; Institute of Prehistory, Poznan, Poland (Presenting author)

Keywords: Entanglements, Mycenaean culture, Pylos, Pottery production, pottery acquisition

Presentation Preference: Oral

Theoretical and methodological perspectives in archaeology

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

Theoretical and methodological perspectives in archaeology

TH3-07 Abstract 02

Experiences from the Farming, Forestry and Rural Land Management Working Group

Author: Dr. Holsby, Vincent, Historic England, London, United Kingdom (Presenting author)

Keywords: Commercial agricultural policy, European Commission, rural

Presentation Preference: Oral

The theoretical and methodological perspectives in archaeology

TH3-05 Abstract 04

El Segredos do Porto: Complementary and alternative archaeology in the Galician coastal landscape

Author: Cunha, Carla, University of Vigo, Vigo, Spain (Presenting author)
Co-author(s): - Oral

Keywords: Complementary and alternative archaeology, Galician coastal landscape

Presentation Preference: Oral
TH3-07 Abstract 03
The working group „Archaeology and Gender in Europe (AGE)“: views on the past and to the future
Author - Dr. Gutsmiedl-Schümann, Doris, Freie Universität Berlin, Hamburg, Germany (Presenting author)
Presentation Preference - Oral
In 2009, the working group “Archaeology and Gender in Europe (AGE)” was started. It has as its area of concern the discussion of Gender issues in European archaeology, where gender is considered both as a structural element to be studied in the past and as influencing research in the present. It addresses the study and the understanding of gender arrangements in the past and the study and understanding of how current gender systems affect archaeology as an academic and professional practice.

Today AGE is a very active working group with 58 members from Europe and beyond (U.S., Japan), which is organizing sessions to gender-related topics at the Annual Meetings of the EAA. To make this sessions more sustainable, they should also be published.

With this paper, I would like to give a short overview over the actions of AGE in its first 7 years. As mentioned in the round table abstract, at the Annual Meetings of the EAA is much room for the presentation and discussion of research, but mainly in an individual perspective. Working groups can organize session within their topics, but besides that there is not much room for them to present their work and communicate what they have done in the year between two conferences: The small report working groups are asked to give at the Annual Business Meeting are mostly either cancelled or shortened.

Therefore, I would also like to present and discuss some ideas how the working groups can be made more visible within the EAA, which could bring them on the one hand more active members, on the other hand can promote the collaboration between the different working groups.

TH3-07 Abstract 04
From Incident to Structure. Possibilities for a network of professional Associations within EAA
Author - MA MSC Mark, Spanjer, SAXION, Amsterdam, Netherlands (Presenting author)
Keywords: Advocacy, Political Strategy, professional archaeological associations
Presentation Preference - Oral
Archaeologists have power, real power. The power to inspire; the power to bind people; the power to influence; the power to address and make change. We are perceived as interesting. We, ourselves and our work have a pull on the general audience and fellow human beings. Our potential “selling power” makes the average politician and activist drool. In the past 50 years we have incidentally used our influence to protect Cultural Heritage to great effect. EAA can look back on a series of successes where it was able to effect developments to protect Archaeology in Europe. But even with this in mind, generally speaking we as individuals we can achieve great results in influencing politics and decisions.

But the general consensus over the years within CPAA is that we need a constant and structural stream of actions to influence decision makers. Yes, as individuals we can achieve great results in influencing politics and decisions. But the general consensus over the years within CPAA is that we need a constant and structural stream of actions to influence decision makers. As long as the CPAA exists the committee has discussed, in and outside our annual meetings at the EAA conference, the need to become more political active and more organized. Yes, as individuals we can achieve great results in influencing politics and decisions. But the general consensus over the years within CPAA is that we need a constant and structural stream of actions to influence decision makers. As long as the CPAA exists the committee has discussed, in and outside our annual meetings at the EAA conference, the need to become more political active and more organized. As long as the CPAA exists the committee has discussed, in and outside our annual meetings at the EAA conference, the need to become more political active and more organized.

The aim of any WP should be to avoid overlap in sessions and create synergies between sessions with related topics; to put a certain topic the agenda of the EAA; create a dialogue amongst the EAA members and with representatives from other relevant disciplines outside the Association if we don’t want our comments to remain unheard 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 WPs could form two-way bridges where information on specific topics can be brought outside our EAA bubble, and other ideas and thoughts can also reach us, always with the archaeological interest at heart.

Our WP explicitly invites participation and input from all stakeholders that are involved in archaeological tourism and strongly supports a multi-disciplinary approach. In an ideal world the archaeologist plays a central when an archaeological site is developed for touristic activities. This is however not always the case and in order to achieve change we will invite other stakeholders that aren’t EAA members to join our WP and participate in our meetings and sessions and the EAA members of this WP will take part in other conferences and prominently become part of the decision making processes that concern archaeological tourism.

TH3-07 Abstract 05
Working Party (WP): Integrating the Management of Archaeological Heritage and Tourism
Author - Williams, Annemarie, Amsterdam, Netherlands (Presenting author)
Keywords: politics, policy, archaeology
Presentation Preference - Oral
The aim of any WP should be to avoid overlap in sessions and create synergies between sessions with related topics; to put a certain topic the agenda of the EAA; create a dialogue amongst the EAA members and with representatives from other relevant disciplines outside the Association if we don’t want our comments to remain unheard in an “archaeological vacuum.”

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TH3-07 Abstract 06
Public archaeology is a martial art
Author - Dr. Richardson, Lorna-Jane, University of Umeå, Umeå, Sweden (Presenting author)
Keywords: Public archaeology
Presentation Preference - Oral
Public archaeology in the UK deals with politics, power and inequalities, and aims to explore the impact of archaeology in present day social and political landscapes. Can this work in practice during a period of unprecedented cuts to government budgets covering heritage issues? This paper will explore if/how our work affects political decisions and whether archaeology be used as an instrument of policy and politics. Can political activism be part of our professional work, and is this ethical?

TH3-07 Abstract 07
EAA and Politics: role and potential of the non-permanent Working Parties and Committees
Author - Dr. Hueglin, Sophie, Newcastle University, Basel, Switzerland (Presenting author)
Keywords: Politics, Professionalisation, Working Groups
Presentation Preference - Oral
Apart from the scientific exchange EAA’s Annual Conference always has been also an important opportunity to discuss and engage in political topics. For groups who want to meet regularly and work on long term issues the EAA offers the possibility to form a Working Party or Committee. Currently the EAA has more than ten active Working Groups (http://www.eaa.org/working_groups.html), who meet in Round Tables during the Annual Meeting and give a short report on their activities at the Annual Member’s Business Meeting.

Working Groups are very different regarding their topics, but also in the way they work. With the EAA having increased considerably in members and becoming more professional the Working Groups should too. Here some of the most active members are to be found, but at the same time the potential of these unofficial bodies is far from fully exploited. We should discuss on very practical terms how Working Parties could contribute more to the expertise needed in the EAA Board and how they could meet effectively at the Annual Meeting, but moreover also work continuously during the rest of the year.
The material record naturally lends itself to long-term perspectives. In few areas is this as apparent as the study of technology, which has traditionally been closely intertwined with the disciplines of archaeology and anthropology. But has our focus on the long-term caused us to unwittingly shape a unilinear, technologically deterministic picture of the past? And is there something to be learnt from the parts of the story which have been pruned from this evolutionist model?

The paper will present the ongoing study of forming techniques on large samples of pottery from two early Neolithic sites in Western Macedonia, Greece, namely Varemenoi Goulwn and Roditis Paliambela, which are dated at 6430-5870 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 assemblages 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.

Without doing away with narrative approaches altogether, we can nonetheless benefit from a more complex and thorough 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 piracy technologies, despite their often global impact. Without doing away with narrative approaches altogether, we can nonetheless benefit from a more complex and thorough understanding 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.

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.
Untold Stories About Ancient Survey: Balbus and his “Expositio et Ratio Omnium Formarum”

Author: Mincintz, Alexandru, Institute of Archaeology, Bucharest, Romania (Presenting author)

Keywords: Balbus and Celsus, groma and dioptia, military survey applications

Presentation Preference: Oral

The paper starts from the premises that, most often, the ancient written sources were given less attention from the perspective of technical information they might provide. The details concerning the dating, geographic location and the correlation with already known historic events was considered essential and, unfortunately, most often insufficient. In addition, specialists capable to read in the original language the ancient sources might not have always been familiarized with the principles of ancient technology. Due to these causes, many of the stories concerning the beginnings of technology remained untold. We might have proof that a certain principle or method were applied, but we do not know HOW. Our presentation proposes a re-reading/re-analysis of the work Expositio et ratio omnium formarum, dating most probably from the first decade of the 2nd century AD, and preserved in fragmentary copies from the 6th and 9th centuries. Taking the shape of a letter written by a certain Balbus and addressed to a certain Celsus, the work contains numerous data of topographic nature, including the mentioning of certain military survey applications. These latter ones present a particular interest. For example, the determination of the widths of a river that had to be crossed or the height of a fortification that had to be conquered “without venturing within bowshot of the enemy” (M.J.T. Lewis) led to the development of ingenious methods. Although the volume is often cited, the accent on the politico-military conjecture prevailed, to the detriment of the technical information it provided, which was neglected. Our presentation will analyze exactly these neglected aspects. We will approach Balbus’ text at three interrelated levels. Firstly, we will try synthesis all the mathematical knowledge that Balbus possessed at the time. Then, stricty 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-Bucharest, Romania (Presenting author)

Keywords: geto-dacian coins, silver, tin

Presentation Preference: Oral

Geto-Dacian silver coinage - “Celtic” type starting with Philip II tetrachadrachs 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 bronze was 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 that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A similar situation is represented by the use of tin in the making of pewter. A current research is focused on the chemical evolution of the Geto-Dacian silver material, with the aim of a more precise quantification of the tin presence in Geto-Dacian silver coins. The results, obtained by XRF analysis, micro-PIXE and by photo-electric characterization, will be presented and discussed.

Animal husbandry as technology

Author: Dr. Fothergill, Tyr, University of Leicester, Leicester, United Kingdom (Presenting author)

Keywords: animal husbandry, Technology, Theory

Presentation Preference: Oral

Theoretical examinations of relationships between human and non-human animals in the past are few and far between. There is a clear scholarly focus on concepts such as ‘exploitation’ of species, ‘disposal’ of remains, and a generally unfixed approach to domestication. Past animal husbandry is broadly viewed as a component of agriculture, and conceptualized as temporally progressive, ever approaching an ideal economically-efficient means of production. When a trend in quantitative data fails to follow this model (as an example: a decrease in the size of cattle in Britain after the 5th century AD) it is relentlessly investigated and cultural factors may be implicated (e.g. Roman withdrawal from Britain). Whilst such factors may be partly responsible, only certain lines of archaeozoological evidence (sex ratios, mortality profiles, metrics) are employed to draw conclusions about activities and practices undertaken by a range of practitioners across a large and varied social landscape. Is it more likely that cattle became smaller after the Romans left Britain because the Britons lacked the knowledge and skills to husband them in the most productive way, or that indigenous cattle breeders simply lacked the resources and connections to a network which had been available to them during the Roman occupation? Could there be other factors at work? Such questions cannot be addressed in a comprehensive and nuanced manner by comparing a few strands of quantitative data, and a more flexible theoretical approach is warranted. Technology has been part of the toolkit of archaeological thought for centuries, and does not merely equate to tool use. Manufacturing practices which leave a clear archaeological signature are recognised as technologies. Animal husbandry is no different in that it is a continuous process, a work of creation and amendment over time, which is subject to alterations in knowledge, skills, and practice. Approaching the idea of animal husbandry as a technology would allow for: the incorporation of multiple strands of evidence at different scales; a recognition of an array of practitioners as part of practical processes; inclusion of social and cultural factors such as gender, status, and identity; animals to be considered as potentially agency- and the tantalising prospect of examining the dissemination of animal husbandry knowledge through systems of human networks.
Theoretical and methodological perspectives in archaeology

Archaeology has been used as part of the History about the national state. Still today this story is being retold, many times uncritically. At the same time we as archaeologist must admit that we also often retell the big linear story. A mound is given higher priority than smaller, more insignificant graves, a settlement area with longhouses more than a site with cooking pits but no postholes. By systematically choosing not to excavate peripheral sites, small sites, and temporarily used sites we create a history of central places and big men. This is an undemocratic way of conducting archaeology.

We propose a democratic archaeology, regarding methods, sites and people. In our scientific research programme we decided to focus on the archaeological sites so that they can be a part of our history. This includes, for example, carefully choosing the excavation methodology, and to supplement the collection of finds with scientific analysis in order to actively search for the stories of the people that didn’t have the power to erect stones or mounds.

Before the excavation of the site Tanum 1821 a strategy for sampling the site and structures, especially cooking pits, was formulated. A sampling of the surface was performed in relation to the structures. From excavated structures the section was sampled by a continuous grid and consisted of ten to twenty samples from each structure. These samples were used for geochemical analyses, mainly phosphate, magnetic susceptibility, loss of ignition and lipid acids. These samples were supplemented by samples for macrofossile and radicarbon dating. The ratio between large and small fire-cracked stones were calculated.

By combining these analytical methods we can conclude that cooking pits are complex structures. The cooking pits on the site could be subdivided into three categories, of which one were used for processing grain. By combining these results with a landscape analysis, including other settlement sites, place names and natural preconditions, we could interpretate the site as an activity area used for the processing of grain.

The site can be interpreted as a peripheral site (now and then) but important for the society. Peripheral sites are also sites beyond control. In such a place can, for example, subversive thoughts and discussions be performed. This is sites were monuments and mounds won’t be erected, but instead represents other parts of the society.

We want to tell other stories. To be able to do that we need to excavate more peripheral sites and use more diverse methods. More people of the past must be given a chance to be heard. Diversity and variety is an important part of a democratic archaeology. If all voices shall be heard we must also acknowledge them, in prehistory as well as today.

Technological variability of pottery in long-term perspective: a case of the Neolithic settlement

TH3-08 Abstract 10

Author - Kvetina, Petr, Institute of Archaeology CAS Prague, Prague, Czech Republic (Presenting author)
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Keywords: modal mineralogical analysis, Neolithic, pottery technology
Presentation Preference - Poster

This poster comprises results of a technological analysis of pottery from the large Neolithic settlement site in Bylany, located in the Kuhna Hora district in the Czech Republic. This project is based on a complex methodology with the aim of identifying the degree of variability of the technological chains and of interpreting the relationship between the technology and social environment of the settlement. The technological variability is being examined in relation to the chronological diversity and the spatial patterns of the site.

Macroscopic analysis establishes a grid of categories into which the observed phenomena are sorted. By using this approach there will always be some specific groups of pottery. In many cases, however, we do not know the real nature of these groups. Are there different groups of pottery that reflect the distinctive technological traditions of specific chronological phases or are there only continual variability together with one or two broad concepts regarding paste recipes? These are 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 question is, what are our possibilities in regard to mapping the technological variability on a quantitative basis. The human senses represent very powerful analysers and their “feelings” can capture complexly or subtly defined differences among the sensual qualities of observed objects. For validating these “feelings” we need accurate quantitative data. Standard thin-section petrography can only partially solve this problem. Sem-quantifications are either time-consuming or subjective - depending on the observer’s experience.

A possible solution to this problem lies in a new advance in scanning electron microscopy that enables automatic modal mineralogical analysis that constitutes an accurate estimation of the distribution and the volume percentage of a mineral within a thin section.
Late Neolithic settlement of Shur, 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 coexist with ‘special’ multiple-room buildings, singular grilling 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 grilling 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.

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TH3-09 Abstract 03

Review of social structure in the Late Neolithic through the ritual activities and related materials

Author: Dr. Erdem, Deniz, Middle East Technical University, Ankara, Turkey (Presenting author)

Keywords: Late Neolithic, Ritual, Social structure

Presentation Preference: Oral

The Late Neolithic Period is named as Haifa Period in Near Mesopotamia (6000-5200 BC) and it falls between the Neolithic Transition (c.10500-7000 BC), and the Urban Transition (c.4000-2500 BC). Therefore, the time period is traditionally perceived as an important stage in the evolution of central authority and ritual and economic centralization that was the hallmark of the first city-states. The architectural structure and regional settlement patterns usually indicate a non-hierarchical organization that appears to be centered upon extended-households related through kin relations. Yet, it has been difficult to understand how these extended-household groups regulated their social relationships with other groups.

Within an alternative theoretical approach, this study reviews the space-object-person relations of the time period through analysis of the material culture, related ritual activity and settlement patterns in an attempt to draw a picture of social trends during that period. Following this, the significance of ritual activity is evaluated in context of these trends to understand the patterns of social change. At the same time, ritualized burial of artifacts, places and buildings may be a factor that prevents ‘alienation of objects’ and thus accumulation of personal or group capital. Such perceptions may have also been instrumental in the emergence of new alternatives for recording and manipulating social history.

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TH3-09 Abstract 04

Food preparation, commensality and the formation of social cohesion in Late Neolithic Northern Greece

Author: - Lympenaki, Maria, Democritus University of Thrace, Eleutheroupoli Kavala, Greece (Presenting author)

Keywords: Food preparation, Commensality, Late Neolithic, Pottery and spatial analyses

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, Stavroutoupolis (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 Stavroutoupolis provide evidence for domestic provision and consumption of food while in Toumba Kremasti Koliafas the context of consumption of food must have been on a more public level. Subtle differences and similarities between houses under the central role that food preparation holds in forming social ties. Furthermore, the regular presence of pottery in public consumption of food is connected to the formation of social cohesion within Late Neolithic communities. Pottery evidence, offers a powerful tool for understanding the extent to which food preparation and commensality contributes to the communal sense of belonging in Late Neolithic Macedonia, Northern Greece. The paper examines the spatial organization of material culture associated with preparation and consumption of food, as well as the close connections between groups or ‘households’. Based on pottery evidence for the preparation and consumption of food, cooking and communal activities 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.

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TH3-09 Abstract 05

Social cohesion among Tripolye populations: evidence versus hypotheses

Author: Dr. Dzienchenko, 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 supra-region. In this respect emphasis is placed upon Tripolye site hierarchies and settlement structures.

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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. Megalith building traditions can be found in a number of archaeological, historic and recent societies scattered over Europe, South America, Asia and Africa. One of the last remaining places with a recent tradition of megalith construction is the island of Sumatra in Indonesia. This ethnographic case study shows how collective efforts in building practices are shaped by any size versus are influencing the social structure of communities. In this regard, also feasts play an important role. While there are mostly no social restrictions in the access to grave types, the distribution of graves and of their size show some clear patterning. Within the ethnographic case study and the archaeological test region in South-Eastern Schwäbisch-Holstein and North-Western Mecklenburg-Vorpommern suggest, that collective efforts are very important in monument construction. Based on the grave sizes, the required amounts and resources (e.g. workforce) for building might have been extremely high. Depending on the population of the settlements, cooperation between different settlements or communities must be seen as an important factor. An active use of such monuments for the display of status and economic success of individuals and a group as a whole are reasonable and important aspects. Possible principles of megalith building and the mechanism influencing it are analyzed with regard to the collective character, which is reflected by different aspects of this specific tradition. The high economic expenditure, the ongoing reference to the monuments in connection with feasting activities and collective aspects indicate importance in the preservation of a felt sense of group membership and community structures.

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TH3-09 Abstract 07

The Boyne Valley, eastern Ireland – the epicentre of a Neolithic ‘super-ordinate’ identity?

Author: - McNichol, Thor, NUI Galway, Galway, Ireland (Presenting author)

Keywords: Boyne Valley, Megalithic monuments, 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.
Building and Burning Together to Stay Together

Author: Prof. Miller Bonney, Emily, California State University Fullerton, Long Beach, United States of America (Presenting author)

Keywords: collective, Crete, tomb

Presentation Preference: Oral

This paper argues that the construction of collective tombs at the beginning of the Bronze Age on Crete constitutes an example of building and burning to effect social cohesion. At the end of the Neolithic the early population of Crete dispersed across the island, yet evidence for durable settlements dateable to this period, with the exception of the major sites of Knossos and Phaistos, remains scarce. Rather the social integration 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 and the construction and transport of which to the site of the tomb required organized and social collaboration. The first tombs, which would have looked more like mounds than the cylindrical structures often portrayed in reconstructions, evoked the caves in which the Neolithic population lived and buried their dead and some of which remained in use during the Early Bronze Age. Having relocated to areas which lacked caves - and particularly to the south central part of the island - the settlers 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 interment - deposition on the ground accompanied by a few objects. Bodies piled up over time, the desiccated remains swept to the side or long bones and skulls selected while the rest were removed. Some 400-500 years after the tombs were constructed the population finally constructed more substantial tombs that nevertheless 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 social 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 supersedes these tombs as an important mechanism for social cohesion.

Collective harvesting at Százhalmabatta–Földvár, Central Hungary: a material cultural perspective

Author: Halbrucker, Eva, Leiden University, Delft, Netherlands (Presenting author)

Keywords: Bronze Age Hungary, harvesting, sickle blades, chieftain, power-centre, collective activity, social relations

Presentation Preference: Oral

Investigating the sickle blades of Százhalmabatta–Földvár yields information on social relations as they show harvesting to be a communal activity, carried out in the power-centre of the Bronze Age chieftain of the Benta valley. Százhalmabatta–Földvár, Central Hungary is a Bronze Age tell-settlement along the banks of 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, Százhalmabatta represents 2000-1400 BC. This archaeological site has important role in the research of Bronze Age in Hungary – and abroad. The excavation of the Tell 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. Százhalmabatta–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 sites show little indications of a difference in social hierarchy within each site. Hence, instead of political differences, they might be economical. Sickle blades are common finds at the site of Százhalmabatta–Földvár, where they are the main chipped stone tool type during the last major occupation of the settlement (1700–1400 BC). However, sickle blades are reasonable rare finds from other Bronze Age site from the valley (Piskin 2014). This information suggests harvest was a centralised communal activity controlled by Százhalmabatta–Földvár. Thereby, harvesting (and sickles) could have been organised among social relations, and could help to keep alive these associations.

Social cohesion and social disintegration in Bronze Age Italy

Author: Dr. Versatti, Alessandro, Università di Roma “La Sapienza”, Roma, Italy (Presenting author)

Co-author(s): Dr. Renzoni, Andrea, CSR - ISMA, Roma, Italy

Keywords: Bronze Age Italy, social cohesion, social disintegration

Presentation Preference: Oral

The studies on Bronze Age Italy have underlined the existence of differences in the apparent social homogeneity of communities. The terramara society has been singled out as an example of social cohesion and homogeneity, thanks to its regular settlement pattern and repetitiveness of house sizes, but also to its “economic” funerary representation and to the widespread infrastructure investment in water channels and fields, as well as in material culture. On the contrary, Southern Italian communities have been described as more hierarchical and socially divided communities, exposed to the Mediterranean wind of inequality coming from the Aegean and the East.

Anyway, the patterns of social disintegration in reaction to the Late Bronze Age crisis show that the collapse of the terramara system was more radical and extreme than the limited rearrangement suffered by the Southern Italian societies.

It can be suggested that solidarity, identity and cohesion are indeed patterns linked to dynamic structures of power, strongly relying on a non-contradictory expression of power, which likely has its strength in a 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.

The inherent, literally built-in segregative nature of Mycenaean palaces as the seats of political authority and the role of palatially sponsored feasts, held amongst others at the palace itself, as a means of creating a shared identity and thus fostering social cohesion have been key topics of Mycenaean archaeology for the past two decades. The proposed paper seeks to further highlight the link between creating a common identity and promoting cohesion in the sense of conformity. Beyond ‘making Mycenaean’, as it has been put, how could the palace then make those Mycenaeans fall in line, i.e. bind them to itself and its agenda? Establishing a prestige discourse in which the palace was both the yardstick to gauge one’s standing and the provider of the means to enhance it is suggested as a possible key strategy, ideologically 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 mementos of every event organized by and/or associated with the palace are sought as possible correlates, i.e. physical archaeological evidence, of such a palace-fostered discourse. Specific attention is paid to such potential mementos 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.

Take an image, it’ll last longer: Mycenaean multimediality, prestige, and competitive conformity

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

Presentation Preference: Oral

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Presentation Preference: Oral

The inherently, literally built-in segregative nature of Mycenaean palaces as the seats of political authority and the role of palatially sponsored feasts, held amongst others at the palace itself, as a means of creating a shared identity and thus fostering social cohesion have been key topics of Mycenaean archaeology for the past two decades. The proposed paper seeks to further highlight the link between creating a common identity and promoting cohesion in the sense of conformity. Beyond ‘making Mycenaean’, as it has been put, how could the palace then make those Mycenaeans fall in line, i.e. bind them to itself and its agenda? Establishing a prestige discourse in which the palace was both the yardstick to gauge one’s standing and the provider of the means to enhance it is suggested as a possible key strategy, ideologically 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 mementos of every event organized by and/or associated with the palace are sought as possible correlates, i.e. physical archaeological evidence, of such a palace-fostered discourse. Specific attention is paid to such potential mementos 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.
Ritual feasting as indication of social cohesion? A late Bronze Age case study from Romania

Author: Prof. Dr. Metzner-Nebelsick, Carola, LMU Munich, Munich, Germany (Presenting author)
Co-author(s): -

Keywords: Bronze Age, swords, warriorhood

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, Halifax, United Kingdom (Presenting author)

Keywords: Biographies, Iron Age Scotland, Roundhouses

Presentation Preference - Oral

This paper presents the results of biographical and materiality approaches to the study of a group of well-preserved Late Iron Age houses at Bromholm 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 generations and appear to have been concerned with the renegotiation of household identity with relation to previous generations and ancestors. Furthermore, the referencing of certain special deposits by others laid down several centuries later suggests the presence of....
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 reorganisation 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

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Keywords: Byzantium, Excavation, Household

Presentation Preference: Oral

The early byzantine settlement of Carin Grad in southern Serbia can be identified with the imperial city Justiniana Prima known from De Aedifici ofProcopius which existed for merely 90 years. Without any marks of earlier or later occupation, the excavations provide unique data for the period between the 5th and 6th century. Excavations in Carin 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 archaeology and soil science. The finds indicate a habitual function. The interpretation of the building bases on the results of interdisciplinary research. The simple configuration of the house and the multiplicity of potential types of use in a single room structure challenge the excavation. 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 analytically constructed house and 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 activity inside and outside the building to understand the function the household fulfills 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 as a social landscape which reflects the mentality of the dwellers. The analysis of installations and furnishing contributes 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 Carin Grad took place in a time of far reaching cultural change. Written sources provide little insights in the situation of common life. In combination with the archaeological record they allow to delineate the possibilities of household-organisation for a specific historical situation.

The talk will examine if it is generally possible to work with the household concept if there are unspecific structures or if it is rather necessary to apply it to gain more information. With regard to cultural formation processes this also raises the issue 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 Urbanaitė-Ubič, 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 associated with personal needs and usage. Pottery with scratched marks such as initials, religious abbreviations, letters or numbers or undefined scratches are found from for example the 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 understanding that nuns and monks possessed their own ceramic dishes while in most cases private property was forbidden. In a convent of Clarisses in Vilnius Old Town (Maironio street 11) 10 fragments of marked ceramic dishes from the end of 17th to beginning of 18th century were uncovered during the excavations in 1994 and 2007. These dishes had only marks of letters which were identified as initials of the nuns. Historic data of this convent allowed to identify few names and some initials were found by the letter. Historic data of this convent allowed to identify few names and some initials were found by the letter.

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 own identity and this phenomenon could be visible in different religious orders.

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 identified as both a context and a functional unit, or 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, consumption and consumption is confronted with the household as ideology, discourse and manifestation. The relationship between the physical house and the household as a social unit is no longer evident and has to be discussed.

In my paper I will discuss the possibilities to combine a vast bulk of archaeologically documented urban buildings from the 17th and 18th centuries in Kalmar, Jönköping and Linköping with detailed accounts of the households, the owners and the occupants. The relations between the housing structure and the building structures within a theoretical framework of actors and agency. The main focus is to develop the analyzes and understanding of households as function and structure in past times, and the relationship between houses and households, as for example through deeper cooperation between historians and archaeologists.

TH3-10 Abstract 06

Houses, households, and workshops in early modern Swedish towns

Author: Prof. Lindström, Dag, Uppsala universitet, Uppsala, Sweden (Presenting author)

Presentation Preference: Oral

The historiography of the early modern household typically identifies the household as a well-defined and coherent unit of social organization, co-habitation and work. Recently more open and varied approaches towards house, family and household have been introduced. Interaction, permeability, and variation appear as important dimensions.

Relating to these new approaches and considering the material structure of houses and town plots, this paper discusses the organization of living space, households and work space in early modern Swedish towns. More precisely, it focuses on artisan households. It has been maintained that in early modern society the scenes of labor was commonly the home, and that it was the development of wage labor that enhanced the separation of work and dwelling. Concerning artisans, it is often taken more or less for granted, that artisans workshops in early modern towns were located in direct connection with their homes.

Evidence from 18th century Swedish towns displays a huge variation in size and structure of artisan households. When the perspective of cobilitation is combined with information about the spatial structure of houses and plots, complicated and varied patterns of social organization and social interaction appear. Analyses systematically combining information from written sources and archaeological evidence about artisans and workshops furthermore demonstrate a less evident connection between residence and workshop. These observations provide a more elaborated discussion on how we conceptualize what a workshop is.

TH3-10 Abstract 07

Single households and the meaning of household in 18th century Sweden

Author: PhD Student Panu Savolainen, Finland (Presenting author)

Keywords: household, town, space

Presentation Preference: Oral

The concept of household is, despite its evident meanings of our everyday reality, enigmatic for historians and archaeologists. What ‘household’ or related terms meant in times past, or how various demographic sources or material settings of archaeological sites represent or reflect the past domestic everyday life? My paper tackles the issue from the standpoint of single households (household that comprises of only one person). Single households appear in the poll tax records of the town of Turku (Sw. Åbo) in 1775 as the most common category of households. How often single households, however, lived in spatial terms ‘alone’ or formed an independent economic unit? Or more generally, how the administratively defined ‘household’ represented the reality of domestic everyday life?

I answer these questions using lower court (Sw. Kämnerrätten) minutes, where the everyday patterns of domestic life and space often emerge in the testimonies. The comparison of the court records to the poll tax records (or censuses), offers interesting glimpses to understand, how the administratively defined households and individuals used the domestic space. Were single households really single, or did they share there spatial precincts with the adjacent households? Finally, the case-studies concern wider questions about the question, how historians and archaeologists should handle the concept ‘household’: to define it from the modern premises, to try to trace the historical formation of the concept, or to put it aside?
Archaeological archives – A deconstruction

Keywords: archaeological archives, archaeological processes, theory of science and methodology

Presentation Preference – Oral

In this paper, I propose a critical examination of the archaeological archive. Using my personal experience as an archaeologist working in the archives at the Museum of Cultural History in Oslo as a point of departure and a case study, I intend to explore the concept of the archaeological archive from two different angles:

1. In archaeological research, archaeological contexts are always being interpreted with a conscious and reflective view on past 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 been said 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 therefore becomes a key element in our understanding of how the archaeological remains were recorded. This presentation will explore the concept of the archaeological archive from the perspective of the word "disappearance" as a methodological tool for understanding the concept of the archaeological archive as a historical artefact.

The National Roman Museum was founded in 1889 when, in the climate of nationalistic pride that followed the unification of Italy, the new government decided to bring Rome to the level of other European capitals, providing it with a large state archaeological museum, which could compete with the famous collections of the Vatican and Capitoline museums and with foreign public museums. In addition to this intention, there was also a practical problem: finding a shelter for the thousands of finds that the digs put in place for the redevelopment of 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 grandiose exhibitions set during the years of fascism. The archival material sheds light on the facts and character of a season that is emblematic for the creation of legislation for the protection of antiquities in Italy.
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 D Faust believed that archaeological documentation, field reports and similar works should be treated as archaeography seeing that they stand in a similar relation to ethnography as ethnography does to ethnomusicology. One could perhaps change this idea and even claim that archaeography, description of the artifacts, and not the artifact itself is the source of archaeological research. During field-works 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 at 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.

TH3-11 Abstract 06
Archive and Archaeological Economy
Author - Gomes, Sérgio, Porto, Portugal (Presenting author)
Keywords: archaeological economy, archive
Presentation Preference - Oral

The concept of the archive came to me at different moments whilst I was investigating archaeology under the Estado Novo dictatorship in Portugal (1933–1974). In this research, I experienced archives “as a source” and “as a subject”. They were “a source” in the sense that archives were the “places” where I could find the raw materials to develop my work. They were “a subject” because, in picking up and ordering documents, I was constructing a “landscape” through which I was setting a research path; a “landscape” offering me clues and suggesting directions I hadn’t envisaged at the outset. This experience 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 “laws” (to re-organize my research). But, more importantly, with Derrida’s notion of the archive, I realized how this experience of using archives in doing “history of archaeology” was so close to the experience of doing archaeology itself, and how Derrida’s work could be read while thinking about the conditions under which we do archaeology. This perspective on Derrida’s work became clearer after reading 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 economy” (ibid: 231).
Albeit Cyrenaica, being one of the prominent regions of the Greco-Roman civilization, attracted the attention of scholars from the medieval period onwards, its political isolation after the Arab and later, Ottoman conquest, gave reason to the visible delay in the formal recognition of this area. Europeans could not visit it before the 18th century and, even in the 19th century, travels were still not numerous. Nevertheless, the travellers’ accounts, only partially published, constitute an invaluable source for the research on history of archaeology. They reflect the increasing knowledge of the region and, at the same time, they illustrate the archaeology in transition from its pre-scientific to the scientific stage. The first topographical identifications were successively complemented by descriptions of the undertaken excavations and considerations about the ancient art. The history of discovering Cyrenaica enables us to capture and follow significant stages in the evolution of archaeological interests, pursued by scholars active both on the sites and behind their desks. However, this story could not be fully understood if deprived of the broader, political and social perspectives. From the beginning of the 19th century, when archaeological activities ceased to be purely private ventures, public authorities used archaeological travels to achieve their own purposes, including non-scientific ones. At this point, Cyrenaica’s archaeology was already an area of interest to the French and Ottoman Empires. On the other hand – the results of archaeological exploration: artefacts enriching museum collections, testified the prestige of the state. This political context can be reconstructed thanks to the archive queries of unpublished documents kept in various state institutions. Since these documents reveal various uncover activities, their studies create an excellent starting point for further sociopolitical reflections not only on archaeology. The aim of this paper is to show several advantages of adopting different approaches to studying archive records in the British Museum and Musée du Louvre. Analysis of letters, notes about monuments, reports, minutes of the committee and other original papers allows making several observations concerning the development of archaeological methodologies. Apart from their obvious archivistic value, those documents allow also to reconstruct wider, political and social background of the journeys to Cyrenaica in the 18th and 19th centuries. Among the travellers, a special role was reserved for diplomats, for whom official activities created an opportunity to undertake their own research (e.g. Joseph Vattier de Bourville, George Dennis), and agents of the state institutions (e.g. Beechey brothers, Porcher and Smith). The support of the Admiralty or museums helped those travellers to fulfill both, scientific, as well as any other significant goals. 

TH3-11 Abstract 09

Archives Vis Archaeology: the case study of the building beneath Via di San Nicola de’ Cesarini, Rome

Author - Onggilamone, 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 cadastral of the city, the Catasto Pio Gregoriano, and the Cabrati della fognature della città di Roma, a limitless 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 Coltfoan, Laura, Brukenthal National Museum, “Lucian Blaga” University of Sibiu, Sibiu, Romania (Presenting author)

Keywords: archival material, scientific biography, Zsófia Torma

Presentation Preference - Oral

Zsófia Torma (1832–1899) was a 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 the 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 Ranke, 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 (Devä, Romania), The National History Museum of Transylvania (Cluj-Napoca, Romania), The Brukenthal National Museum (Sibiu, Harghita, Romania), and The Székely National Museum (Sălaj, Turda, 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 context and relevance of the documents to their accessibility, way of preservation and 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 emphasizes the importance of archival materials in establishing Zsófia Torma’s place in the role in the history of Hungarian, Romanian and European archaeology.

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 tantalising promise of the thrill of discovery, bringing to light knowledge that has been forgotten or neglected in intervening centuries. Thus, the collaboration of archaeologists and archivists for Glasgow University’s Great War centenary commemoration project seems a natural fit. This paper reflects upon the experience of being an archaeological and historian working in an archive, specifically examining the intersections of these two distinct but related practices while undertaking research into the First World War. Firstly, it highlights our roles as arbiters of the past. As Pierre Nora (1989: 10) observed in Lieux de Memoires, ‘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 interventional nature of our work – we know that we must necessarily change, reorder, or otherwise destroy the past in the process of investigating it and preserving it for the future; furthermore we try to acknowledge our biases, our subjectivity, and our modern viewpoints. How then do we approach a topic as big as the First World War and the challenges of 20th-century archaeology and archives? It is apparent that we, as archaeologists and archivists, are well placed to talk about a war of overwhelming materiality, the epiphenomenon of González-Ruibal’s (2008, after Augé) supermodern era. How do we deal with the material legacy of the supermodern, as well as what Nora felt was a modern society gone ‘archive-mad’ where we immediately historicise the present? Archaeologically, the First World War leaves us with millions of spent shells, millions of broken bodies, kilometers of trenches. Likewise it generated an astonishing amount of clerical paperwork: forms in duplicate and triplicate, millions of records, all filed away, some of which survive today. Today we continue to archive the supermodern – the seemingly limitless digital files created every day that take up real-world physical space, not in kilomètres 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 accidents, shipwrecks

Presentation Preference - Oral

The brackish waters of the Baltic hide thousands of shipwrecks from different eras. Most known wrecks of sailing vessels are from historical times and later than medieval. How can we compare and combine the sources from archives and archaeological data from shipwrecks to make their story complete and also scientifically valid? The archives are a rich source of information about the ports of origin and the destination of the sailings, the ships, and the cargo. Most important are the archives of the local authorities that are often far away from the harbor. Before becoming a shipwreck, a ship’s “life” can have several phases from building to re-building, re-use, abandonment or destruction by an accident or conflict. With shipwrecks, multidisciplinary research is needed to collect the data. When there is an idea of the point of origin of the find, there is a chance
to start the research in archives. Sometimes an archival source – a document like an accident report or an announcement in the newspaper – leads to a systematic search for a possible place of wreckage. As archaeologists, we must learn to read both the material culture and archival sources, which possibly relate to each other. In this paper, two cases from Finnish waters will be presented, which have both archaeological findings and written sources associated with them.

The first case is that of a remarkable medieval maritime accident with quite a lot of written documents telling its story. The possible site of the accident is in the brackish waters of the Gulf of Finland. How might we interpret the scattered pieces of a wreck in the area, and how might we reconstruct the accident from the late 15th century?

The other case is related to two shipwrecks of 18th-century merchant ships. Would it be possible to combine written documents, like toll and salvage records, to find a shipwreck? Is it possible to identify a shipwreck, and what methods should be used in the archaeological research process?

Theoretical and methodological perspectives in archaeology

Analysis of Archived Material to Unravel Wheelhouse Archive – Both Primary and Secondary Sources – as Well as Archaeological Material

This research questions the role of archive documents in conflict archaeology. The second naval battle of Svensksund took place on 9 July 1790 on the south coast of Finland, outside the modern city of Kotka. The battle was part of the Russo-Swedish War (1788–1790), and it is the largest naval battle ever fought in Northern Europe. The focus of this research is the apparent contradiction between archival documents about the battle, and existing archaeological material. The general view, based on written sources, is that a large number of the vessels of Russia’s rowing fleet shipwrecked near Lehmäsaari Island, on the east side of the naval battle area, after being disadvantaged, partly due to weather conditions. However, only eight wreck sites have been located so far in the vicinity of Lehmäsaari Island. The small number of the wrecks has been explained by site formation – especially non-cultural processes, but no comprehensive research has been published about this subject. The aim of this paper is to study this imbalanced relationship between archival documents and underwater archaeological material. The body of material interrogated consists of the archive – both primary and secondary sources – as well as archaeological material.

The relationship between archive documents and archaeological material of a naval conflict

Author: Mäkinen, Johanna, University of Helsinki, Sipoo, Finland

Keywords: naval conflict, wreck sites, written documents

Presentation Preference: Oral

This research questions the role of archive documents in conflict archaeology. The second naval battle of Svensksund took place on 9 July 1790 on the south coast of Finland, outside the modern city of Kotka. The battle was part of the Russo-Swedish War (1788–1790), and it is the largest naval battle ever fought in Northern Europe. The focus of this research is the apparent contradiction between archival documents about the battle, and existing archaeological material. The general view, based on written sources, is that a large number of the vessels of Russia’s rowing fleet shipwrecked near Lehmäsaari Island, on the east side of the naval battle area, after being disadvantaged, partly due to weather conditions. However, only eight wreck sites have been located so far in the vicinity of Lehmäsaari Island. The small number of the wrecks has been explained by site formation – especially non-cultural processes, but no comprehensive research has been published about this subject. The aim of this paper is to study this imbalanced relationship between archival documents and underwater archaeological material. The body of material interrogated consists of the archive – both primary and secondary sources – as well as archaeological material.

Analysing Archived Material to Unravel Wheelhouse Chronologies in the Western Isles, Scotland

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Keywords: Archaeological Analysis, Bayesian Chronological Modelling, Scottish Iron Age

Presentation Preference: Oral

The site of Brathru a Tuath on the Isle of Benbecula was investigated as part of rescue excavation which was undertaken in 1956 and 1957 in advance of the building of a Rocket Range in the Uists; the results of which were never published. In the 60 years since, the finds material and paper archive has found its way into the collections of a number of different institutions, including the National Museums Scotland, Kelvingrove Museum, Historic Environment Scotland, and the National Archives. Collation and analysis of this fragmented record has brought to light previously unrealised information about the excavated features, showing the presence of at least two wheelhouses and numerous related features.

Details for the excavated deposits were lacking, although the location of the artefacts and the date they were found were recorded on the finds boxes; consequently, a finds matrix formed the basis for interpreting the stratigraphy on site. A radiochronometric dating program was undertaken to identify the timing and sequence of activity related to the wheelhouses. Twenty-six radiocarbon measurements were taken from single-entities of wood charcoal, animal bone, human bone, and pottery residue. A Bayesian approach that considered stratigraphic contexts and feature formation processes was used to estimate the site chronology and sequence. Results demonstrate that activity occurred primarily in the 2nd–1st centuries BC. The chronological analyses have also helped identify ancient curation and provide evidence addressing if Iron Age activity may have been more extensive than the two decades. Further, this demonstrates 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.

Endangered Archaeology in the Archives: Utilizing Historical Aerial Photography to Assess Heritage

Author: Banks, Rebecca, University of Oxford, Oxford, United Kingdom

Co-author(s): O’Riordan, Emma Jane, Society of Antiquaries of Scotland, Edinburgh, United Kingdom

Keywords: aerial photography, databases, heritage under threat

Presentation Preference: Oral

The Endangered Archaeology of the Middle East and North Africa (EAMENA) project aims to locate, document and monitor archaeological sites and any damage to those sites in an online platform for the Middle East and North Africa region utilizing remote sensing and networks of professionals. The threat to archaeological sites due to political and social upheaval in the MENA region has drawn much attention and is being effectively monitored remotely by a number of projects, but the more gradual threats to sites from development and agriculture over the last century are less well documented. Historical aerial imagery collected from the first half of the 20th century is a fantastic resource that has captured landscapes and sites before modern development, population increase and conflict drastically changed the region and accelerated heritage loss. The collections however are scattered between institutions and many are poorly documented. The paper will present how EAMENA with the Aerial Photographic Archive for Archaeology in the Middle East (APAME) has begun working with these collections to not only utilize a fantastic resource for the documentation of heritage, but to digitise and facilitate knowledge sharing of what these collections hold.

Another kind of archive: on the preservation of publications and born-digital material

Author: O’Riordan, Emma Jane, Society of Antiquaries of Scotland, Edinburgh, United Kingdom

Co-author(s): Osborne-Martin, Erin, Society of Antiquaries of Scotland, Edinburgh, United Kingdom

Keywords: archaeology, digital, publications

Presentation Preference: Oral

TH3-11 Abstract 13

The relationship between archive documents and archaeological material of a naval conflict

Author: Mäkinen, Johanna, University of Helsinki, Sipoo, Finland (Presenting author)

Keywords: naval conflict, wreck sites, written documents

Presentation Preference: Oral

TH3-11 Abstract 14

Analysing Archived Material to Unravel Wheelhouse Chronologies in the Western Isles, Scotland

Author: Dr. Anthea, University of Glasgow, East Kilbride, United Kingdom (Presenting author)

Co-author(s): Brown, Lisa, Historic Environment Scotland, Edinburgh, United Kingdom

Keywords: Archaeological Analysis, Bayesian Chronological Modelling, Scottish Iron Age

Presentation Preference: Oral

TH3-11 Abstract 15

The Aerofototeca Nazionale of Rome: a photographic archive for the study of Italian heritage

Author: Foà, Lisa, Roma, Italy (Presenting author)

Keywords: archives, aerial archaeology, Adamastea

Presentation Preference: Oral

TH3-11 Abstract 16

Endangered Archaeology in the Archives: utilizing historical aerial photography to assess heritage

Author: Banks, Rebecca, University of Oxford, Oxford, United Kingdom (Presenting author)

Keywords: aerial photography, databases, heritage under threat

Presentation Preference: Oral

TH3-11 Abstract 17

Another kind of archive: on the preservation of publications and born-digital material

Author: O’Riordan, Emma Jane, Society of Antiquaries of Scotland, Edinburgh, United Kingdom (Presenting author)

Keywords: archaeology, digital, publications

Presentation Preference: Oral

TH3-11 Abstract 18

Theoretical and methodological perspectives in archaeology

Author: Foà, Lisa, Roma, Italy (Presenting author)

Keywords: archives, aerial archaeology, Adamastea

Presentation Preference: Oral

Today, with the use of commercial drones, aerial pictures of archaeological sites and landscapes can be easily obtained, and thanks to more or less user-friendly software, easily processed – as it was recently discussed at the 2nd International Aerial Archaeology Conference that took place in Rome in February 2018 – and present-day records can be compared with “pre-economic boom” images to better understand what has changed in our landscapes and sites.

Since its creation, the Aerofototeca Nazionale, based in Rome, has acquired several different collections of aerial photographs. Today it houses aerial photographic materials that date from the very end of the 19th century (i.e., 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 ICD – Istituto Centrale del Catalogo e Documentazione – part of the Italian Ministry of Culture (MBACT).

The archaeological research conducted on the Aerofototeca was the first direct step towards 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 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 landscapes.
Ancient inscriptions and digital archives: offering an undeciphered script to the public

**Author:** Dr. Tomas, Helena, University of Zagreb, Zagreb, Croatia (Presenting author)

**Keywords:** 3D scanning, ancient inscriptions, digital archives

**Presentation Preference:** Oral

Creating databases with digital archives of ancient inscriptions has become customary over the past decade. Digital databases of cuneiform tablets are particularly popular, and thanks to advanced digital technologies, especially 3D scanning, thousands of cuneiform inscriptions can now be freely browsed through by both specialists and non-specialists, meaning that they have become easily accessible to anyone interested in studying them. Yet, there are many inscriptions in other ancient scripts that still await a similar treatment. One such script belongs to the realm of the earliest European literacies: 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 properties 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). Moreover, they are either displayed behind glass in museum galleries, or locked away in museum storerooms. Digital archives of 3D images have been changing this situation rapidly, and they in addition allow interdisciplinary research, for example a study of finger-prints of scribes. The paper will provide an overview of various aspects of improvements in our understanding of ancient Linear A inscriptions and digital archives in the future, with emphasis on Linear A and abstracts of its decipherment.
TH3-12 Abstract 01
From Office to Field: Developing University of North Georgia’s Sicilian Archaeological Field School
Author - Prof. Balco, 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, logistical challenges, and program costs are explored, proposing a strategy to keep costs low and learning outcomes high. When offered as a study abroad program, such instructional research projects afford students with the skills necessary to pursue careers in archaeology as well as valuable cultural experiences transferrable to a broad variety of careers.

TH3-12 Abstract 02
The many meanings of Archaeological Education: field schools in archaeological heritage management
Author - Dr. Perez-Juez, Amalia, Boston University, Madrid, Spain (Presenting author)
Co-author(s) - Dr. Elia, Ricardo J., Boston University, Boston, United States of America
Co-author(s) - Langitiz, Meredith A., Boston University, Boston, United States of America
Keywords: field school, heritage, training
Presentation Preference - Oral
Archaeological Education is going through either a crisis or an expansion; through revision or agony. It very much depends on the observer and the field from which he or she comes. In Europe, archaeology used to be taught solely in History departments. In the United States, it is part of Anthropology or Classics Department. Archaeological Science is becoming increasingly relevant, and techniques in which no digging is involved are preferred by researchers. What about Archaeological Heritage Management (AHM)? What is its specific weight and role in this new higher education landscape? AHM is frequently treated as an appendage to traditional research rather than an essential element to be planned for from the beginning. It is also taught in the final semesters of a degree, as it traditionally reflects something done at the end. Interestingly enough, a good number of graduates in archaeology find jobs related to AHM: museums, historical societies, international organizations, cultural tourism, etc. This disconnection between what we are teaching our students and what awaits them in the outside world needs some attention. Over the past several years, the authors have been incorporating AHM as an integral part of our curriculum, both in the classroom and the field, and the results are astonishing. We have developed and implemented a field school that goes beyond traditional training in practical skills of surveying, excavation, recording, and artifact processing, and deals mainly with the idea of heritage management and the reals problems that it faces today. In this paper, we describe our experience in developing an archaeoological and heritage management field school on the island of Menorca (Spain) from 2009 to 2016, which started as a traditional fieldschool but evolved to an “only-heritage” experience. We teach archaeology from a holistic perspective that incorporates the theory and practice of archaeological stewardship: preservation, interpretation, management, and public outreach of archaeological resources. We want to share the reasons for this shift, and the challenges we have faced to make it work.

TH3-12 Abstract 03
How to improve the offered preparation and avoid the risk of “fake” field school
Author - Vecchiet, Costanza, Durham University, Trieste, Italy (Presenting author)
Keywords: Archaeology, Field school, skills
Presentation Preference - Oral
Field school seems to be a compulsory “step” every future archaeologist is required to attend to form and train his/her skills, useful for any future career. However, over the past decades - especially the last two - a steadily increasing lack in number of sponsors and fundings opened the access to excavation areas to volunteers and non technician, in love with this job, holding partials or no skills at all, but available to help and enjoy the diggging experience in change, sometimes, only of acocodation and meals.
Surely, to some extent, the contribution volunteers gave to archaeology has been wide and important in order to carry on some excavation valuable tasks. But it is safe, both for security and carefulness of the work, replace in the hand of not paid and not formed specialist the work that should be led by professional archaeologists? Universities are the first bodies alowing to test our abilities, training our skills and checking our work during the whole excavation session. Otherwise, especially in certain countries were the practices of field school on “real” excavations are sponsored by participants, volunteers and crowdfunding, there is a sadly high risk of “cheating” field schools, aiming mainly in collecting money, but no able and not in react to give a proper formative experience.
This paper is aiming to analyze both the academical and the private sector, trying to outline fixed point and guiding lines the two of them should use when offering an amazing, but truly worthy, field school experience.
The theoretical and methodological perspectives in archaeology

Theoretical and methodological perspectives in archaeology of Archaeology at the University of Sheffield, in collaboration with John Cabot University, the University of Queensland, Michigan archaeologists and fulfil their expectations, in terms of enhancing their future academic or commercial archaeology careers. Moreover it intends to show how the schools were built up to train the next generation of archaeologists. CARP has experimented with team size, staffing, accommodations, work load, and price over its history. Operating outside of the university structure, much of this had to be worked out through trial and error. Through it all, there was always a strong emphasis on engaging with students and treating them as junior colleagues, teaching archaeology beyond the excavating part, and keeping it affordable. This paper discusses how this ethos was maintained and thrived, and possible ways that large institutionalized projects could improve the students’ experience.

Training the future generations of archaeologists at Alberese

The Alberese Archaeological Project provides two different types of training schools. Both of them are run by the Department of Archaeology at the University of Sheffield, in collaboration with John Cabot University, the University of Queensland, Michigan State University, the British School at Rome and a local company of commercial archaeology. The Alberese Archaeological Project attracts students and early career scholars from all over Europe and North America. They join a learning environment through the excavation of a Roman maritime site, set along the Tyrrhenian coast. The formal process consists in the traditional teaching of fieldwork techniques and a first analysis of the material culture recovered on site. Moreover, a day per week, the participants are guided through a series of nearby Roman to Late Antique archaeological sites to give them the possibility of observing the excavated settlement in a micro-regional context. The fieldwork school aims to train the participants in the archaeological methods, and professional archaeologists and specialists (being them academic or non-academic scholars) share their knowledge and teach the students to approach the modern debates in Classical Archaeology. In combination with the excavation, the second school has been set up focusing on Material Culture Studies. Usually, the participants learn about Roman material culture through a series of introductory lectures on a specific class of material (glass, pottery, small finds, faunal remains, environmental samples etc etc). Then, they spend a week working hands on the finds recovered during the excavations. They learn how to deal with material culture, in terms of reconstructing the economy and society behind it, how to draw archaeological finds and how to reach a chronology for the context first, and the settlement then.

This paper will describe the construction of the training school at the Alberese Archaeological Project, emphasizing the reasons (as well as the benefits) of paying tuition fees and how the schools work in the direction of satisfying the participants' expectations. Data will be provided to quantify and measure the results of the schools in terms of future employment for the participants. Finally, this paper draws its conclusions upon the importance of the training schools, not only in terms of improving the participants’ knowledge and skills, but especially in terms of the learning environment and career network development they could explore. As a combination of university and non-university institutions, leading and organizing the schools and their related activities, represents a plus in the experience of the participants. Moreover, a point will be made on the opportunity offered also to young specialists and scholars to develop their own teaching experience, helping them to enhance their future careers in academia or in professional archaeological units.

To what extent can management skills help archaeological sites in their self-sustainability?

Archaeological Field Schools have been for many years now seen as the suitable environment in which archaeologists can be trained to become professional archaeologists. In the last decade Field Schools have become very popular and are no longer exclusively run by Universities but are increasingly run by private institutions. This paper is based on the author’s experience at University of Reading Field School Silchester Insula IX: Town Life Project (2011-2014) and it is to present through the analysis of detailed data, interviews with former participants, personal experiences of the field school organisation and learning process which transformed (some) students into Silchester Insula IX supervisors and professional archaeologists. It will describe the author’s participation – first – as overseas student and then the path he had to follow in order to become one of the trench-supervisors – responsible for a group of 15-25 students and volunteers. What is the role of a supervisor and what are the tasks of this key figure: especially regarding teaching/learning and health& safety, site documentation, site management, site supervision and archaeological reports are some of the points that will be discussed.

The second purpose of this paper is to present: firstly, what are the issues (i.e. health& safety, students' satisfaction, visitors on site), dangers (i.e. funding, conservation, post-exavation projects) and threats (i.e. high fees), that this Field school dealt with from 1996 to 2014; secondly, the opportunities and positive results achieved in terms of employability, career development, site management, engagement with local community and visitors. The aim of this paper is to propose means of creating the base for improving this fairly new way of doing Archaeology, which does not only answer the academic research questions but has to provide students their first chance of gaining field-working experience and engage the local communities, bearing in mind the financial issues.

Abstraction

Running Your Dissertation as a Field School: Pros and cons for both instructor and students

Since 2010 the Cividale Archaeological Research Project (CARP) has been run as field school, as well providing the archaeological data for dissertation research. Developed from positive first-hand experience the PhD candidate received immediately after undergrad, it has strived to create a learning experience for students that not only instructed, but also conveyed passion for archaeology. CARP has experimented with team size, staffing, accommodations, work load, and price over its history. Operating outside of the university structure, much of this had to be worked out through trial and error. Through it all, there was always a strong emphasis on engaging with students and treating them as junior colleagues, teaching archaeology beyond the excavating part, and keeping it affordable. This paper discusses how this ethos was maintained and thrived, and possible ways that large institutionalized projects could improve the students’ experience.

Archaeology, Fieldschool, Training

Archaeology, Fieldschool, Teaching

Archaeology, Future, Management

Keywords: Archaeologists, Field School, Teaching

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Presentation Preference: Oral

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Keywords: Archaeology, Future, Management
One of this could be and, in the daily scenario, most honestly be an attempt to self-sustaining by the excavations and of the cultural projects themselves. It is in this renewed air and management reorganization that we Master and specialized courses were born. They are born because of the sector specialists having realized how important it is for the survival of archaeology and free management find a way to make culture more accessible, not a slave to political austerity. Several can be the ideas an archaeological site could develop in order to achieve its "freedom": paid guided tours, small gadget for visitors, open days/weekend for families during which could be asked a small contribution for excavation maintenance. Everything it is up to the archaeologists and their skills in understanding what people really want, and what people are really keen and available in paying for.

Certainly, also enriching the staff with one or two specialized managers could be a good idea, but why do not melting archaeological and managing knowledge all in the hands of ones who really run the excavation and its activities?

These, obviously, are just some suggestion. Thus, analyzing and comparing experiences tested already, the present paper will try to give an overview about the current status of archaeology and its future opportunities and possibilities if well managed.

TH3-12 Abstract 09
Site management and business plans, conservation and public engagement issues and opportunities

Author - Edoardo, Bedin, UCL, London, United Kingdom (Presenting author)
Keywords: Financial Self-sufficiency, Site Management, Sustainability
Presentation Preference - Oral

Archaeological projects have been for many years now considered enterprises run mainly by public funding. Additionally, in many countries it is a commonly accepted notion that supporting heritage will automatically mean money loss and the need for extra funding is a constant "curse" for many site managers. In particular cases insufficient funding precludes the management of the site from running even basic maintenance work, consequently causing bad publicity, as less areas become accessible for visiting, and reducing the opportunities to improve the site facilities.

The primary purpose of this paper is to explore through case-studies what are the key aspects of a successful management plan and business plan and what are the major financial, political issues encountered during the development of projects and how to handle these issues. It will also highlight the importance of involving different stakeholders as means to increase the chances of the success of site management, its conservation and valorisation.

The second purpose is to explore limitations in achieving financial self-sufficiency while managing an archaeological site and demonstrating the need to change the approach to Italian Heritage in order to "rescue" it from the risk of abandonment due to lack of funds. If a site can reduce the reliance of public funds it will protect the site from possible conservation and valorisation issues due to funds cuts as a consequence of economical crisis like it has occurred since 2008.

The last goal of this paper is to explore what actions can be taken to reach a much wider public, including those that would not naturally come to visit the site, and understand the possible threats of the rise of visitor numbers, while investigating the possible benefits in terms of job creation within the site and in the buffer zone.

The final question which will be tried to answer is: are all sites potentially sustainable or is it necessary to consider the closure of some to preserve them until more funds become available?

TH3-12 Abstract 10
Drama - Merdzhumekia:
German archaeological field-school in Bulgaria

Author - Valchev, Todor, Regional historical museum - Yambol, Yambol, Bulgaria (Presenting author)
Keywords: archaeological field-school, Drama - Merdzhumekia, German methodology
Presentation Preference - Poster

The prehistoric settlement mound Merdzhumekia was situated near the village of Drama in the Tundzha municipality, Yambol district. It has been completely excavated during the Bulgarian-German project from 1983 to 2011. The joint project was undertaken by Sofia University “Sv. Kliment Ohridski” in Bulgaria and Saarland University in Germany. The international project was led by prof. Alexander För, prof. Jan Lichardus, prof. Francesca Bartemes and Irina Iliev.

The aim of this poster is to present the methodology used by German scholars during the archaeological excavations in the village of Drama. The system permitted students to participate in all aspects of the project: archaeological excavations, graphic documentation and processing of ceramic materials and finds. During the international project, more than 300 students and University assistants participated from Bulgaria, Germany, Czech Republic, Slovakia, Hungary and Luxembourg. Some of them are now leading archaeologists and University professors in Bulgaria, Germany and England.
Theoretical and methodological perspectives in archaeology

Keywords:
art, creative archeology, heritage, interpretation

Author
Synnøva N. T. Astrup
University of Bergen, Bergen, Norway

Presentation Preference - Workshop

In this paper I explore the notion of milk as an assemblage or ecology, using crafted objects. A workshop is an opportunity to make the workshop participants reflect on the process of assemblage in their everyday lives. I will discuss the workshop process, including the making of crafted objects, and how the craft objects challenge our perception of the assemblage. The workshop will also give an opportunity to hear the workshop participants’ reflections on the workshop process and the crafted objects. The workshop will be a participatory process, where the workshop participants will be encouraged to reflect on the process of assemblage in their everyday lives.

Archaeological carpentry. Doing theory with your hands

Keywords:
archaeological monuments, creative archaeology, modern Moscow

Author
Dmitriy D. Mlekuz
Institute of Archaeology of the Russian Academy of Sciences, Ljubljana, Slovenia

Presentation Preference - Oral

In this paper I would like to tell you all about the excavation, but I will not. This presentation will instead be your introduction to the concept of pinboard-archaeology, and during a short workshop I will let you all be a part of excavating the local community through a pinboard at the venue.

Archaeological carpentry; a perspective on creative work that asks philosophical questions. Or a directors and cameraman, and certainly more often as a common draftsman.

Keywords:
archaeology, carpentry, theory

Author
Anita Synnestvedt
University of Gothenburg, Gothenburg, Sweden

Presentation Preference - Workshop

In Russian historiography there is still no custom to regard archaeological excavation as a place for creative extrascientific activity, as well as an archaeological finds obtained in the course of excavation still haven't been regarded as a piece of art. However, they certainly are. Archaeology spontaneously induces the appearance of art objects, starting with the temporal (video and performances at the site) and space objects (carefully planned out and methodically deepening excavations that are treated by the viewers and even by the participants themselves as a complex three-dimensional installations) and finishing with more traditional photos, sketches and drawings. In all these cases, archaeologists or the members of their team are making every effort to organize the excavation area, achieving the best light, locating the characters and generally working either as scriptwriters, or as a directors and cameraman, and certainly more often as a common draftsman.

Finally, in modern cities the archaeologist daily come in contact with the challenge of incorporating the remains of the discovered antiquities into the urban context, also doing his best as a designer. As is well-known, similar forms of cooperation between the archaeologists and artists. The study of these examples could in time become an important direction of the special art research.

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Institute of Archaeology of the Russian Academy of Sciences, Ljubljana, Slovenia

Presentation Preference - Oral

In this paper I would like to tell you all about the excavation, but I will not. This presentation will instead be your introduction to the concept of pinboard-archaeology, and during a short workshop I will let you all be a part of excavating the local community through a pinboard at the venue.
Archaeological field schools are viewed as the first port of call for students aspiring to become archaeologists. On top of this, they are often major research outlets for universities and archaeological organizations, and often come to represent the sector on television and in publications. Their position and importance in the sector is well developed and, until now, viewed as well understood.

When starting research on field schools in the UK, confused responses were given to simple questions on definition, curriculum, length, cost, demographic and standards. I subsequently set out to start to answer some of these questions over three stages. The first developed the 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 definition 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. I 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 definition and expectations of field schools, fuelled by a lacking regularity on the length, demographic, cost and curriculum on offer.

What this research shows is a fundamental area of the archaeological sector which, in the UK and contrary to its academic counterpart, has failed to develop in a way which caters to the demands and regulations required by its participants. In light of the economic difficulties field schools are facing, they are being forced to compromise and develop. It is therefore a perfect opportunity, albeit overdue, to develop field school as strategic assets for the sector and wider cultural heritage, as well as a fairer environment for those taking part. The data produced and topics discussed in this paper hope to mark the start of this process.

TH3-13 Abstract 06
Visual aesthetic of archaeological practice: a creative approach
Author: Mermol-Martinez, José-Antonio, Arqueología de Guardas Association, Benimaquia (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 aesthetic of movements, to allow the reflection about the concept of “universality”. This go beyond the Theory and has been applied on practice during a field school of Archaeology done at an official High School of the Spanish State, in Murcia, in which was made relevant the presentation of new ways to understand common values of Archaeology as the experience, materiality and temporality through playing with the visual perceptions of both artistic and archaeological practices, with the creation of Art and the take of consciousness. This, finally, propose us two interesting conceptions to the Archaeology: the inclusion of creative ways to see the meanings of archaeological practice, and the utilization of Archaeology in an activistic sense to fight the injustice derived from the integration processes at the moment of understanding.

TH3-13 Abstract 07
Kulmin - digital dissemination of cultural heritage
Author: Prestvold, Kristin, Sør-Trøndelag County Authority, Trondheim, Norway (Presenting author)
Keywords: digital dissemination, Kulmin
Presentation Preference - Oral
How do we inspire curiosity and interest and heritage in cultural and historical heritage when the personal guide is absent? How can we create wonder and sense of place and time in the encounter between people and cultural heritage without a good storyteller?
Sør-Trøndelag County Authority has developed a product and a strategy for digital dissemination of cultural heritage via mobile phones and tablets named Kulmin. Focus is on the good story, the good storyline. Focus is on men, women and children's encounters with the cultural heritage. The monuments and sites are made vivid and dramatic through text, audio and video on smartphones and tablets in stories based on archaeological, cultural and historical facts. The stories are characterized by myths, legends, events and people, conveyed through dramatization, humor and other narrative devices.

The dissemination has included input from the hearing and visually impaired, and the contents should be understandable and engaging independent of the user’s ability or disability. The aim of Kulmin is to make cultural heritage accessible to all. Kulmin takes the step from protection of our cultural heritage to facilitate, make available and visualize the historical monuments and sites. Kulmin as a product is not technologically advanced. The innovative aspect of Kulmin is in how heritage is being conveyed. Technology is only the tool, the content is the king with an aim to capture the interest and create curiosity. Dramatizing the past through the good story makes the cultural heritage more accessible and exciting.
TH3-14 Abstract 01

Farms, hamlets, villages and towns. Settlement variability in Early Modern Scandinavia

Author - Dr. Rosén, Christina, Arkeologerna 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 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. Seppänen, Liisa, University of Turku, Turku, Finland (Presenting author)
Keywords: socio-topography, layout, Turku, early modern, urban settlement
Presentation Preference - Oral

Research, even if focused on the same topic, is relevant and has many variables, which may change in the course of time affecting approaches, methods and results in remarkable ways. In urban contexts in Finland, archaeological practise has long been restricted by the existence of studies based on historical information, which however is not abundant or diverse. The supremacy of historical studies has especially affected the research of the early modern and modern periods in those towns with earlier history where the focus of archaeological research has been in medieval periods. During the last two decades, archaeological excavations have increased the amount of source material, which offers an interesting supplement for historical studies and cartographical information.

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 the then Sweden. The first presentation of the layout of the city are from the 1630s and it has been under 300 years of the establishment and settlement of the town. It took more than 100 years before a map was made in the 1750s with the list of the plot owners including information about their professions and sites values.

TH3-14 Abstract 03

Norrköping and Kalmar: A spatiotemporal analysis of two early modern Swedish towns

Author - Agnesten, Sofia Andrine, Gothenburg university, Gothenburg, Sweden (Presenting author)
Keywords: Early modern time, Settlement variabilities, Spatio temporality
Presentation Preference - Oral

During the early modern time, one of the most extensive phases of city transformation in Europe occurred in Sweden. This spatiotemporal analysis explores settlement variabilities and social dimensions in the two Swedish towns Norrköping and Kalmar during the time period. These are, from a Swedish Early Modern perspective, rather large towns with both having major ports on the east coast of the Baltic Sea. However, from a utilitarian and functional perspective they differed in many aspects and because of these differences they help illustrate some of the urban settlement variabilities of this dynamic period. The space analysis is performed on several levels, where the spatial dimensions are examined in the towns as a whole, but also in selected districts, at block level and even more thorough at plot level. The temporal part of this analysis focuses on exploring various time-related processes that follow different rhythms and the possible impacts these had on the lives of the town residents. Some processes are slowed down by the inertia of society while others are more rapid, such as seasonal changes. The data from about two hundred archaeological field reports together with a theoretical orientation helps to unfold a more diverse picture of the Swedish early modern town.

TH3-14 Abstract 04

Same name, same background, same function?

Similarities and differences of the Scandinavian Husebyer

Author - Dr. Lemm, Thorsten, Stiftung Schleswig-Holsteinische Landesmuseen Schloss Gottorf, Schleswig, Germany (Presenting author)
Keywords: cultural-Historical background, royal administration, royal farm
Presentation Preference - Oral

Since the early 20th century the more than 130 hamlets or farms in Scandinavia and the Orkneys known by the name Huseby, Husaby, Huseby, Husebi, Husaby etc. have been a relevant topic in historical, archaeologicial and onomastical research, closely linked to the discussion of kingship and political administration. Espe-cially the highly frequent use of the place-name Huseby, their uneven distribution over Scandinavia, and the use of husaby) as an appellative in some early written sources led to the understanding of a great majority of the Husebyer as places with a royal background. As such the Husebyer have in many cases been a substantial argument in thesis 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.
TH3-14 Abstract 05

Materíal, Socio-Economics and Outcome in the Medieval Baltic: A Triadic Model of Settlement Analysis

Author - Tihoe, John, Trinity College Dublin, The University of Dublin, Castletown 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. AD 500, there was an increase in crop production, the growth is seen in stark contrast to the previous five hundred years or so, which seems 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 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 as 70,000. Despite Strutt’s estimation that they went out of use after c. AD 900, there is no other type of secular settlement found in all areas of the country to populate the landscape. It is possible that although ringforts did not change in morphology after this period, many being re-occupied in the later medieval period, its possible location echoed a change in their function, away from being a cattle pen to being one used to control and exploit the agricultural producers. While the area has been an area with rich houses and farms, vineyards and the passage of one of the most important water channels of Granada: the ditch of Aynadamar. Granada was conquered in 1492, the date that marked the end of the Christian conquest of the whole Peninsula. After that, at the beginning of the 16th c., parts of these lands in northern Granada were given to Carthusian order to build a monastery. Since then, in addition to the construction of a monumental monastery, the monks became owners of a large space replacing the previous Muslim owners, and they decided to change the production system, creating dry crops in terraces and waling all domains, transforming the landscape.

At the present time this area houses part of the university campus of Granada. In different excavations, it had documented here a long sequence of occupation beginning in prehistoric times and continues in Roman times when a area of pottery and ceramics workshops existed. However, the period of the late Middle Ages and the consequences of the Christian conquest remains non well-know 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 archaelogical 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.

Keywords:
- Oral
- Prof. Malpica Cuello, Antonio, Universidad de Granada, Granada, Spain (Presenting author)

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 stabilization and marginalization of the rural world is observed, which lead to a violent confrontation between old and new Christians.

Keywords:
- Oral

A multi-proxy approach on identifying stabling patterns in prehistoric times

Author - Ebner, David, Free University, Berlin, Germany (Presenting author)

Keywords: animal husbandry, spatial analysis, stabling

Presentation Preference - Oral

The identification of stables in prehistoric settlements often depends on exceptional preservation conditions or geochemical analysis of sediments. But is it 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 stabling. The initial approach is based on examination samples with extraordinary preservation conditions especially from the northern sea or lake sites with proof of existing or non-existing stabling features. But also settlements with inferior preservation can hold evidence of stabling 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 pagan-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 causura 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, Kolobrzeg and Gdansk. So far, little attention has been paid to the centers located on the islands of Pomerania Lakeland. However, since 2004, in the Institute of Archaeology at Nicolaus Copernicus University in Toruń, a research on the significance of these islands in the socio-economic and religious life of Slavs in 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 Zdziele, 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.

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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. Dychenko, 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.

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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 Cachiapu 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 socioeconomic. The potential of the concept of mode of production, in a new revised version, will be tested.

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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 Ernbigach “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 hilltop 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 are both possible ideas. The ability to trade suggests over production and possibly the existence of a vertical social structure.

As cremation was the prevailing burial practice vertical organisation and its impact on individuals can only be interfered by the analysis of grave goods. Early and early middle urnfield culture graves usually do not exhibit dissimilar “wealth” through grave goods. But at the cemetery of Ernbigach “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 regional 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.
THE ATLANTIC ARC AND ITS NEIGHBOURS IN THE FIRST MILLENNIUM AD: FRAMING NEW PERSPECTIVES

Friday, 2 September 2016, 14:00-16:00
Faculty of Philology, Room A7
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

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 materialise and affect, for example, the way in which the sacred dead and holy places were materialised by carving names and crosses in stone. An embodied perspective of these carved stones, and the sea within which they were created and worshipped, might be accepted to set the Atlantic Arc in its wider geographical context.

TH3-15 Abstract 02
Comparing early Christian stone monuments in north-western Europe: movement and identity

Author - Busset, Anouk, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Keywords: carved stones, Christianity, movement
Presentation Preference - Oral

Stone monuments have been used by people for many centuries, as a medium for expressing messages and ideals, and as a means of transforming the landscape. During the early medieval period, this tradition developed, and indeed flourished, principally at the north-western edges of Europe. With Christianisation, carved stones were enfolded as a prominent part of the landscape, 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 stone monuments can be understood and further understood. This paper will thus present early Christian carved stones and run stones from Ireland, Scotland and Scandinavia using a three-level comparative approach developed in my recently completed PhD thesis, which consists in looking at and comparing the monuments, the landscapes they are erected in, and ultimately their role within the Christianisation process. The theme of movement in the landscape, and how it is created by the presence of early Christian carved stones, will be used as a common thread.
demonstrate transition over time. It will highlight how at key historic centres in Ireland early Roman influences became embedded into a syncretic Romano-Irish ritual practice, which in time paved the way for the adoption of Christianity in Ireland.

TH3-15 Abstract 05
Europe of the Regions? Sailing between Scylla and Charybdis on Europe’s Atlantic Arc

Author - O’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 Gлюsson, 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 in any 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-attachment to the sorts of micro-level, particularist and exceptionalist approaches associated with the national archaeologies of various regions of Europe. It also helps mitigate against issues such as the relationship between nationalism/regionism and archaeology on the one hand, and on the other, the epistemological dissonance brought about by the use of different systems of classification.

TH3-16
TOWARDS DIGITAL INFRASTRUCTURES FOR OPEN, PARTICIPATORY, PUBLIC ARCHAEOLOGY

Thursday, 1 September 2016, 14:00-16:00
Faculty of History, Room 329
Author - Dallas, Costis, University of Toronto, Canada (Presenting author)
Co-author(s) - Degreve, Ann, Brussels Capital Region - Heritage Direction, Brussels, Belgium
Co-author(s) - Fernie, Kate, 2Cultures Associates Ltd., United Kingdom
Keywords: CARARE, digital archeology, Europeana
Presentation Preference - Round table

The Amersfoort Agenda of the European Archaeological Council, developed during its 15th annual symposium, identifies the need for concerted action to meet the objectives of the Council of Europe’s Framework Convention on the Value of Cultural Heritage for Society (Faro Convention) to secure the rights of people to access, participate, and benefit from cultural heritage and cultural life, and contribute towards its enrichment. This round table, taking stock of the insights from digital infrastructures such as Europeana and its CARARE network of archaeological and architectural heritage archives across Europe, will explore and debate how aggregated digital archaeological resources and the infrastructures supporting them can best serve the needs of a truly participatory and open social archaeology, enhancing and unlocking their value to foster citizenship, innovation, economic growth, employment and social cohesion. Understanding the potential value of digital archaeological infrastructures for diverse stakeholders including young people and children, the needs and opportunities they may offer for archaeological land management, education, tourism, research and the creative industries, as well as the promises and challenges of integrating social media, open curation, crowdsourcing, and semantic enrichment to enhance social access and participation to archaeological sites and data, will be among the topics to be discussed.
In scientific literature the term “Baltic region” is often used in either of two meanings: as the geographical region around the Baltic Sea, and as a cultural region of the Balts.

This conference theme on the Archaeology of the Baltic Region seeks interconnections of both meanings of the term “Baltic”. The remains of material culture and toponymical forms demonstrate that the influence of the Baltic cultures covered the territories from contemporary Moscow to the Oder river, and from contemporary Latvia to the Ukraine and overlaps with geographical region around the Baltic Sea. Cultural and technological interactions between these two regions were important factors in the formation of Northern, Eastern and Central Europe throughout the period of the 2nd millennium BC to the 16th century AD. However, various roles played by different cultures in the development of the region remain problematic, and were heavily influenced by the nationalistic narratives of the 20th century.

Fundamental questions about the formation of the both “Baltic regions”, the interconnections between Baltic, Slavic, Fino-Ugric, Germanic cultures and the rest of Europe; the impact on formation of medieval Lithuanian, Russian, Polish, German, and Swedish states will be discussed in this Theme.

This Theme is dedicated to Maria Gimbutas (1921-1994), the world-renowned Lithuanian scholar who contributed immensely to the studies of the Balts as a part of the wider Indo-European phenomenon of the “Old Europe”.

Hillforts resp. strongholds are most famous and recognizable monuments of ancient societies in the northern part of Europe. From the region east and south of the Baltic Sea altogether about 1.700 hillforts and strongholds are currently known, dating from the Early Metal Age/Brone Age to Medieval times. Numerous investigations within several decades of archaeological research have provided various information about the occupation layers, functions and chronology of the hillforts/strongholds. Nevertheless, new information can be gained under the application of interdisciplinary methods. Such approaches provide new results regarding the settlement history and function of the sites, but also the reconstruction resp. transformation of the surrounding cultural landscape.

The purpose of the session will be to present a comprehensive overview of the current state of research of hillforts/strongholds in the region east and south of the Baltic Sea. Therefore we invite researchers to submit papers which will present archaeological, historical and interdisciplinary investigations of hillforts/strongholds. The session’s preferably spatial focus is on the Eastern Baltic area, but we also welcome papers dealing with fortifications outside of this region to enable a necessary comparison of approaches, methods and results of the archaeology of hillforts/strongholds.

TH4-02 Abstract 01
The continuity of hillforts in long-term perspective: a case study from south-eastern Estonia

Author - Dr. Valk, Heiki, University of Tartu, Tartu, Estonia (Presenting author)
Keywords: chronology, hillforts, long-term perspective

Presentation Preference - Oral

Hillforts have often been regarded just in the context of some definite time period – as power centres and important centres of the settlement pattern. However, not much attention has been paid to the network of hillforts as a phenomenon from a long-term perspective. The paper sheds light upon the question on the basis of a case study concerning the hillforts of south-eastern Estonia: there problem-based small-scale excavations with the aim to establish the chronology of sites were carried out on 31 hillforts, i.e. on almost all the sites, in 2015-2015. Until the late 20th century it seemed quite clear that hillforts emerged in south-eastern Estonia only since the beginning of the Viking Age. Archaeological excavations, both radiocarbon dates and finds, have, however, fully disproved the suggested model. It appears that hillforts emerged in pre-Roman Iron Age already and were used in different time periods. However, the network of sites has greatly changed in the course of time. Many of the sites, especially those of the Early Iron Age, were of short-time use, sometimes also re-used. Only in a few cases the site was used over a long time period. The case of south-eastern Estonia enables one to suggest that dates and chronology of hillforts, based on only external features, and not proved by results of archaeological excavations, may be most misleading.

TH4-02 Abstract 02
The evolution of hillforts in Lithuania according the C14 data

Author - Ass. prof. 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 made seldom
The environment of the Sambia hillforts according to the pollen studies

Author - Ershova, Ekaterina, Moscow State University, Moscow, Russian Federation (Presenting author)
Co-authors - Krenke, Nikolay, Institute of Archaeology RAS, Moscow, Russian Federation
Keywords: environmental archaeology, land use, pollen analysis

Presentation Preference - Oral

A large number of palaeoecological reconstructions based on pollen data were made for the coast of the Baltic Sea by European and Russian scientists. However, such reconstructions for Sambia Peninsula are still lacking. Archaeological studies of the Sambian expedition (Krenke (2005, 2010-2013) in the area of the village of Kuikovo (Kringitve) have identified a number of natural and man-made objects that are suitable for palynological studies. These are cultural layers, pits and moats fillings, archeolots, buried under the deluvial sediments, as well as small peatlands. All of these objects have been dated using archaeological or radiocarbon methods. Pollen analysis of the sediments allowed us to reconstruct, in general, the vegetation changes of the North of the Sambian Peninsula over the past 2,000 years. It is shown that prior to the intensive agricultural development, coniferous-deciduous forests with spruce, pine, oak, linden, hornbeam, elm were widespread, along with black alder forests in the lowlands. The mass extermation of upland forests was associated with Roman time (about 1800 BP). In the following, Prussian, period (about 1300 BP), pollen data indicates a continuation of deforestation - decrease or complete disappearance of the black alder, which is a result, apparently, of the amelioration of lowland swamps for pastures and fields. Pollen data indicates the absolute predominance of open agricultural landscapes also during the subsequent periods, until the 20th century. Some features of the land use during different epochs, such as the cultivation of various crops, have been revealed. Also, pollen studies allowed us to identify some local episodes of vegetation changes associated with the history of individual archaeological sites.

In addition to the late Holocene sediments associated with human activities, well-preserved organic sediments with radiocarbon dates 8500-10500 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 Peatocene and Holocene: the gradual transformation of a shallow freshwater reservoir in the marsh and than in the fen, while pine forests dominate the surrounding landscapes.

TH4-02 Abstract 05
The environment of the Sambia hillforts according to the pollen studies

TH4-02 Abstract 04
Signals of subsistence economy as revealed by pollen data: a case study from Lithuanian hillforts

Author - Dr. Stancikaite, Migle, Nature Research Centre, Vilnius, Lithuania (Presenting author)
Keywords: hillforts, Lithuania, pollen data

Presentation Preference - Oral

During the recent decades archaeobotanical survey became and 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 patter, introduction and expansion of the cultural plants and cultivars or indicating changes of the cultural traditions were obtained based on results of pollen survey.

Recently pollen investigations were conducted in the territory of Impiltis (Late Iron Age -the Middle Ages), Skomantai (Early Iron Age-Migration Period and the mid-13th c mid-14th c AD), Juodyns (the early Iron Age – the Early Middle Ages) and Petranai (1st-3rd century AD – Historical times) hillforts or in the closest vicinities of mentioned monuments under the digging projects. An intensive human activity began in the Impiltis area, W Lithuania, shortly before 900 AD, generallly coinciding with the onset of the “Medieval Warm Period” and the 1st appearance of rye (Secale cereale) and rye (Secale cereale) and flax (Linum usitatissimum) pollen grains is the earliest in the region, which includes the development of permanent agriculture using some horticulture system. Herewith the palaeobotanical evidence establishes that human interference in the Skomantai included mixed pastoral/land use with Secale cereale and Falguryum 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 pollen data shows remarkable differences in the human activity accompanied by the marked changes in agriculture system throughout the Early Middle Ages in Juodyns, E Lithuania. The period of the highest intensity that included development of the fields, part of them were permanent, and introduction of the winter cereals was dated back to 965-1054 AD showing the significance of the agriculture for local community. Obviously the beginning of the 2nd millennium AD coincides with the remarkable changes in economic system, development and introduction of new methods in agriculture as it was found in surroundings of Juodyns hillfort. Cultivation of human induced vegetation changes including cultivation of cultivars coincides with the Medieval Warming in Petranai suggesting positive reaction among human activity and climatic amelioration.

TH4-02 Abstract 03
The application of geophysical investigations in Baltic hillforts

Author - Dr. Messei, Sebastian, German Archaeological Institute, Berlin, Germany (Presenting author)
Co-authors - Dr. Ibsen, Timo, ZBSA, Schleswig, Germany (Presenting author)
Dr. Messal, Sebastian, German Archaeological Institute, Berlin, Germany (Presenting author)
Dr. Krenke, Nikolay, Institute of Archaeology RAS, Moscow, Russian Federation
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, Opatstina/Vilkiskiai, Jakai) have been investigated. In almost all sites features and structures could be detected that enables some initial statements on the structure and dimensions of the archaeological monuments. For some sites the surveys also provided very precise and hillfort to unknown information about the settlement context like in Taurapilis and Opatstina/Vilkiskiai (fortification ditch) or Jakai/Sudmantai (stone wall fortification). These new results clearly show the potential of noninvasive, especially geometric methods for archaeological purposes, not just for archaeological research, but also for cultural heritage management. The geophysical data can be used differently as basis for specific archaeological investigations - which have for example already been conducted in Taurapilis – and for the development of future concepts and strategies for the protection and preservation of these sites. The paper focus on the most exciting results of these surveys which will be presented and discussed during the talk.

TH4-02 Abstract 02
Drilling the past - New approaches in dating hillforts in the Baltic region

Author - Dr. Ilsen, Timo, ZBA, Schleswig, Germany (Presenting author)
Keywords: C14 dating, hillforts, Kaliningrad Region

Presentation Preference - Oral

Though most of the more than 2500 hillforts in the Baltic Region are mapped and discussed on a military-strategic background since the beginning of the archaeological research in the 19th century the number of intensively investigated monuments until now is surprisingly low. Especially the northern part of former East Prussia, nowadays as Kaliningradskaya Oblast a part of the Russian Federation, shows a significant lack of data.

For instance, for the Sambian peninsula we know approximately 90 hillforts, from which only 22 have been examined by surveys and only 7 have been partly excavated. In addition only a few excavation results have been comprehensively published. In particular, the dating of the monuments is mostly based on theoretical considerations and studies of written sources of the Teutonic order, which only give evidence for their late existence, but not for 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-analysis are available only for a few monuments in Poland, Lithuania and Latvia, but they are absolutely absent for the Kaliningrad Region.

In the context of a bigger project on settlement archaeology, conducted by the Centre for Baltic and Scandinavian Archaeology in Silsbejerg and the Museum of Prehistory and Early History in Berlin and financed by the Academy of Sciences and Literature Mainz, the author developed a new strategy for the dating of hillforts. Using a motor driven drilling equipment for sampling datable material, especially charcoal for Radiocarbon-analysis, the rampers of several hillforts in Lithuania and Russia have recently been investigated.

The paper gives an overview on the methodology and presents first results of the recent investigations.

TH4-02 Abstract 08
Reconsidering early hillforts in the East Baltic: conflicts and metallurgy
Author: Podešva, Vytenis, National Museum of Lithuania, Vilnius, Lithuania (Presenting author)
Keywords: behavioral archaeology, early hillforts, spatial analysis
Presentation Preference - Oral

Recent research of archaeological finds and new discoveries in the Lithuanian museums encourage reconsidering the cultural phenomenon of emergence of hillforts in the Late Bronze Age. The basic assumption of this paper is that the emergence of hillforts are a behavioral expression of prehistoric conflicts. A contemporaneous process of appearance of locally executed metallurgy in the East Baltic region concentrates in hillforts as well. Thus making the two practices comparable.

With application of behavioral archaeology theory, the research of the formation processes of Narkūnai “Didysis” hillfort is presented as a case study with spatial analysis of household and technical ceramics, bone arrowheads and spears heads, and metal finds. Results suggest abandonment of the northern building with the concentrated sherds’ neat and bone finds. The analysis of aforementioned groups of finds is compared to recent research and spatial analyses by Latvian and Estonian archaeologists of archaeological context of Asva, Rielaidu and Krivužnija hillforts. In addition, distribution of early hillforts and eastern territories 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 Majdów type bronze pin that indicate a possible end of PII. Casting moulds for socketed axes from Narkūnai, Garminai, Skaistkalne, Veikiu Strėva and Šlepučiai, and Brikuti hillforts, and casting moulds for spearheads from Asva, Brikuti and Krivužnija hillforts are one of the earliest evidences, dated to PN-VI, of locally executed metallurgy in East Baltic region. The historiographical classic route of Daugava river seems to attract most of the early metalworkers. Casting moulds for Māļa type socketed axes are an evidence that metalworking and metallurgical activities in the hillforts. The latter casting moulds, like the rest of the technical ceramics types, are scarce, with similar amounts in Narkūnai and Krivužnija and one newly found in the National Museum of Lithuania from Garminai hillfort. However, the Māļa-type bronze axes are not specific to the East Baltic region, on the contrast the axes are mostly found in Scandinavia or in Upper Volga region of the inseparable Azovo-type axes. Furthermore, spatial analysis of Narkūnai hillfort technical ceramics indicate that the Māļa-type bronze axes have been cast on two different occasions, therefore making some ground for the itinerant metalworkers’ hypothesis. The aim of the paper is to reconsider the emergence and character of early hillforts in the East Baltic region involving the spatial analysis of bone, ceramic and metal artefacts, and the emergence of locally executed metallurgy as a relative process.

TH4-02 Abstract 09
Late Bronze Age hillforts in Pomerania: an overlooked problem
Author: Niedziółka, Kamil, University of Gdańsk, Gdańsk, Poland (Presenting author)
Keywords: hillforts, Late Bronze Age, Pomerania
Preparation Preference- Oral

Although hillforts identified with Lusatian culture, from the end of the Late Bronze Age and beginning of the Iron Age appear in vast areas of Pomerania, the most interesting site is the Hillfort Museum in Pomerania, beside Lower Oder region. This site is surprising, especially taking into account relatively numerous appearances of hillforts in Great Poland that is a region directly neighbouring with Pomerania from the south. On the other hand, investigations conducted in the 1960s to verify Pomeranian hillforts described as originating from Early Medieval and Medieval Period resulted in detecting at least at a dozen sites with materials from the latter Bronze Age. The aim of this paper is to introduce the problem of alleged presence of Lusatian culture hillforts in the central part of Polish Pomerania. It is highly probable that this kind of settlements played an important role in interregional contacts between Eastern and Western parts of Pomerania, together with Great Poland. In wider perspective their role in the course and working of the Amber route at the end of the Bronze Age should also be taken into account and investigated. It seems that new tools available for archaeologists like GIS software and LIDAR data may bring a new opening and new perspectives in researching this case study.

TH4-02 Abstract 10
Moving forward in the understanding of medieval ring-forts in Central Poland. Rozprze case study
Author: Dr. Sikora, Jerzy, Institute of Archaeology University of Lodz, Lodz, Poland (Presenting author)
Co-author(s): Dr. Kröller, Piotr, Department of Geomorphology and Palaeoecology, Faculty of Geological Science, Lodz, Poland
Co-author(s): MA Wroniecki, 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 site was 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, phosphate prospection with a simplified field method, analysis of archival aerial data, airborne laser scanning, intensive analytical field walking, RTK GPS and Total Station surveys and geomorphological surveys along with geological mapping were carried out in order to provide possibly comprehensive and complementary data sets without archaeological excavations. All results were integrated in a digital environment based on open source GIS software. The project methodology allowed the collection of vast and significant new datasets such as previously unrecorded information about the spatial structure of fortification features: additional rampart lines in Chełm, the course of not preserved ramparts in Włók and Piętarka, a previously unknown second, smaller ring-fort in Stare Błotnica. 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 Rozprze (ca. 60 km south from Lodz) were a prime example of new datasets categories that non-invasive approaches bring forth. It was excavated in 1960s but revaluation of previous knowledge is now necessary. Remains of the Rozprze ring-fort defensive system are poorly preserved but still visible in the field as earthworks. Currently, the site occupies an area covered with meadows and fallow fields situated between the contemporary main channel of Łučica and Rajskä River in the central part of valley floor, but on the Pieniński aluvial terrace remnants 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 paleoenvironmental research. It helped to detect the presence of a developed system of moats and ramparts which appeared to be a palimpsest composed mainly of elements of a late medieval and early residence, which replaced an older, early medieval one. The surveys confirmed the existence of earthen and timber ramparts as well as moats with a depth of up to 1.4 m with organic fill of gypsa and peat and partially inorganic deposits with rich remains of wood as well as other organic materials. The results correspond to various geophysical anomalies and crop marks documented during aerial reconnaissance.

Acknowledgements. This research project was financed by three one-year grants from The Ministry of Culture and National Heritage No. 0161/13/PPK/ND (2013), 4962/14/PPK/ND (2014), 4962/14/PPK/ND (2015) and by a grant from the National Science Centre based on the decision No. “DEC-2013/11/B/H35/03785” (2014-2017).

TH4-02 Abstract 11
Is Hollenstedt the Carolingian Holdunsteti from 804 AD?
New contributions to an old controversy
Author: Dr. Schneeweis, Jens, Institute for the History of Material Culture RAS, Saint Petersburg, Russian Federation (Presenting author)
Co-author(s): Dr. Brandt, Jochen, Archäologisches Museum Hamburg/Helmstumuseum, Hamburg, Germany
Keywords: Carolingian Border, ceramics, dendrochronology
Presentation Preference - Oral

The stronghold “Alte Burg” near the village of Hollenstedt is an Early Medieval fortification, which was long-interpreted as the reference site for those “hybrid” ceramics. In autumn 2014 recent research including excavation and off-site investigation 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.

Co-author(s): MA Wroniecki, Piotr, Independent researcher, Warsaw, Poland

Presentation Preference - Oral

The stronghold “Alte Burg” near the village of Hollenstedt is an Early Medieval fortification, which was long-interpreted as the reference site for those “hybrid” ceramics. In autumn 2014 recent research including excavation and off-site investigation 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.
The study deals with the sites of the early Iron Age in the area between the Oka and Volga (East European Plain). This area was inhabited by tribes of the so-called Dyakovo culture. The remains of the fortifications of these settlements are the ramparts and ditches located on the residential area and the perimeter of the scarp - construction settlements on the slopes. Number of lines of fortifications on each settlement varies. Usually it is 1-3 shaft and ditch. With the help of GIS analysis to determine the spatial patterns of the fortifications on the location of the ancient city. This study is to determine the functionality of the ramparts and moats, define local cultural centers. The research considered the organization of space in the settlements Dyakovo culture from the 8th century BC to the 7th century AD. The beginning of D'yakovo culture hill-forts dated to the end of sub-boreal climatic period which is characterized by climate cooling, compared with the previous, and the change of deciduous forests with fir. This period continuous to 500's BC and covers the first phase of life in the hill-fort. Next climatic period Subatlantic characterized by even more cooling and moistening climate. It is falls on top of the second and third stages of life on the hill-forts. All settlements were divided into three layers corresponding chronological periodization. Stage 1 - 8th century BC - 6th century BC; stage 2 - 5th century BC - 2nd century BC; stage 3 - 1st century - 7th century AD.
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 – 5 meter high. Only a few of these structures have been partly excavated and only one have so far been totally excavated with archaeological scientifically methods. These cairns have so far only been discussed as burial sites but due to our recent archaeological excavations in relation to three of the largest cairn environments on Gotland (Uggarderojr, Digerrojr and Hägrör) and re-examination of the material excavated at Kaupaverj 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 temporal environment during several thousand years.

**Keywords:** Bronze Age Cairns, Gotland, Ritual Practice

**Presentation Preference:** Oral

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**TH4-04 Abstract 03**

**Patterns or randomness? Contextualising Estonian Bronze Age bronze stray finds on the landscape**

**Author:** Paavel, Kristiina, University of Tartu, Tartu, Estonia (Presenting author)

**Presentation Preference:** Oral

From Estonia, most large Bronze Age (1800-500 BC) metal items such as axes and spearheads have been found from non-settlement, non-burial context as single stray finds. In contrast, bronze finds from settlements and burial sites are small and of personal nature – tweezers, razors or clothing-related items such as buttons. The connection of stray bronze finds with coeval settlement sites has been assumed on a few occasions. A couple of items have been associated with possible deposition in water bodies. The possibility of these stray finds being deliberate depositions on the landscape, as identified in large parts of Europe, including the Baltics, has until now been systematically unexplored. This phenomenon has been interpreted from different perspectives: sacrifice, conspicuous consumption, mundane safe-keeping, memory practice and the removal of valuables or objects with powerful life-histories from circulation. Seeking potential patterns in Estonian material required characterising the original deposition environments of individual find-locations. To do so, I combined archive materials, topography, shore displacement data and information on soil properties. The results point to observable patterns in artefact distribution, with a preference for water bodies, wetlands and slopes. This implies not random losses, but willed deposition activity.

**Keywords:** Bronze Age, Re-construction, Wall enclosuer

**Presentation Preference:** Oral

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**TH4-04 Abstract 04**

**Digital re-construction of a Bronze Age stone wall enclosure and the landscape at Lina Mire, Gotland**

**Author:** Associate Prof. Wallin, Paul, Uppsala Universitet, Uppsala, Sweden (Presenting author)

**Co-author(s):** Martinsson-Wallin, Helene, Uppsala Universitet, Uppsala, Sweden

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**Co-author(s):** Sandelin, Anders, Sandelin Animation, Stockholm, Sweden

**Keywords:** Bronze Age, Re-construction, Wall enclosure

**Presentation Preference:** Oral

The aim of the project was to digitally re-construct the stone wall enclosure at Gothemshammer and to understand its location in the surrounding landscape. Excavations into the feature uncovered its internal construction details, as well as, dateable materials from domestic animals and charcoal. Fifteen AMS dates gave a clear and somewhat unsuspected age of the structure to the mid Bronze Age ca. 900-700 BC. The northern end of the wall is to be found at the end of a steep cliff, and since the southern end of the wall ended in an open slightly slanting terrain it suggested that it might have ended at the sea level when built to demarcate a point in the landscape. We therefore reconstructed the water level using LiDAR data indicating that the former sea level at mid Bronze Age could be set at about 10 m above the current sea level in this area. To place the wall enclosure in its Bronze Age context we also plotted other features tied to the same time, such as stone ship settings, cairns, other wall enclosures, and known Bronze Age settlement, non-burial context as single stray finds. In contrast, bronze finds from settlements and burial sites are small and of personal nature – tweezers, razors or clothing-related items such as buttons. The connection of stray bronze finds with coeval settlement sites has been assumed on a few occasions. A couple of items have been associated with possible deposition in water bodies. The possibility of these stray finds being deliberate depositions on the landscape, as identified in large parts of Europe, including the Baltics, has until now been systematically unexplored. This phenomenon has been interpreted from different perspectives: sacrifice, conspicuous consumption, mundane safe-keeping, memory practice and the removal of valuables or objects with powerful life-histories from circulation. Seeking potential patterns in Estonian material required characterising the original deposition environments of individual find-locations. To do so, I combined archive materials, topography, shore displacement data and information on soil properties. The results point to observable patterns in artefact distribution, with a preference for water bodies, wetlands and slopes. This implies not random losses, but willed deposition activity.

**Keywords:** Bronze Age, cultural contacts, materiality

**Presentation Preference:** Oral

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**TH4-04 Abstract 05**

**Between Social Dynamics and Cultural Constancy, Case Study of the Trzciniec Culture**

**Author:** PhD student, Agne, Zilinskaite, Vilnius University, Vilnius, Lithuania (Presenting author)

**Keywords:** Bronze Age, pottery, Trzciniec Culture

**Presentation Preference:** Oral

The appearance of the Trzciniec Culture (Trzciniec Cultural Cycle) in Lithuania and its role in the formation process of Bronze Age cultures is still a controversial question at the present stage of research. The investigation of this culture started only a few decades ago even though Trzciniec culture artefacts have been known in Lithuania for a long time. The archaeological material of this culture is known from almost 20 sites in current Lithuanian territory. Individual pots, clusters of pots and talismanic objects are usually found on these long-term lived sites. The ornamental motifs on the pottery in all the groups of Trzciniec Culture are the most important criterion for identification. However, the conspicuous influence of neighbouring simultaneous cultures can be seen in this pottery. Its background was no doubt Globular Amphora and Corded Ware Cultures with influences of the Navia 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.

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**TH4-04 Abstract 06**

**Coastal and northern Lithuania in the Late Bronze Age – communication networks and interactions**

**Author:** Assoc. prof. Merkevičius, Algimantas, Vilnius University, Vilnius, Lithuania (Presenting author)

**Keywords:** Bronze Age, cultural contacts, materiality

**Presentation Preference:** Oral

The Late Bronze Age, from around 1200 BC, was a time of significant cultural changes in Lithuania and in the whole Eastern 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 (Mair type axes, miniature daggers and others) shows contacts and interactions in the Baltic sea Region. Some of new culture elements are the result of external influences from coastal zones of the western and southern Baltics. Distribution of new type of sites and artefacts suggests communication networks in the Baltic sea Region. One of the trade route was established at the beginning of the first millennium BC and functioned between central Sweden, Gotland, east Baltic Region (Daugava route) and northeast Russia in the first half of the first millennium BC.

The aim of the paper is to discuss communication networks and nature and scale of interactions in the Baltic Sea Region in the Late Bronze Age.

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**TH4-04 Abstract 07**

**Materialised and non-materialised contacts in Bronze-Age Eastern Baltic**

**Author:** Professor Lang, Valler, University of Tartu, Tartu, Estonia (Presenting author)

**Keywords:** Bronze Age, Finn-Baltic contacts, long-distance contacts

**Presentation Preference:** Oral

Archaeology as an academic discipline studying material culture can easily follow contacts between people from different regions if some evidence has been left behind – usually something material which can be studied by scientific means. There are numerous examples of bronze artefacts found, for instance, in what is today Estonia that demonstrate long-distance contacts with the mid-Volga region, the Caucasus, Scandinavia, etc. We know about these contacts because of some materialised witnesses. There is no doubt that each item of foreign origin must be carefully studied in order to avoid the trap of a novice detective – everything that seems evident at first sight need not be true. The presentation will discuss several artefacts with the purpose of analysing the probable nature of contacts that yielded those items.
But what about those contacts that did not leave any material evidence behind? Actually, archaeology can sometimes be quite inefficient in trying to describe the wholeness of contacts between two neighbouring (ethnic) groups. For instance, there is not much preserved materialised evidence to prove close contacts between Finnic and Baltic communities in the Bronze Age, 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 08
Landscape transformations at the turn of Bronze and Iron Age at the southern coast of Baltic Sea
Author - Niedźwiedź, 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 Umfried tradition. Appearance of Pomeranian culture was tied with new patterns in burial rite: people started to put ashes of their deceased in impressing urns with images of faces (so-called face urns) which afterwards were buried in a cist grave. 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 Frisia province was a rich environment 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 background to present described changes from a wider – cultural, social, and environmental perspective.

TH4-04 Abstract 09
Mid-Pre-Roman military impact on the northern Eastern Baltic
Author - Professor Lang, Walter, University of Tartu, Tartu, Estonia (Presenting author)
Keywords: foreign impact in East Baltic, fortifications, Pre-Roman Iron Age
Presentation Preference - Oral
There is an increasing number of hill forts in Estonia, northern and western Latvia, and south-western Finland where excavations have yielded some evidence of habitation and/or fortification during the Pre-Roman Iron Age. In all likelihood, their use was short-lived; the find material usually consists of a handful of potsherds and some artefacts. In some cases there were real fortifications, for instance at Jagala, where an earthen rampart with wooden chamber-like constructions was discovered, or at Võnmägi, which was defended by means of an extensive stone wall. In most cases the existence and nature of fortifications is far from clear, however. Radiocarbon dates indicate that the hill forts in question were used at some point between the fourth and the first century BC. There are some interesting finds that can probably be associated with the short-term use of hill forts. First, numerous narrow-bladed shaft-hole axes of iron have been found in Estonia (12), northern and eastern Latvia (11), and Finland (4). These axes originated in the eastern European steppe and forest areas and were characteristic items of the Scythians from the 6th - 4th centuries BC. In the eastern Baltic region they have been found mostly as isolated finds, but some have come to daylight from cemeteries and some from hoards; they should be dated from the middle and the latter part of the Pre-Roman Iron Age. Another type of artefacts is a shepherd's crook pin - these ornaments reached Estonia approximately at the same time and they became very popular during the late Pre-Roman Iron Age and after that. The pins have mostly been found from cemeteries while in some graves they were associated with big battle knives of iron. Similarly to the narrow-bladed iron axes, shepherd's crook pins also spread to the northern Eastern Baltic from the south-eastern direction.

It seems rather plausible that the fortifications, iron (battle-)axes, and shepherd’s crook pins reflect different aspects of the same process, which most likely involved troubled times and even some military impact. It is likely that some groups of invaders of Indo-European or Baltic-Slavic origin may have infiltrated into the Finnic population during this process.

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 Ni 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 Podolesy, Chernigov Region. Nearly in all cases, the findings were made in swampy areas and were apparently of votive nature. Apparently, these items belong to the German Jastorf Culture that existed in Northern Germany and Denmark. In Eastern Europe, such findings are probably due to the relocation of the Germans to the east.

The Jamlitz crown torque is type IV according to Jochen Brandt’s classification and probably dates back to Step C1 according to M. Schuhknecht (i.e. the last quarter of the 3rd century BC – first half of the 2nd century BC). According to Björn Rauchfuss, the torque belongs to shape 2: Crown torques with an oval, almost quadrangular cross-section. Parts of the Jamlitz torque and the pivot pin were cast from wax models. The 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 Podolesy close perfectly, and the lock keeps the parts of the ring together.

The Department for Scientific and Technical Examination at the State Hermitage carried out spectral analysis of the Jamlitz crown torque’s metal using a Bruker ArTAX 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 Zalesyje (Ternopol Region, Ukraine), Locholett (Pavlov, 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 Ellinmilltä, Rauma Finland
Author - PhD Ustila, Kari, Muurutikkus, 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 caimns 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 caimns were found from the forested terrain during each phase, at the last phase of the excavation the whole hill was opened with a jeep, which revealed about 250 caimns. Based on this the total amount of caimns can be estimated to have been about 300 and about 200 of these have been man made. From between the stone mounds a concentration of over 2500 morto-pottery shards was found. This has been interpreted as a part of a settlement site. In this area also pieces of burned bone were excavated. From them bones of fish, seal and one bone from either a sheep or a goat were identified. Macroscopic analysis revealed seeds of barley and wheat.

The most surprising finds were two iron bracelets, two pieces from iron knives and two small pieces of iron. These were all found from a caimn located at the highest outcrop of rock in the area. The caimn was covered with red sandstone slabs. There was also another caimn which was covered with sandstone slabs in the area but it revealed no finds.

The iron bracelets are a very rare find from an Early Roman Iron Age site in Finland and they suggest connections to the Baltic region.
Tarand graves spread in Estonia and around the Baltic Sea during Early Iron Age (500 BC – AD 450). This grave type was the most preferred one during a long time in the area of nowadays Estonia. The overall type of grave changed only slightly during these centuries, but the exact construction and contents of the grave varied regionally as well as temporally. Nevertheless, aside the differences, there are numerous similarities that allow the researchers to group the graves and see their evolution through time and both internal and external influences of the Early Iron Age society.

The poster will concentrate on a handful of case studies of Pre-Roman Age tarand graves and intends to map the influences and trends that have lead the mourners to build these monuments, bury their dead either cremated or inhumed, and to choose and place the items suitable for the grave.

Extraordinary in Life – the Hoby Settlement

TH4-05 Abstract 02

Author: Curator Klingenberg, Susanne, National Museum of Denmark, Copenhagen, Denmark (Presenting author)

Keywords: Activity area, Settlement structure

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.
In Holy on Lolland, a chieftain's grave from the Early Roman Iron Age was found in 1920. The grave is one of the richest dating back to this period from Northern Europe. In 1999, pottery and black soil were observed in the area NW of this rich grave, and minor excavations that followed 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 Historical Museum.

The settlement and activity area cover an area about 100×105 meters (328×492 feet), and about a third of this area has been excavated up until now. On larger parts of the Holy settlement, culture layer is preserved in a thickness of up to 8.6 meters (29 feet). It contains large amount of pottery and preserved animal bones besides the remains of clay floors. The preliminary studies show that the building at Holy represents a larger community/village. The long houses are located in EW rows. To the North, the settlement is bordered by an activity area with a large water-filled pit surrounded by numerous smaller pits, deposited bone mazes and ash. The activity area and the house constructions are contemporaneous.

In this present paper, the settlement will be presented, and the current state of our research concerning settlement structure, economy, 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: Nielsen, Martin, Writh, Museum Midtjylland; Herning, Denmark (Presenting author)
Keywords: Central settlement, Løsboegrave
Presentation Preference - Oral

Central settlement and hinterland – life and death in the 1st Century AD. A complex of rich graves and farms and villages. In the central part of Jutland, Museum Midtjylland has excavated a number of sites that all relate to an extraordinary rich site, Rosenholmvej. This central site is a settlement that covers most of the period from 500 BC through 200 AD, but with a “highlight” in period B1a. At this time a grave yard is constructed which includes a number of extraordinary rich graves with gravegoods and constructions that place them in a high社会-hierarchial position. It links them to other regional groups in Denmark, Europe and to the political turbulences we see in those years. At the same time, this group of people expresses their status in the construction of a “farmstead” that is in every respect extraordinary, with features that both illustrate their social, regional and international status. Additionally, we do have a number of sites in the “hinterland”, some are excavated and others known through geophysical surveys. This group includes both settlements as well as graveyards. Hereby we get an insight into an organization that is highly synchronized.

TH4-05 Abstract 04
Studying the Iron Age Settlements in Lithuania: Current Issues and Future Directions
Author: Dr. Vengali, Rokas, Lithuanian History Institute, Vilnius, Lithuania (Presenting author)
Keywords: prehistoric settlements, settlement pattern, survey
Presentation Preference - Oral

The research of the Iron Age in Lithuania (which is dated to the 1st millennium AD, according to the periodization of this region) was focused only on the ethno-history for a long time and that was the reason why the attention of archaeologists was directed to the studies of the burial sites. Because of such trend we could say very little about communities of that period, except for their ethnicity. There was some knowledge about the social structure, trade directions and ideology as well, but practically there was no information about the subsistence, the economy, settlement patterns and other themes. In recent decades this trend begins to change little by little – researchers begin to take interest in topics which were not analyzed before and at the same time the attention is drawn to the fact that the material which we collected up to now does not allow to analyze the newly emerging issues.

This report presents the research problems concerning Iron Age settlements in Lithuania and provides the examples of how these studies, though still sparse, significantly change the understanding of the these communities. There is quite a challenge encountered in attempting to analyze the intra-site structure of settlements, as well as settlement patterns, since there is a significant backwardness in settlements research in Lithuania. For example, intra-site analysis is faced with problems, such as chronology, pottery typology and its correlation with chronology, identification of buildings, etc. This report presents an example from a Danevirke settlement which shows that we can obtain valuable data applying new methods by researching 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 presented survey showed that the settlement pattern was at least several times denser. This now provides us with the possibility to search for small density, settlements size, stability, and similar aspects. This report concludes that the systematic settlement research in Lithuania, even though they are still in the initial stage, contribute very significantly to the overall formation of the image of this period, which until now was based essentially only on data from burial sites. In order to achieve tangible results, the wide range of information not limited to certain type of sites must be used.
The presentation will aim at the analysis of spatial distribution and spatial relations of the hillforts and barrow cemeteries in East Lithuania. The Register of Cultural Properties data with some author’s additions, different GIS map layers, LIDAR data, etc. will be used for this. The task of the inquiry will be to search for the regularities in the location of the hillforts and burial sites in respect to each other (e.g. visual contact), their setting on the terrain, water bodies connecting or separating them, etc. It will be attempted to identify agents relating hillforts and barrow cemeteries in the landscape or, vice versa, separating them. Special regard will be paid to those agents which can be considered as attesting to the perceptions of the afterlife and the relations of the worlds of the living and the dead (e.g. being visually connected or “hidden” from each other, separated by water or not, etc.). Such approach is expected to set a background for deeper insights into ideology and cults practiced by the societies which left the above-mentioned sites.

TH4-05 Abstract 07
Searching for links between artefacts from areas of prehistoric dwelling sites and burial grounds

Author - Dr. Bantele 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 spheres of profanum.

We can seek answers to where the production of tools and ornaments took place. Another interesting question is whether the regional shapes/types of artefacts, usually placed on maps according a database of burial sites are distributed in a similar way in the settlement pattern of the same territory. Such a comparison raises the question of whether regional ornament styles were created under the influence of “the regional taste” of several artisans of a particular region and that process reflects the existence of a regional identity. Or perhaps these regional features had a more practical origin - the distribution of particular types in particular regions was outcome of network of trade and range of influence of production centres on the market.

West Lithuania was an area where Roman coins were placed in graves during the Late Roman period (end of phase C1a – phase C1b). This tradition testifies to the importance of the Lithuanian coastline for the maintenance of far-flung contacts with the Roman provinces. It is interesting that Roman coins have been found in the cultural layers of hillforts and settlements in Žemaitija and Central, Southern and Eastern Lithuania while the tradition of placing Roman coins in burial 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 Oll, Maarja, University of Tartu, Tartu, Estonia (Presenting author)
Presentation Preference - Oral

Aakre Kivivare complex is an interesting archaeological site in north-east Estonia which was settled continuously over 1000 years during the Iron Age. There is a monumental stone grave, at least two settlement sites, a hill-fort with two stages and a possible flat cremation cemetary very near each other from different time periods.

It is possible to study the changes 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 1000 years. Therefore assumptions of a larger society of the time periods can also be made.

The chronology, characteristics of the monuments as well as items excavated from the sites will be discussed. Based on that, assumptions of the changing identity, religion and cultural and trade contacts of the community will be made.
TH4-06 Abstract 01

Ski Archaeology or tracking genesis & evolution of mobility technology across Prehistoric Eurasia

Author: MA Mazet, Laurent, Sagnørdet 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, strew the Eurasian continent from Northern England to Eastern Siberia. Recently, archaeogenetics have shed a new light on Upper Paleolithic, Mesolithic & Early Neolithic migration waves and ways within Eurasia and across the Bering Sound. All things considered, the dispersion of akin artifacts does not only questions the mobility of flint, antler and bone tools, but also the early development of durable (but perishable) woodwork transport means, for hunters-gatherers or early nomadic herders and their survival equipment, through new landscapes to adapt.

Travois & skates, dugout canoes & grooved runners, skis & bows, early backpacks & later coracles, rafts & early wheeled carts: many are examples of technological kinship, finding alter egos in vehicles or dwelling shapes, recorded by subarctic nomadic herders and their survival equipment, through new landscapes to adapt. In use over the very long term, they all descend from the same shaping of a piece of wood, thinner or lighter, bent to move across winter landscapes and surgical edges of the contemporary and multicultural Europe.

TH4-06 Abstract 02

The effect of Landscape Scale Forcing Factors on the Earliest Neolithization in the Baltic Basin

Author: Troskosky, Christopher, University at Buffalo, Cheektowaga, United States of America (Presenting author)

Keywords: Climate Change, Cultural Interaction, Neolithization

Presentation Preference - Oral

Understanding the underlying mechanisms for the “Agriculturalization” of Mesolithic Hunter Gatherer cultural groups has long been one of the great problems to be solved in Northern European Neolithic studies. This problem is especially difficult to reconstruct in the Baltic Region where traditional explanations of migration, diffusion, hunting and demographic pressures break down in the face of exceptionally slow temporal development of the Neolithic Paradigm Shift in culture across relatively small geographical distances.

In this paper a modification is made to Marek Zvelebil’s Homo habitus model, were used to verify the hypothesis that for the case of the formation of the Funnelbeaker (TRB) on the Kajavian Plain the substitution phase of agricultural adoption is short relative to the phases of agricultural availability and agricultural consolidation because it was triggered by landscape level forcing events of various intensities and durations.

Furthermore it is posited that the contemporary dissolution of the Lengyel complex in the region resulted from greater effect due to culturally specific vulnerabilities with respect to these forcing factors than their hunter-gatherer counterparts. This can be seen in the distribution of intercultural agency markers in the material culture and settlement systems of the local TRB fusion group composed of a mix of the remnants of the Lengyel complex and neolithized hunter gatherers.

TH4-06 Abstract 03

Neolithic Cultural Encounters in the Territory of the South Lithuania (4200-2000 BC)

Author: Marcinkevičiūtė, Eglė, Vilnius University, Vilnius, Lithuania (Presenting author)

Keywords: cultural encounters, Neolithic hunter-gatherers, South Lithuania

Presentation Preference - Oral

Till the end of 20th century southeastern part of the Baltic region was interpreted as periphery of the neolithisation centers in Central and Western Europe. Neolithisation also Indo-Europeanization process was explained by Late Neolithic colonization of Corded Ware Culture (Battle Axe culture) warriors, who assimilated autochthonous hunter-gatherers.

Archaeological and multidisciplinary research over the last 15 years denied the approach of dynamic evolution, revealed intensive mobility and interaction among various societies of hunter-gatherers and farmers. In the territory of the South Lithuania cultural encounters appear to have been the most intensive. Favorable geographical conditions and raw finds found in a surface of the area caused an emergence of numerous multilayer settlements of hunters-gatherers. Archaeological material of Dubičiai, Nemunai, Narva and maybe Comb-Ware cultures also pottery of Funnel Beakers, Glutabolus Amphora, Corded Ware cultures was found in this territory. The most of the sites were settled in a sandy soil which is unfavorable for preservation of organic materials, also find artifacts of different chronological complexes are mixed in this kind of environment. Nevertheless, by applying paleo-geographical environment reconstruction, spatial-statistical analyses and correlating data of radiocarbon analysis, research of landscape micro-topographical, floral and faunal features as well as ethno-archaeology and experimental archaeology patterns, it is possible to extract and date different complexes, define activities of subsistence economy and behavior of the societies.

TH4-06 Abstract 04

Pottery traditions and cultural processes in the Gulf of Finland region in the 3 mil. BC

Author: Postgraduate Khokina, Margarita, Saint-Petersburg State University, Saint-Petersburg, Russian Federation (Presenting author)

Keywords: Gulf of Finland region, Late Neolithic - Early Metal Period, Pottery

Presentation Preference - Oral

The eastern part of the Gulf of Finland region is rather important for the study of cultural and historical processes of the end of IV - III millennium BC. This territory from the ancient time was located in a contact zone among the areas of different archaeological cultures and pottery traditions. During the mentioned period, which in Russia is usually called the Early Metal Period (EMP), bearers of Comb and Corded Ware pottery traditions coexisted here. The area was peripheral for the both of them. Current study is devoted to the reconstruction of cultural and historical processes, reflected in ceramic material. Among the sources of the study there were fragments of more than 200 vessels from 36 archaeological sites from the eastern part of the Gulf of Finland region.
Comb Ware pottery tradition is deeply rooted in the local Neolithic. As a result of coexistence with groups of population from some close regions new components appear within this tradition. Among them the temper of bastardised concern with thin walls of the vessels and shallowness 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. Individualisation of contacts during the EMN resulted in a variety of Comb Ware tradition - and the relative ease and speed of the spread of these traits is an evidence of probable relativeness of their bearers.

In the III millennium BC Corded Ware tradition appears in the eastern part of the Gulf of Finland region. It also seems not to be homogeneous. There are some “typical” vessels, which have a wide range of analogies in Eastern Baltic and even in so-called “proto-Baltic region “Ahrön”. At the same time there are some “hybridous” 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.

When it is worth to mention, that different variants of Comb Ware tradition are very closely to each other in one of most conservative aspect of the pottery tradition - in modelling of the vessels. They are almost all formed by cobling technique. At the same time, vessels made in Corded Ware tradition are modelled from small separate patches of clay. The difference of the two pottery traditions also proves the fact that Corded Ware was just slightly influenced by the Comb one - so we can conclude that groups of people, bearers of these traditions, did not have such close contacts as those of Comb Ware.

The typological similarities of the Jokiniemi clay figurines as compared to anthropomorphic clay figurines found in the Baltic Sea region, Comb Ceramic Culture, Settlement interaction

TH4-06 Abstract 05
Changing Perspectives- Neolithic pottery on the Åland Islands and the Baltic

Author - Dr. Bronson, Tortjön, Ceramic Studies, Sweden, Nyhamnsläge, Sweden (Presenting author)
Co-author(s) - Lucinusi, 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 ceramics have been compared to ceramics from mainland Sweden and Finland and we will present the results of 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 figurines seems to have been of non-Åland origin, and the question is if this figurines originate 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, Esbo, 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. 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. The study includes early (Ka I:1)and late (Ka III) Comb ceramics, Jettböle I and II type of Swedish pitted ware and Kiukais ceramics. The site is located in the middle of the Comb Ware area and is considered 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 figurines seems to have been of non-Åland origin, and the question is if this figurines originate in mainland Finland or Sweden.

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A genomic investigation of the Ansarve Dolmen on Gotland

Author - F. Magalhães, Uppsala University, Uppsala, Sweden (Presenting author)
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Keywords: Genomics, PWC, TRB

Presentation Preference - Poster

Previous genomic research has shown individuals from the Middle Neolithic Gökhem passage grave in Västergötland associated with the Funnel Beaker culture (TRB) and individuals from different Pitmed Ware culture (PWC) contexts on Gotland (Avise and Ide) had different biogeographic affinity (Skoglund et al. 2012), and that the Scandinavian Middle Neolithic farmers exhibited a degree of hunter-gather related admixture, whereas the Scandinavian hunter-gatherers displayed no significant evidence of introgression from farmers (Skoglund et al. 2014). Here we present genomic data from individuals buried in the Ansarve Dolmen in Tofta Parish on Gotland, and investigate their relationship to contemporary individuals from Gotland and the mainland.

The settlements of the Waldburg type and the origin of Primorskaya Culture

Author - D. Zaltman, A. Arkeologiya Instituta v Rossiiskoi Akademii nauch, Kaliningrad, Russian Federation (Presenting author)
Keywords: Corded Ware Culture, Primorskaya Culture, Settlement archaeology

Presentation Preference - Poster

The questions, related to the genesis of Primorskaya Corded Ware Culture, remain the most difficult and complicated. It is ultimately determined by the lack of research in some regions. The archeological research, started in the 90's 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 IV 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 5.5%. 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 of 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 pits or dimples. 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 protophase 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 Corden Culture.

Peculiarities of the household constructions, ceramic complex, and material culture as a whole differ fundamentally from the antiquity of CWC. The cultural processes on the coast of the Vistula Bay apparently took their course differently than on the adjoining territories, in the phase of the initial stage. GAC and Sub-Nest-ticnichn cultural complexes could play the main role in these processes.
PREHISTORIC FORAGERs IN THE NORTHERN FOREST ZONE:
ISOtOpIC CLUES TO THEIR CHRONOLOGY,
DIETS AND MOBILITY

Friday, 2 September 2016, 09:00-13:00
Faculty of Philology, Room K.Donelaičio

Author: - Tõrv, Mari, University of Tartu, Estonia (Presenting author)
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Keywords: Mesolithic, Motala, stable isotopes

Presentation Preference: Oral

TH4-07 Abstract 01

Looking for patterns in prehistoric diets – is there an objective approach?

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 Burtneka, Latvia, to show which of the informed choices we have to make have the greatest impact on the final narrative.
The Neolithization of the north European lowlands:

**Archaeometric results on human remains**

*Author:* Dr. Piezonka, Henry, German Archaeological Institute, Berlin, Germany (Presenting author)

**Co-author(s):** Pro. Dr. Terberger, Thomas, Lower Saxony State Office for Cultural Heritage, Hanover, 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 halled 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. This is an important change in 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 archaeological methods. Here we present results of systematic stable isotope (13C/15N) studies on Stone Age human remains from northern Central and Eastern Europe. The individuals cover the time period from the Preboreal to the Subboreal (c. 9500 to 2000 calBC).

By determining information on the diet of the sampled individuals and linking it to chronological information, the data set sheds light on changes in subsistence economy against the background of cultural developments and absolute chronology. The results of the isotope analyses show a considerable consumption of fresh water resources during the Mesolithic and early Neolithic. It is interesting to notice that a major shift towards farming economy in northern Central Europe is visible not before the 3rd millennium calBC.

**TH4-07 Abstract 07**

**Deconstructing the conception of pre-Neolithic farming in SE Baltic**

*Author:* Dr. Pīlīcauskienė, Giedri, Võrus University, Võrus, Lithuania (Presenting author)

**Co-author(s):** Kiselienė, Daia, Nature research centre, Võrus, Lithuania

**Keywords:** SE Baltic, Subneolithic, Subsistence

**Presentation Preference - Oral**

This paper is a critical evaluation of zooarchaeological, microscopic, palynological and archaeological data and their earlier interpretation in Lithuania, which served as the basis for constructing the concept of pre-Neolithic or Subneolithic low intensity agriculture and/or animal husbandry in the Eastern Baltic region. In addition, the paper presents the first direct AMS dates on remains of domestic plants and bones of domestic animals found in the Lithuanian Subneolithic and Neolithic settlements. According to the latest research, the substantial part of, or even the whole of the earlier “evidence” was wrongly forged because of the mistakes in the identification of plant and animal species and imprecise dating. The mistakes in dating were largely due to the ignorance of water reservoir effect when dating bulk samples of lacustrine sediments, re-identification of the impacts of bioturbation and palimpsest on the formation of the archaeological strata, and low paid attention to stratigraphic and spatial documentation during very extensive excavations carried out in the second half of the 20th century. So far, there is no reliable evidence that domestic plants and animals were adopted in Lithuania prior to the appearance of the Globular Amphora and Corded Ware cultures in 2300/2700 cal BC. However, that does not mean that new evidence cannot be obtained in the future, if direct AMS dating of plant and animal remains from Subneolithic contexts is to be continued, and if systematic macrobotanical analyses would eventually be made on samples from settlements in higher elevations, and not only from lakeshore settlements and fishing sites.

**TH4-07 Abstract 09**

**Human occupation of the SE Baltic region: first finds from the middle- upper palaeolithic transition**

*Author:* Dr. Drushchina, Olga, Võhynsky Museum of Nature and History, Kalingrad Oblast, Russian Federation (Presenting author)

**Co-author(s):** Molodkov, Anatoly, Research Laboratory for Quaternary Geochronology, Institute of Geology, Tallinn, Estonia

**Keywords:** Luminescence Dating (IR-OISL), Middle Upper Palaeolithic, MIS 3

**Presentation Preference - Poster**

The territory of the south-eastern Baltic region might be described as lying on the margins of the classical Palaeolithic world. No Middle and Upper Palaeolithic sites have been found so far in this part of Europe, and on the basis of available data the initial habitation of this region has been related to the Butzing warming or Greenland interstadial sub-stage GI-1a, which began in northern Europe at about 14.7 cal kBP. The recent discovery of traces of human occupation at the Rydano-5 archaeological site (north-eastern part of the Kalingrad region RF) has made possible a significant revision of our understanding of the early colonization of this territory. The luminescence (IR-OISL) 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 Rydano site among the most ancient sites of the transitional period from Middle to Upper Palaeolithic in Europe such as Kosteneki 12 (53–52 kBP), Khyten 1 (55–48 kBP), Wiltendorf II (44–43.5 kBP), Galasenoksteinae (43–42 kBP), Kent’s Cave (44–41 kBP), etc. At the same time, the Rydano site is the most northern (57°01' N) of all those mentioned above. Further north the only sites with slightly younger artefacts are found along the western flank of the northern Urals Mountains: Mamontovaya Kurya (43–40 kBP) and Zaozer'e (39–37 kA BP). The lithic assemblage of the Rydano site comprises more than 2000 flints and includes various kinds of tools, but whereas 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
Eurasia: “Initial Upper Paleolithic”, “transitional assemblages” and Aurignacian assemblages. They cover different windows of time between 50 and 35 ka and their direct association with anatomically modern human remains is variably substantiated. Comparative analysis of technological assemblage with tool collections from the other sites of transitional period can expose certain cultural, geographical analogies, which permit to address questions related to the origin, distribution and nature of the interaction between the three main mentioned groups of lithic assemblages and also of the people, who were creating them. The discovery of any affinities would shed new light on our understanding of the mobility and migration routes of the ancient European population.

TH4-07 Abstract 10
Loose human bones from cultural layers at Zamostje 2, central Russia (c.6500–4000 cal BC)

Author - Töyr, Mari, University of Tartu, Tartu, Estonia (Presenting author)
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Co-author(s) - Lozóvskaya, Olga, Peter the Great Museum of Anthropology and Ethnography (Kunstkamera), Russian Ac, St. Petersburg, Russian Federation
Co-author(s) - Misheev, Vyacheslav, Peter the Great Museum of Anthropology and Ethnography (Kunstkamera), Russian Ac, St. Petersburg, Russian Federation

Keywords: loose human bones, radiocarbon dating, stable isotopes, Zamostje, central Russia
Presentation Preference - Poster

Only 18 fragmentary human remains have been identified at Zamostje 2 (c.6500–4000 cal BC), despite the aerobic or anaerobic conditions for organic preservation, and the recovery of millions of animal bones from the five cultural layers. Aside from a woman’s humerus, the human remains are all fragments of the cranium, maxilla, mandible, or isolated teeth, including naturally shed deciduous teeth, representing at least 5 individuals, ranging in age from 5 to 75 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 artefactual and archaeozoological evidence that fishing was a central element of the Mesolithic subsistence economy, both at Zamostje and at other sites of this period.

One cranial fragment bears clear cutmarks demonstrating deliberate post-mortem removal of soft tissues, possibly in order to use it as a bowl or cup. Isotopically this individual shows no sign of having consumed aquatic species. Without a Mesolithic archaeological perspective of this massive project and show how continental theories of fortification were applied and customized in the Baltic and Scandinavian region.

TH4-08 Abstract 01
The Fortifications of Gothenburg - A Centennial Construction Site

Author - Wennberg, Tom, Gothenburg City Museum, Gothenburg, Sweden (Presenting author)
Keywords: Early modern times, Fortified city, Gothenburg
Presentation Preference - Oral

In the early 17th century Sweden was at a political turning point. This was the beginning of an era known as “The Swedish Age of Greatness” (Storrikstiden). In the wake of a major defeat in the Kalmar War, the state was reformed regarding centralization of power, more elaborate bureaucracy and higher taxes. This was the foundation for an expanding empire and the beginning of a centennial project that resulted in the fortified city of Gothenburg.

In the expanding state of Sweden during the reign of Gustaf I Adolf (1611-1632) more than 15 new towns were founded. The design was very modern with the continental idea of an ideal plan protected by massive fortifications. The construction of these fortifications lasted for more than 100 years and are generally described in three stages. This paper will give an archaeological perspective of this massive project and show how continental theories of fortification were applied and customized for the local conditions.
The town Kalmar is situated in the southeast of Sweden and was together with Gotenborg and Jönköping the most important outlets 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. Carola Norus (Charles IX). In addition contemporary maps have been studied describing the work in progress. This has concluded that the work on this bastion alone 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.

The bastions of Christian 4th
Author - MA Simonsen, Rikke, Copenhagen Museum, Copenhagen V, Denmark (Presenting author)
Keywords: Baltic region, Fortifications
Presentation Preference - Oral

Christian 4th is considered one of the most influential Danish kings. From 1598-1648 he ruled the kingdom Denmark-Norway, which included the southern part of Sweden and the islands of Gotland and Saaremaa. This gave Christian 4th control of the waterways to the Baltic Sea and a huge profit on the Sound toll – an important factor for the king in fighting for the Baltic Sea dominance and engaging the country in several wars. The town Kalmar is situated in the southeast of Sweden and was together with Gothenburg and Jönköping the most important outlets 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. Carola Norus (Charles IX). In addition contemporary maps have been studied describing the work in progress. This has concluded that the work on this bastion alone 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.

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 gate for the Swedish army. Halmstad was reinforced in the middle av 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 Willem Cornelissen. The layout of the new fortification system made it possible for the Danish king Christian IV to rebuild the town with a renaissance plan after a devastating fire in 1619. The defensive works was reinforced during the following decades. Through the Peace Treaty in Brömso 1645 Halmstad and the province of Halland became Swedish. The fortifications were maintained during the end of 17th century but started slowly to disintegrate and was demolished in 1735 by the military. The first part of the paper will be a short presentation of the early modern fortifications put in the contemporary political situation and exposed position in the two kingdoms (Denmark and Sweden). The second part will discuss the archaeo-technological 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.

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 defens, Gotland
Presentation Preference - Oral

Gotland, situated in the middle of the Baltic Sea, is with its relatively few inhabitants and long coastline of about 56 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 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 initiated 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 conventionalize symbols of sconces with a note, saying “old decayed sconces 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 swaying 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 fortification Mattias Bildor 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 1601, ordering the Danish governor of Gotland to put all sconces fallen in decay by the countryside harbours in order, but even the later maps does not mention them. No 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.

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.
Kuressaare was a small fortress – four bastions located at the corners of the medieval fortifications were sufficient for its defenses – but its command was essential to maintain the power on the island and carry out the ambitions of the Baltic Sea hegemony. The general design of bastion fortifications, which was regular from the beginning and thus well consistent with the ideal of the period, persisted throughout all construction stages of the fortresses. But major and significant changes involved the bastions, particularly their most characteristic parts, their flanks. Although the core of the defense principle of bastion fortifications – perfect flanking defense – did not change, the methods to achieve it were considerably improved during the 17th century. Archaeological investigation allows us to get a glimpse of what it meant constructionally, and analyze the fortification-theoretical arguments for these costly and labor-consuming undertakings.

**Keywords:**

- Gun, Siege, Experimental archaeology

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**TH4-08 Abstract 09**

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 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 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 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 on the warship Vasa.

The road between Muscovite fortress Ladoga and Swedish fortress Neitborg (former Oreshek) after 1617 was divided into two parts lying in two states. The border was the river Lava. There on a high bank of small river a hillfort appeared in about early 1620s. It had temporal garrison (in 17th century from 20 to 200 persons). In 1657 a significant battle between Swedes and Muscovites was there nearby the hillfort. After the Great Northern War it lost its significance.

The road between Muscovite fortress Ladoga and Swedish fortress Neitborg (former Oreshek) after 1617 was divided into two parts lying in two states. The border was the river Lava. There on a high bank of small river a hillfort appeared in about early 1620s. It had temporal garrison (in 17th century from 20 to 200 persons). In 1657 a significant battle between Swedes and Muscovites was there nearby the hillfort. After the Great Northern War it lost its significance.

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.

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**TH4-08 Abstract 11**

**Sweborg (Suomenlinna), an 18th-century sea fortress and the importance of water areas**

**Author:** MA, PhD Student Koivisto, Minna, The National Board of Antiquities of Finland, Helsinki, Finland (Presenting author)

**Keywords:** Baltic Sea, fortification, maritime

Presentation Preference: Oral

The decision to build a fortress in the first place was a political resolution from the Swedish crown, since Finland was a part of Sweden from the Middle Ages until 1809. The decision was a reaction to a situation created by two warring empires in 1700-21 (The Great Northern War) and 1741-43 (The Russo-Swedish War) where Sweden lost easternmost regions along with old fortifications. To choose the location of this new main fortress, place d’Armes, was a difficult decision. It had to be in the middle of the Finnish coastline, offering a protected water area for the fleet. In this paper, we present the siege of the royal castle of Älvsborg 1612 during the Kalmar War, and the archaeological evidence of the location of the fortress in the underwater landscape.

The castle is an important and widely known part of Swedish history and is best known for two exceptionally large tributes paid to Swedish hospitality during the Seven Years’ War. Its last act was the annexation of Swedish Hither Pomerania with Stralsund in 1851. One of the key factors for this struggle were the fortifications. They were built during the wars (field fortifications) and during peacetime as well (fortresses, autonomous forts or sconces and fortified cities). Siege warfare assumed an important role in the wars.

The main stress in this paper will be on the presentation of the activity of the Prussian side of the conflict, mainly in the area of construction of new permanent fortifications from the last half of 17th century through the first half of the 18th century. This large period is divided into two smaller ones.

During the first, 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 modernization between 1655 and 1715. Apart from Kolberg a fortress in Rügen was not too important, but new 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 similar but smaller and weaker fortified complexes in the Hither Pomerania, “inherited” from Sweden, such as cities with bastion fortifications (Wolin, Damm, Cammin in Pommern, Neu Warp, Demmin, Dammgarten and Anklam), or single strongpoints such as sconces in Pomerändt, Anklamer Fehr, Beinemünde and Divenau. Only some of these were modernized (Pomernënde 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 (pavements for guns in the flanks of bastions in Rügen); modern, French inspired, connected with the activity of Huenegoten engineers such as Cayart or Montargues, and the solutions influenced by Scandinavian military architecture (powder magazines in Stettin, similar to those in Copenhagen).

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**TH4-08 Abstract 12**

**Remnants of a Siege – The Siege of Älvsborg 1612 at the West Coast of Sweden**

**Author:** Wennberg, Tom, Gothenburg City Museum, Gothenburg, Sweden (Presenting author)

**Co-author(s):** Sandin, Mats, Gothenburg University, Gothenburg, Sweden

**Keywords:** 17th century, Castle, Siege archaeology

Presentation Preference: Oral

The primary characteristics of siege archaeology are that the remains in question are often from a relatively short period of time and that the events are not consistently documented, and in that case particularly by the victims. In recent years battlefield archaeology has had, at least in Sweden, a major boom, but the archaeology of sieges and siegeworks has been in the shadows. In this paper, we present the siege of the royal castle of Älvsborg 1612 during the Kalmar War, and the archaeology of certain events during this siege.

The royal castle of Älvsborg was of great importance for royal power. It secured the corridor of land that provided the crucial westward passage for Sweden. Although the core of the defense principle of bastion fortifications – perfect flanking defense – did not change, the methods to achieve it were considerably improved during the 17th century. Archaeological investigation allows us to get a glimpse of what it meant constructionally, and analyze the fortification-theoretical arguments for these costly and labor-consuming undertakings.
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 as a result of both countries' constant rivalry for dominion in the northern regions.

Between 2003 and 2006, Gothenburg City Museum conducted a series of excavations at the Älvsborg Castle. The excavations aimed at examining structures belonging to the castle's early modern fortifications. Some features were revealed, such as a bastion, the moat, and the covered way. In addition to these, an extensive assembly of artifacts that can be directly linked to the Danish siege of Älvsborg 1612 was recovered. The artifacts consisted of a range of ordnance, including lead bullets, cannonballs, parts of rifles, fragments of grenades. In connection with the besieging aspect of siege archaeology, the excavations also uncovered remains of a besiegers approach (bag), and mines, and one of the castle's defenders' countermines. During this project it has been possible to link some of the archaeological remains to actual events described in the historical sources therefore strengthening the actual narrative.

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**TH4-08 Abstract 13**

**The Outdating of Medieval Fortifications – The Castle of Raseborg and the Town Wall of Vyborg**

*Author*: PhD docent Haggren, Georg, University of Helsinki, Espoo, Finland (Presenting author)

*Key words*: Castle, Town wall, Fortifications, Medieval

*Presentation Preference*: Oral

The castle of Raseborg (Finland) and the town of Vyborg (Russia) both locate on the northern coast of the Gulf of Finland. Raseborg was built in the 1370s by the Swedes and during the next 150 years the castle was gradually enlarged. The town of Vyborg situated close to the eastern border of the Swedish realm and it was continuously threatened by the Russians. There was an older castle close to the town of Vyborg but in the 1470s the town itself was fortified too. From now on high walls surrounded the medieval town.

When Raseborg was founded fire arms were not yet in use along the northern Baltic Sea. A century later when Vyborg was surrounded by the walls fire arms were known but on those days most of them were light weapons making no harm to stone structures.

In dawn of the early modern era the role of the fire arms had changed. 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 ambiguous 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. 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 wall.

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**TH4-08 Abstract 14**

**The fortifications of Copenhagen: The western boundary as seen at Rådhuspladsen (Townhall square)**

*Author*: Lyne, Ed, Museum of Copenhagen, Brøndby, Denmark (Presenting author)

*Key words*: 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 Clying, 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 Archeologia in 70’s and 80’s. There are also two archaeozoological works about past Polish fauna by Poty Wyscis. (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 was strictly related to the social status, will be possible to obtain. In this context it is important to emphasize 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 Kirkinen, Tuja, University of Helsinki, Helsinki, Finland (Presenting author)

Keywords: animal hair identification, removal burials, wild animals

Presentation Preference : Oral

This paper aims to discuss the role of big game hunting among the Iron Age farming populations in the southern half of Finland and West Karelia (Russia), South-East Fennoscandia. In Finland the importance of hunting and fur trade as supplementary economies have been considered an outgrowth of area’s location at the northermost limits of the cultivation zone in Europe. In recent studies hunting is hypothesized to have continued as the main subsistence strategy especially in Finnish inland areas long after the early phases of agriculture. In the northern and eastern parts of Finland hunting retained its central role up to the Modern Age.

In this paper, the continuity of hunting and the long-lasting legacies of accompanied traditions are studied on the basis of Rangifer tarandus fenicous 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 Pertulanmäki Corded Ware grave, Finland

Author : PhD Vajanto, Krista, Nanomicroscopy Center Aalto University, Espoo, Finland (Presenting author)

Keywords: animal hairs, Corded Ware grave, SEM

Presentation Preference : Oral

In the acidic soils of Finland, where organic materials from Stone Age are only rarely preserved, the Pertulanmäki Corded Ware grave is an important exception. Among the most intriguing aspects of the grave is the preserved animal 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 November 2015, we conducted new microscopic analyses to the archived soil samples taken from the grave. By taking SEM micrographs, we detected mineralized animal hair remains and identified them as belonging to the Cervidae family.

Our unique findings confirm that an animal skin was present in the grave pit, possibly used to cover its floor. Similar practice has been noted from the organic remains of contemporary Yamnaya graves of south-east Europe. However, the Pertulanmäki grave is the first Corded Ware grave with preserved animal skin remains. We suggest that more soil samples should be re-analyzed with SEM, to reveal more evidence of animal skin use in other Corded Ware graves.
TH4-09 Abstract 05
A critical appraisal of using relative bone weights of reindeer from archaeological sites

Author - Prof. Bartosiewicz, Łaszół, 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 underestimated in developing such methods. The argument against their uncritical use is the changing specific weight of bone during diagenesis which presumes 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 a mature 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.

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 Losowiecki, Mikolaj, University of Sheffield, Sheffield, United Kingdom (Presenting author)

Co-author(s) - Prof. Szmyt, Marzana, 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 Wzdzisiewo 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 Wzdzisiewo 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 context 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 Wzdzisiewo). 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)

Co-author(s) - PhD Magnell, Ola, National Historical Museums of Sweden, Lund, Sweden (Presenting author)

Keywords: animal bones, cremations, zooarchaeology

Presentation Preference - Oral

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. 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. 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. Around the Baltic Iron Age burials with animals reflect the importance of animals to humans in the Pre-Christian societies. Burials and ritual depositions of animal bones reveal complex social and symbolic relationships between humans and animals beyond the use of animals as a food source. It is evident from several studies that animals had different social and symbolic significance for the living and for the dead in the burial rites. Excavations in Old Uppsala, Sweden of a Late Iron Age settlement with a large contemporary cemetery have resulted in unusual conditions to study the animal and human relationship. A comparative study of faunal remains from settlement and burial has been performed to examine the handling of different animals in the everyday life of the living at the settlement and burial rituals of the dead. The study is based on a large number of animal species, but also focuses on the significance of domestic and wild taxa. 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 representation of animals 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 consider religious symbolic meaning of the animals. The relationship between animals and humans in Old Uppsala will be related to regional and inter-regional trends.

TH4-09 Abstract 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) - Szljting, Emma, SAU Societas Archaeologica Upsaliensis, Uppsala, Sweden

Keywords: animal bones, cremations, social zooarchaeology

Presentation Preference - Oral

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 09
Sami animal offerings, changing religious practices and human-animal relationships

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Co-author(s) - Äikäs, Tiina, University of Oulu, Oulu, Finland

Keywords: animal offerings, reindeer domestication, Sami archaeology

Presentation Preference - Oral

In recent years, archaeological excavations have been conducted on Sami offerings sites (dating ca. 11th to the 17th centuries) in Finnmark Lapland. Moreover, some materials from Northern Sweden and archived in museum collections have been revisited with new methods and questions. Zooarchaeological analysis, radiocarbon datings of animal bones and stable isotope analyses reveal new information about religious rituals, religious change, and human-animal relationships among the Sami. We argue that there was a change in the offering tradition, interweaving with changes in the subsistence economy and especially reindeer domestication. Our results indicate that reindeer domestication, acknowledged to have had a major impact on social organization and economy, was also a major factor in the transformation of Sami indigenous religion. However, the underlying nature of the offering tradition remained consistent although the focal species of economic and religious interest changed.

TH4 Archaelogy of the Baltic region

TH4-09 Abstract 06
Swine and ritual at the turn of fourth millennium BC on the Polish Plain

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TH4 Archaelogy of the Baltic region
In the Lithuanian territory found 32 skeletal bones and manufactured artefacts of reindeers (Rangifer tarandus). Between them in 2014-2016 three Lyngby type implements made out of reindeer antler were found within territory of Lithuania. One of the Lyngby type article 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. Trisotopically, stable isotope, radiocarbon dating, morphological examination on the implements carried out in Klaipeda 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 tool. The other two was made of reindeer and was used as a hammers connection with leather and fur. Portable Confocal Scanning Light Microscope and Computer tomography scan of a reindeer antler artefacts illustrated of the anisotropic orientation of mineralized collagen fibers. These studies demonstrated the hierarchical structure of reindeer antlers. The trabecular bone is anisotropic, with aligned channels directed parallel to the long axis of the antler beam. Technological research has shown that stoutness articles, as Lyngby type axes, were made of reindeer male antler and hammers - from female antler, because both sexes are members of the same species, and the properties of their 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 axis of the antler beam. 

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-Zawischoth 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.
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 number of animals, 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 excavations of shipwrecks 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 the rich noblemen and their dependence on the nobility of the Samogitian affluent circles. For example, in 1565 Stanisławskis Skalskis sent 60 partridges for Prussian Duke Albrecht, three years later he sent 100 partridges. We also know that the households of manors of the seventeenth century already took care of animal husbandry – the 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 consumed only on great manors, 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 the zooarchaeological. As the past researchers, we have to try to realize the full potential of zooarchaeological data and different methods of zooarchaeological.

TH4-09 Abstract 15
Archaeozoology of Port Towns in Poland
Author - Prof. Maliszewski, Daniel, University of Mikolaj Kopernik in Torun, Torun, Poland (Presenting author)
Co-author(s) - Walewska, Martyna, University of Mikolaj Kopernik in Torun, Torun, Poland
Co-author(s) - Walewska, Jan, University of Mikolaj Kopernik in Torun, Torun, Poland
Keywords: Archaeozoology, Middle Ages, Tooms
Presentation Preference - Oral
Between 9th and 10th century strong port centers had been established at the southern Baltic Sea. Some of them played a key role in the history of Pomerania and of Poland. We can list, among others, Gdansk, Kolobrzeg, Szczecin, and Wolin. Each of these centers was developing in a different cultural and environmental context. Archaeological research suggests that the role of livestock was significant in gastronomy, estuarian, and marine. Unfortunately, there is an obscurity in the past results of analyses, published in numerous articles in Polish language, consider each of the centers separately. Therefore, the aim of this paper is to compare them according to the archaeozoological data. The effect will be to indicate the differences and similarities in the strategies for supply, and to consider the significance of mammals, birds and fish in the historically changing political, cultural, and social reality of these centers in the Middle Ages.

TH4-09 Abstract 16
Birds and people on polish seaside in Middle Ages
Author - MA Wielgaska, Nicolaus Copernicus University in Torun, Torun, Poland, Poland (Presenting author)
Co-author(s) - Prof. Maliszewski, Daniel, Nicolaus Copernicus University in Torun, Poland
Keywords: birds, archaeozoology, Poland, Middle Ages, poultry, hunting
Presentation Preference - Oral
Polish seaside is characterized by different environmental conditions than the rest of the country. Societies living there since early prehistoric times exploited its resources for food supply and for trade purposes. Beside fishes and mammals also birds have played an important role in farming and hunting economy. Although the studies on importance of this group of animals in Polish areas have been taken up rarely so far. This paper is focused on breeding and hunting for birds during the Middle Ages in Poland. Some aspects of birds history on polish Baltic coast were briefly presented mainly in papers about principal sites like Gdańsk and Kolobrzeg. On the base of published data and new research authors will compare obtained picture of birds economy with the rest of the country and observations for other parts of the Europe. Special attention is paid to a social status of domestic chicken and goose consumers in medieval settlements, towns and castles. The introduction of turkey is one of the most important aspects as well. The uniqueness of the coastal area can be observed considering the site in Lubicz located on Wolin island. People living there have exploited local avifaunal species such as White-tailed Eagle and Cormorant.

TH4-09 Abstract 17
Did rats abandon a sinking ship?
Discovery of animal products from the 14th c. shipwreck in Tallinn
Author - Dr. Lõugas, Lembit, University of Tallinn, Tallinn, Estonia (Presenting author)
Co-author(s) - Mäldre, Liina, University of Tallinn, Tallinn, Estonia
Keywords: animal products, Medieval Time, shipwreck
Presentation Preference - Oral
The archaeological excavations of shipwreck that was found at a construction site in Kadriorg, Tallinn, Estonia in 2015, have resulted in a large amount of spectacular finds. The wreck originates from the 14th century and is a medieval cog like merchant ship. Many everyday items made of metal, wood, birch bark, leather, textile, clay and stone, have been found both inside and around the ship. There are some burn marks visible on the wreck, which gives reason to assume that there was a fire that caused the shipwreck. Probably the lower part, which was not damaged so much sank and became covered by sandy sediments quite fast. This caused good preservation conditions also for organic compounds of the materials, including different animal products. The paper focuses on the animal remains found in situ in the wreck. This is a unique evidence supporting the information we get often only from the written sources like medieval inventory books or chronicles.

TH4-09 Abstract 18
How to process meat for a 17th century warship
Author - Gornik, Björn, University of Kiel, Kiel, Germany (Presenting author)
Keywords: butchery evidence, GIS, zooarchaeology
Presentation Preference - Oral
Researching the fauna remains from the famous VASA, while testing a new GIS based system for displaying and analyzing butchery marks on bones.

The 17th century warship Vasa was launched in 1628 in the time when Sweden was on the rise to their stormaktstiden, the time of their greatest power, but the ship capsized around 20 minutes after the launch. This catastrophic event let to one of the best preserved wrecks of all time and provides the opportunity to study a fauna assemblage in the context of a highly complex movable war machine, which would have built a small floating village with over 400 inhabitants and a diverted social structure.

More than 2000 mammal bone fragments could be mapped and specially analyzed within the ship, showing the main provision storage in the hold and distributed spots of presumably personal food at the upper gundeck as well as some smaller bone assemblages from the provision of special individuals or groups. Another 800 fragments must be considered as only partly reliable since they lost their contextual information or were found outside the wreck.

All bones were, if possible, identified with taxa, skeletal element and side, showing a dominant amount of cattle, some pig and sheep/goat bones and a small amount game and birds. The only probably not food-related bones are 5 cat bones.

A special emphasis was placed on the butchery evidence, GIS. A special emphasis was placed on the butchery evidence. Following the idea from David Orton (http://alexandriaarchive.org/bonecommons/tims/show/1688) GIS shape files for all bigger post cranial bones were created in a higher resolution and from different sides. As an attempt to reconstruct meat cuts all the bones where recorded with a portion based system which can be displayed on the GIS files according to their frequency. Beside from obligatory measurements after Von den Driesch (1976) was the remaining length of the fragments recorded. All bones where weighed and the meat weight was calculated.

The butchery marks were identified as cutting, chopping or sawing and plotted with the direction of the strike as separate layers for each bone on the GIS files.

TH4-09 Abstract 19
Evolutionary history of Baltic seals inferred from the analysis of historical and subfossil samples
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Co-author(s) - Gornik, Björn, University of Kiel, Kiel, Germany (Presenting author)
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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 extinct population and the three extant Baltic seal species: ringed seals Pusa hispida, grey seals Halichoerus grypus, and harbour seals Phoca vitulina, during the Holocene. Each extant species showed a decline in the number of mtDNA haplotypes and haplotype diversity between historical samples (from 1843-1970) and modern samples (collected after 1975),
reflecting a demographic bottleneck in 1970-1980’s. Subfossil samples (9,500-2,800 yrBP) 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:** Dančīte, Guna, Ķēsis, Latvia (Presenting author)

**Keywords:** bone, antler, Lielais Ludzas lake, methods

**Presentation Preference:** Poster

Since 1990’ss 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 Krēsli, Budjanka, Jurizdika I and II, Krēsli burial-ground were led by Rauls Šnore, Franci Zagoskis, Liččiļa Vankina, who confirmed that the territory around the lake was inhabited during the Middle Stone Age. But after few years of surveying archaeological R. Šnore found more story find concentration sites all around the lake that could also have been a settlements - Baltic’s point, Baznīckunga island, Harpuņu island, Jurizdika I, II; Kals, Kubulova, Lučmuiža, Ludza town, Selēkova I, II, Šēlpini, Ulste un Vītli (Dobr). Material use-wear was important all Stone Age but only used material depends on climate and accessible animal species. Environment combined with material use-wear technology was an important part of Stone Age people lifestyle so it is important to see correlation between worked bone and antler tools from excavated sites and stray find concentration places, also to clear out what kind of methods were used to make hunting and fishing tools in Stone Age settlement complex all around Lielais Ludzas lake in Latvia.

Mostly all tools were polished by stones, sawed on top or at the bottom of tool, part of fishing gear is bored for fishing hook holes and bars. Some of tools are made of big flakes of bones which are result of process of bone splitting.

Some of the tools are decorated with carved decorations as well, but it is not a big part of all tools from Lielais Ludzas Lake. Tools mostly are made of the deer, elk, wild boar bones and antlers (identified by K. Paaver). Although not all tools were analysed, the dominance of the previously mentioned animals matches with the Latvian paleozoological material. It is obvious that elk were common, as more than 70 percent of all bone and antler tools used in the Early and Middle Mesolithic were made of elk. During the Late Mesolithic and Early Neolithic significantly grew the use of the wild boar (44,5%). Only in the Late Mesolithic 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.

**TH4-10 Abstract 01**

**Traces on Material Culture: Craftspeople and Contact Networks in the Nordic Bronze Age**

**Author:** Dr. Nergaard, Heide, Møesgaard Museum, Ebeltoft, Denmark (Presenting author)

**Co-author(s):** Armbruster, Barbara, Toulouse, France

**Keywords:** Individual craftspeople, Nordic Bronze Age, workshops

**Presentation Preference:** Oral

Superficial and metallographic traces of the crafting process of elaborated bronze artefacts of NBA II and III in North Germany and South Scandinavia made it possible to detect the craftsman behind the objects. Different craftspeople and their area of influence could be identified, from a craftsman’s point of view, and as such also workshops and contact networks. With the knowledge of distinct techniques, the different skill levels of craftspeople and their affiliation to each other the organisation of metal craft could be better understood within the Nordic Bronze Age.

As a result of this study, it can be stated that an intensive exchange of technical knowledge between workshops around the North Sea formed the unit of the Nordic Bronze Age. However, technological innovation and the specific use of stylistic elements clearly separates the single workshops from each other. Especially the period between 1500-1300 BC, roughly the NBA II period, revealed workshops with individual technical behaviour, different forms of organisation and despite all of this a clear evidence for knowledge exchange. The investigation could not only identify the direction of this exchange but could also drag the idea of the itinerant craftsman back into the light of research.

**TH4-10 Abstract 02**

**Technology exchange and iron trade around the Baltic Sea**

**Author:** Jouttiläinen, Aine, Henri, Visum, Denmark (Presenting author)

**Keywords:** metal trade, iron, smithing traditions

**Presentation Preference:** Oral
The traditions of iron smelting and smithing technologies in Denmark from the Iron Age to the Medieval period, is fairly well documented on the basis of metallographic analyses of more than 500 artifacts. Compared to similar analyses from other areas bordering the Baltic Sea, it can be seen, that in the Roman and Iron Age, there are differences in technologies, 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 area south of The Baltic Sea whereas neither welded steel edges or carbonisation were introduced in ten counties of Denmark. One illustrative example is a number of single edge swords found in the votive deposit at Vimoze on Funen. Most of the swords were made from combination of layers of iron and steel. On the basis of analyses of slag inclusions they are judged to have their most likely origin in the area of present day Denmark, but, that 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 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, research databases are not yet sufficiently developed, especially for the eastern areas, and it is therefore not possible to give a more precise description of the trade routes. Future cooperation on the exchange of analyses of slag from iron smelting, will be able to open new perspectives in the identification of the trade of metal in the past.

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**TH4-10 Abstract 03**

**Vendel period seaxes from Grobin**

**Author:** Abolins, Aris, Riga, Latvia (Presenting author)

**Keywords:** Baltic Sea region, Metal Working, Vendel period

**Presentation Preference:** Oral

There has been little written about the Scandianavian 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 Scandianavian colony in Seeburg (modern days Grobin) in Latvia. Since it is the only known non-Scandinavian vendel period find outside their primary territory, it holds the special interest for researchers, but, so far, no special attention has been devoted to the seax 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 bladesmiths art of the period, consisting of mix of mono-steel but, so far, no special attention has been devoted to the seax finds.

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**TH4-10 Abstract 04**

**Bronze Age fine metal working in Nordic Europe - gold discs and vessels**

**Author:** Dr. Hab. Armbruster, Barbara, Laboratoire d’archéologie TRACES - UMR 5688, 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 aesthetic appearance and social function as well as symbolic meaning of a particular group of luxury items from Scandinavia and Northern Germany, such as ornamental “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 scrutinizing 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. Tomasone, Antūra, 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 of 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 weapon 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-ferous metals.

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**TH4-10 Abstract 06**

**New archaeometallurgical investigations on Bronze Age metal objects from the Eastern Baltic region**

**Author:** Dubacheva, Elka, Durt-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 Merkevičius in 1973 and Mödlinger 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 investigations can be classified to different chronological periods ranging from the Early to the Late Bronze Age. The metal finds derive from different find spots in Lithuania, Kainairing district (Rusia), and Baraus. Most of them are single finds and one newly discovered hoard find from the Late Bronze Age, Kobbiluote.

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.

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**TH4-10 Abstract 07**

**A multidisciplinary approach to the study of Polish silver denarii minted by the early Piasts**

**Author:** Dr. Del Hoyo, Julio M., The National Museum in Krakow, Krakow, Poland (Presenting author)

**Co-authors:** Maliszewska, Marta, The National Museum in Krakow, Krakow, Poland

**Keywords:** Non-destructive analysis, Polish denarii, X-ray fluorescence spectrometry

**Presentation Preference:** Oral

X-ray fluorescence (XRF) analyses have become a standard method in archaeological science due to their non-invasive and non-destructive nature. Chemical analyses of metal alloys may provide information about the manufacturing process, the provenance of raw materials, and the geographical distribution of ancient mints. A total of 110 silver denarii from the early Piasts (10-11 th centuries AD) belonging to the collections of the National Museum in Krakow and the National Museums Berlin have been studied using micro-X-ray fluorescence spectrometry and the data have been contrasted with archaeometric results. The research has focused on evaluating the use of this technique as a screening tool for elemental surface characterization of the alloys. All denarii are made of Ag and Cu, with minor amounts of Pb, Fe, Au, Bi, and Zn. Quantitative analyses have revealed silver contents in the 86-97 % range for several of the surveyed coins. Regardless of the problems associated with the use of different
and on the arenas of political economy of the Late Iron Age. This paper aims to present a few examples of the surveyed multimetal
metalworkers, their skills and competences as well as the products of their labour are viewed as dynamic actors in the landscape
both the metal craftsmanship and the metalworkers behind it are positioned within the overall socioeconomic framework. The
workshop organisation, the array of metalworking techniques utilized and the chronological variances of multimetal craftsmanship.
collected from them. Sites in selected target areas will be subject to intra-site analysis of their metallurgical remains focusing on
Cu-alloy within their matrix as well as casting debris of both metals and ceramic materials in forges and smithing hearths challenges
non-ferrous workshop sites chronologically or spatially. However, the presence of, for instance, smithing slag cakes with droplets of
skill and operational sequences within the various crafts.

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 metalworking, historical metallurgy, smithy sites
Presentation Preference - Oral

Smithy sites are quite rare monuments to be archaeologically excavated. This study encompasses sites from Estonia (Paasta, Haapsa-
u, Kuresaare and Käiku), Finland (Gubbaucks and Tontimmäki) and Russia (Minino I and Gal) to get a better understanding of the
smithies discovered so far and how has the forge construction changed. Also, ethnographic records of 19th-century Estonian smithies are used to illustrate the variability of the different smithy set-ups and (when provided) the conflicting reasoning behind these choices.

In the Northeastern Baltic, the period under investigation can be divided into three stages. Firstly, the Iron Age smithies with pit forges in the 11th and 12th centuries. Secondly, the transitional period in the 13th – mid-14th century, when the urban smiths began to use new forge designs, while some rural smithies continued to operate in the Iron Age traditions. The 13th century marked a period of 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 workshops and 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 well known and much more frequently used in archaeological research, debris material are more or less confined to the original workshops 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-silts 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 variances 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 undertook 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 on the production of golden and silver S-shaped clasps which were used as a closure of the necklace. Although one can speak about chain bracine 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 Scandinaivian bronze craftsmanship has been discussed countless times. But the discussion can continue thanks to new discoveries and new approaches within this esoteric subject. I intend in this talk to discuss technology dissemination and the availability of bronze casting technology in southern Scandinavia during the Late Bronze Age. Was the knowledge of bronze casting a closed knowledge or was the technology available to more people than specialists in bronze crafts? What paths have new innovations in form and function and the knowledge of changes in bronze casting technology taken? Can we see variations and ingenuity of bronze smiths at a local level? Where there space for everyday craftsmen or were all bronze craftsmen specialists? I will try to approach these answers to these questions by examining the various steps needed in the Chaine operatoire of bronze casting and by discussing different parts of bronze casting technology such as socket moulds, 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 - Neill, Michael, Uppsala University, Uppsala, Sweden (Presenting author)
Keywords: Baltic metal working, Artefact biography, Runikid dynasty, Viking diaspora, Viking Age Rus
Presentation Preference - Oral

Prehistoric pictures are a special sort of source material. Pictures are not random products – they were created to convey messages. This statement applies especially to the oral culture of the Viking Age. However Viking Age pictures rarely occur as independent monuments. More often, they appear as animal art on metal artefacts. The starting point for my reflections is a group of grandiose brooches from Viking Age Russia.
To begin with, a recent "object autopsy" on the famous Gnezdovo hoard revealed that two circular brooches should be regarded as locally made reconstructions of an older brooch type, once imported from Scandinavia. In fact, no corresponding brooches from mainland Scandinavia display similar amounts of antenuarian\n\nTo 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 older brooch type, once imported from Scandinavia. In fact, no corresponding brooches from mainland Scandinavia display similar amounts of antenuarian\n\nTo 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 older brooch type, once imported from Scandinavia. In fact, no corresponding brooches from mainland Scandinavia display similar amounts of antenuarian sentiment. Why was then so much effort put into restoring the Gnezdovo brooches? One intriguing possibility is that these brooches represented heirlooms from an earlier generation of settlers. Presumably, over time some of these heirlooms transformed into important symbols of Scandinavian ethnicity.

Another case is the grandiose brooch from Yelets. Here, we find an item, possibly linking the object to the princely House of Rurik. Rurikid emblems were compositions of elements from various sources. We believe that different male princes created individualized emblems of their own. In the case of Yelets, the emblem combines Scandinavian and Oriental elements. Yet, being a female dress ornament, we might ask whether the Yelets emblem represents the might of the princely dynasty or the power of an individual female known from written sources. There is plenty of circumstantial evidence to conclude that Yelets brooch was made for a woman with close ties to the Rurikids, possibly during the second half of the 900s or the early 1000s. Ancient concepts of personhood were such that the actions of an upper-class female fell back on her entire clan. Thus, we should perceive the mere act of commissioning that sumptuous brooch as a statement of might and power. Special consideration should also be given to the role of women in the building of alliances, as well as the function of female heirlooms within the social interplay. In fact, the Yelets brooch displays signs of wear and repair that might indicate that it had been passed down to later generations. As Viking Age 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. habil. Ambruster, Barbara, Laboratoire d'archéologie TRACES - UMR 5608, Toulouse, France (Presenting author)
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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 process in the Žarde-Bandužiai archaeological complex (Lithuania)

Author - Masiliūnienė, Ieva, Klaipėda University Institute of Baltic Region History and Archaeology, Klaipėda, Lithuania (Presenting author)
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Keywords: chemical analysis, Iron Age, iron smelting

Presentation Preference - Poster

The chronology of the Bandužiai (Žarde) and Bandužiai settlements is very broad: economic activities connected to iron smelting and mining seem to have been developped from the 1st millennium BC on, to the 2nd millennium AD. The results of our analysis showed the population from Donkalnis and Spiginas belonged not to the clear middle-european type, as suggested in previous articles, but to the Baltic variant of this type. Difference between these two variants is in the absolute prevalence of five-cusped lower first molars and high frequency of Carabelli trait on upper first molars. Middle European complex widely spread in the Middle East, 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 crania were observed using ASUDAS, Russian dental system, called after A.A. Zubov and the program of the archaic traits accounting. Also the main dental dimensions (mesio-distal diameter, bucco-lingual diameter, crown height and root height) were measured. Obtained data were compared using the Principal Component Analysis (PCA) with the Mesolithic samples from Latvia (Zvelebil), Russia (Yur'yan Ol'eni Osto), Sweden (Skateholm) and Mesolithic and Neolithic series from Ukraine (Vysloužil, Vovngi-1, Vovngi-2, Nikitko, Yasinovka) because some of the Neolithic burials of this region were synchronous to the Baltic Mesolithic.

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.

TH4-11 Abstract 01

Dental findings from the Mesolitcic sites in Lithuania: morphology and affinities

Author - PhD Zubova, Alisa, Institute of archaeology and ethnography SB RAS, Novosibirsk, Russian Federation (Presenting author)
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Co-author(s) - Wärmänder, Sebastian, Stockholm University, Stockholm, Sweden

Keywords: dental non-metric traits, Lithuania, Mesolithik

Presentation Preference - Oral

Domainis and Spiginas archaeological sites are located in the Lake Birzulis region, West Lithuania. Calibrated 14C data for the Mesolithic graves from Donkalnis are around the second part of the VII millennium BC – the middle of the VII millennium BC. Spiginas Mesolithic graves belonged to the period from the second quarter of the VII millennium BC to the middle of the IV millennium BC (Česnys, Butrimas, 2009 table 1). According to the results of previous investigations, the complex of non-metric traits in the sample from Donkalnis and Spiginas was connected with so called «Middle European» dental type [Balčiūnienė, Česnys, Jankauskas, 1992; Balčiūnienė, Česnys, 1995, 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 upper first molars. Middle European complex widely spread in the Middle East, 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.

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The results of our analysis showed the population from Domainis and Spiginas belonged not to the clear middle-european type, as suggested in previous articles, but to the Baltic variant of this type. Difference between these two variants is in the presence of eastern admixture in the latter. This admixture strongly presents in the North, in the Yur'yan Ol'eni Osto, lstrav, Zvelebil and minimally in Lithuania. So we can suggest that its presence depends on the distance from the Baltic Sea. Lithuanian findings lack almost all eastern non-metric markers, except the six cusps, but proportions of molar 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.

TH4-11 Poster 02

Keywords: Baltic Sea region, Bioarchaeology, Human remains
Prevalence of pathological lesions in the Iron Age water burial site Levānuška, Western Finland

Author - Salo, Kati, University of Helsinki, Helsinki, Finland (Presenting author)
Co-author(s) - Jakobs, Tine, University of Durham, Durham, United Kingdom
Co-author(s) - Mannerman, Kristina, University of Helsinki, Helsinki, Finland
Co-author(s) - Wessman, Anna, University of Helsinki, Helsinki, Finland
Keywords: Finland, Osteochondritis dissecans, Paleopathology
Presentation Preference - Oral

The evidence for VS in these two post-medieval 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.

Prevalence of pathological lesions in the Iron Age water burial site Levānuška, Western Finland

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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) - Gerhardt, Gunilla, 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 (RDCC), and 196 individuals from the St Peter’s Church cemetery (SPCC), dating from the 16th – 17th centuries AD were included in the analysis.

To estimate age at death of the adult individuals, degenerative changes of the pelvis were evaluated, while sex was based on the morphology of the pelvis and skull using standard methodology. Age of non-adults was estimated according to dental development and eruption, using long bone lengths 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 and in the long bones, as well as bilateral, extensive new bone formation on the long bones of arms and legs. According to the pathological analysis, there were 108 males, 80 females and 86 non-adults in the RDCC population, and 74 males, 45 females and 77 non-adults in the SPCC population. Six individuals from the RDCC and two from the SPCC with lesions possibly associated with VS were selected for further analysis.

Pathological changes on the outer table of the skull and on the long bones of legs characteristic of VS were observed in 4 females and one male individual from the RDCC. In addition, changes possibly related to late congenital syphilis were observed in a female and a male 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 visible VS from the SPCC, a female and a male, both aged between 20 and 30 years at death. The skeletons were incomplete, and the diagnosis was based on bilateral, extensive new bone formation on the long bones. The prevalence of VS was 1.4% in the RDCC and 0.4% in the SPCC populations.

The evidence for VS in these two post-medieval 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.
A genetic perspective on population dynamics of the pre-historic Eastern Baltic region

Abstract
We present the results of ancient DNA analyses of 81 individuals from the territory of today's Lithuania, Latvia and Estonia. 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. We therefore adopt an archaeological approach together with statistical computational methods, to study skeletal remains from Finnish historical burial grounds. Our objectives are to resolve the historical relations of Finns with the neighboring populations, such as other Finno-Ugrians, and investigating the migration patterns over time. We also hope to address the local emergence of haplogroups associated with fairs in Europe, and the effect of this on the more archaic "hunter-gatherer" haplogroups in Finns.

From the collections, Renko (13th to 19th century), Porvoo (16th to 18th century) and Hamina (18th century) 3-13 individuals are included in the aDNA study, respectively, as well as 20-35 Iron Age samples from Western Finland. All of the remains have undergone pathoarchaeological and archaeological analyses. We proved the presence and satisfactory preservation of ancient mtDNA in Finnish bone material over the timespan of 1,500 years. Several complete mitochondrial genomes for each of the archaeological collections studied were retrieved. The mitochondrial DNA evidence is used, through continuity tests, to compare the ancient DNA profiles of Finns with that of the modern Finns. In addition, by including modern nearby populations into analysis, it is possible to examine the past relations and possible patterns of migrations in historical Finland. Previously published aDNA data from other locations is used to estimate the order and timing of population changes in Finland over time.

In the future we hope to include more ancient samples from Northeastern Europe and other parts of Finland, dating to the Iron Age, to further complete the historical timeline. Genome-wide nuclear DNA analysis is also planned for the samples well preserved.

Keywords: ancient DNA, bioarchaeology, Eastern Baltic

Presentation Preference - Oral

Recent studies of ancient genomes have revealed two large-scale prehistoric population movements into Europe after the initial settlement by modern humans: A first expansion from the Near East that brought agricultural practices, also known as the Neolithic revolution; and a second migration from the East that was in a genetic component related to the Yamnaya pastoralists of the Pontic Steppe, which appears in Central Europe in people of the Late Neolithic Corded Ware and has been present in Europeans since then in a decreasing North-East to South-West gradient. This migration has been proposed to be the source of the majority of today's Indo-European languages within Europe.

In this paper we aim to show how these processes affected the Eastern Baltic region where the archeological record shows a drastically different picture than Central and Southern Europe. While agricultural subsistence strategies were commonplace in most of the latter by the Middle Neolithic, ceramic-producing hunter-gatherer cultures still persisted in the Eastern Baltic up until around 4000 BP and only adopted domesticated plants and animals at a late stage after which they disappeared into the widespread Corded Ware culture.

We present the results of ancient DNA analyses of 81 individuals from the territory of today's Lithuania, Latvia and Estonia that span from the Mesolithic to Bronza Age. Through study of the uniquely inherited mtDNA and Y-chromosome as well as positions across the entire genome that are informative about ancient ancestry we reveal the dynamics of prehistoric population continuity and change within this understudied region and how they are reflected in today's Baltic populations.

TH4-11 Abstract 07

DNA analysis of the individuals buried in the Salme boat graves

Author - Prof. Allen, Marie, Uppsala University, Uppsala, Sweden (Presenting author)
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Keywords: DNA analysis, Human remains, Next Generation Sequencing

Presentation Preference - Oral

Two boat-graves, Salme 1 and Salme II, were found and excavated in 2008-2011 in Saaremaa, Estonia. They are unique in the European context regarding the remarkable number of human burials inside the boats. Osteological and archeological examinations have given indications of age, sex, origin and social status. However, with recent developments, modern DNA technology can enable a comprehensive genetic analysis. Today we can get information about ancestry, origin, gender and/ or lactose intolerance, family relationships and sex. It is also possible to predict physical appearance with regards to hair, eye and skin color, length, wet/dry skin awax, body odor and BMI.

The introduction of next generation sequencing (NGS) has opened up a whole new field allowing numerous analyses that would not otherwise have been possible. We will use NGS technology and massive parallel sequencing for a detailed genetic analysis of the Salme materials along with current archeological methods to generate a database with DNA profiles and information about individuals from the boat graves. Ancient skeletal remains present a number of challenging features where the amount and integrity of recovered DNA are limiting factors. We will use NGS technology to overcome many of the challenges in a detailed genetic analysis. The assay provides the DNA researchers with sample to perform genetic profiling of Viking age remains to ancient and contemporary European populations for information about ancestry and the migrations in ancient times. Our data may also provide information about phenotypic traits of these seafarers from early Viking ages.

TH4-11 Abstract 08

Bringing them to life - A multidisciplinary study of Eura Luistari cemetery (6th-12th c AD), Finland

Author - Elo-Sihvola, Hele, LUOMUS & University of Turku, Helsinki, Finland (Presenting author)
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Keywords: Finland, Late Iron Age, stable isotopes

Presentation Preference - Oral

The Luistari cemetery in Eura is the most extensively researched Late Iron Age / Early Medieval cemetery in Finland, with over 1300 inhumation graves. The cemetery was created between the 6th and 12th century AD and abandoned presumably even later. Our project called Life Histories in Teeth was launched in 2015 with the aim to develop isotope sampling methods and to produce new multidisciplinary information on the cemetery and the buried individuals. The best preserved human and animal dental and bone remains from 89 graves were selected and were sampled for this study. The human samples will undergo bulk stable isotope analysis (δ13C, δ15N, δδ18O, δ34S) and a smaller sample set is further selected for compound specific isotope analysis, and later on, δ34S and δ37S datings will be performed in a related project. In addition to this, µCT scanning, age at death modeling and paleopathological analysis will allow us to have a better understanding of the Luistari people and their diets, origins and life histories in the Late Iron Age Finland. Revised typologies and comparisons of the acquired data to contemporary populations around the Baltic Sea will also contribute to a comprehensive understanding on the contacts between different cultures during this time. Archaeoethnological analysis based on the excavation documents and preserved find material will shed light to the burial customs, which include double and multiple burials, and even some deviant cases.
Kivuktals is the only cultural complex of its kind in the Baltic region. It is characterized by a rich variety of archaeological sites, including settlements, burials, and artefacts. The radiocarbon dates associated with these sites are crucial for understanding the chronology of this period and region. However, the accuracy of these dates can be affected by various factors, including the freshwater reservoir effect, which can lead to overestimated or underestimated ages.

In order to assess the impact of this effect, we have conducted a project on the radiocarbon dating of sites from the Late Iron Age in the Baltic region. The project was funded by the Finnish Cultural Foundation and involved collaboration with the University of Helsinki and the University of Latvia. The project aimed to determine the extent of the freshwater reservoir effect and to test the potential of new methods for its correction.

The project involved the analysis of a large number of radiocarbon dates from sites in the Baltic region. The dates were obtained using the Accelerator Mass Spectrometry (AMS) method, which was considered to be the most reliable for dating human bone samples from this period. The samples were selected from sites with a well-documented chronology and were analysed in order to assess the length of the freshwater reservoir effect.

The results of the project showed that the freshwater reservoir effect is highly variable and can vary from site to site. In some cases, the effect was relatively small, while in others it was more pronounced. The extent of the effect was found to be influenced by various factors, such as the local geology and the type of archaeological site.

The project also involved the development of new methods for correcting the freshwater reservoir effect. These methods were based on the analysis of stable isotopes in bone collagen and were found to be effective in correcting the dates of samples from sites with a well-documented chronology.

The results of the project have been published in a series of scientific publications, and the methods developed are now being used in other research projects. The project has contributed to a better understanding of the Late Iron Age in the Baltic region and has provided new insights into the chronology of this period and region.
Co-author(s) - Shotts, Sabrina, Smithsonian National Museum of Natural History, Washington, United States of America
Keywords: execution, Human remains, osteology
Presentation Preference - Oral

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 reanalyzed, 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 - Pfingg, Sascha, Institute for Archaeological Sciences Tübingen, Tübingen, Germany (Presenting author)
Co-author(s) - Mittke, Alissa, Max Planck Institute for the Science of Human History, Jena, Germany
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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 demic diffusion. The arrival of the first farmers in Europe led to an influx of genetic diversity not seen there before as well as admixture of local hunter-gatherers 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-author(s) - Smith, Martin, Bournemouth, United Kingdom
Presentation Preference - Poster

During an excavation in Vilkna 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 Vilkna 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.
TH4-12

WESTERN BALTS IN THE IRON AGE

Thursday, 1 September 2016, 09:00-13:00
Faculty of Philology, Room 10

Author: Shirkoov, Roman, Vilnius university, Vilnius, Lithuania
Co-author(s): - Skvortsov, Konstantin, Kalingrad State Museum of History and Art, Kalingrad, Russian Federation

Keywords: Burial rites, Chronology, Prussians

Presentation Preference – Regular session

The session is dedicated to the Western Balts social, economical and cultural development in the described period (from the 1-2nd to the middle of the 13th centuries AD). The problems of the development of artefact types, archaeological sites and contact zones altogether with questions on chronology and innovative methods of dating of the Prussian, Curonian, Scalian and other archaeological cultures of the South-East Baltic region will be discussed at the session.

TH4-12 Abstract 01

The Scandinavian influence upon Western Latvia: the case study of Grobinas Archaeological Complex

Author: MA Sants, Jāsons, University of Latvia, Riga, Latvia (Presenting author)
Keywords: Curonians, Grobin, Scandinavians

Presentation Preference – Oral

The increasing attention has been drawn to the Scandinavian expansions in the Viking Age, while leaving aside earlier period, which laid the foundations of future character of the Viking Age. The main aim of the paper is to identify the role and meaning of Grobinas, in the late prehistoric Western Latvia and entire Eastern Baltic region, analysing character of the Scandinavian colony and the mutual relations between colonists and Curonians. The study uses both written and archaeological sources.

TH4-12 Abstract 02

The cemetery of Linkuhnen and the cultural exchange between Western Balts in the first millennium

Author: Dr. Jahn, Christoph, Museum für Vor- und Frühgeschichte Berlin, Berlin, Germany (Presenting author)
Keywords: Chronology, Migration Period, Nemunas

Presentation Preference – Oral

The cemetery of Linkuhnen at the Nemunas River is best known for the large number of swords and other weapons from the Viking Age. Only little attention has been paid to the various finds from the Roman Iron Age and Migration Period in Linkuhnen. The analysis and re-evaluation of the archaeological objects and archival material from excavations between 1928 and 1939 allow for a new perspective on this important site. The reconstruction of the excavation results provides a comprehensive understanding of the chronological situation at Linkuhnen for the first time and shows a continuous usage of the cemetery from the Roman Iron Age and the Migration Period to the Viking Age (2.-11. century AD) with almost 500 burials and over 5000 grave goods. The finds from the Migration Period are indicators for long-distance trade and communication between Prussians, Scalvians, Curonians and other archaeological cultures in the first millennium. The presentation will offer a closer look at the localities from Linkuhnen and an overview of the changing cultural relationships to the neighbouring areas during the 1000 years of occupancy of the site. The interpretation of Linkuhnen is closely related to its geographic position close to the Nemunas River and the alteration of the course of the Nemunas at the end of the first millennium.

TH4-12 Abstract 03

Preliminary considerations on the technological variation within Baltic ware pottery

Author: MA Sute, Aija, National History Museum of Latvia, Riga, Latvia (Presenting author)
Keywords: Baltic ware, Latvia, Potters’ wheel

Presentation Preference – Oral

The potter’s wheel is one of the principal technological innovations of the Late Iron Age (10th – 13th century). Through Baltic ware pottery, its use rapidly spreads across the Baltic Sea region. This paper focuses on the variability of pottery-forming techniques in Latvia territory during the adoption of the slowly rotating potter’s wheel and Baltic ware pottery. As indicated by archaeological material, both Eastern and Western Latvia are part of the Baltic Sea trade network. It is the path along which potters spread their goods and skills. However, when conducting a more detailed analysis of Baltic ware, the use of potters’ wheel is subject to distinct local variations. In the East, there appears to be a sudden switch from the previous pottery tradition to the new Baltic ware. There is little to no interlaying period of varying hybrid-forms. It seems that the technology and the skills for using it were acquired almost at the same time. In the West the potters’ wheel is taken up only partly, preserving previous pottery production methods and using them alongside the new techniques. The handmade manufacturing tradition was not forgotten, in fact, hand-made pottery was still produced until the fourteenth century. This paper aims to show a different pattern of relation of the local people to the changing world around them through the acquisition of Baltic ware and the potter’s wheel. The differences of taking up the new technological innovation could not have originated just from differing placement within the trade network. Both regions have equal access to the new technology. However while some take it up rapidly others seem more hesitant. The braking and remaining of thousands of years old pottery production traditions was influenced by longstanding socio-economic paradigms. Further discussion of pottery variation might reveal some important playing factors within these paradigms.

TH4-12 Abstract 04

Belt hooks, fishing lures or clothing fasteners?
So-called belt hooks in the Western Baltic lands

Author: Dr. Wadyl, Sławomir, University of Warsaw, Warszawa, Poland (Presenting author)
Presentation Preference – Oral

The South-Eastern coast of the Baltic Sea seems to be a zone of significant concentration of the so-called belt hooks. So far, we haven’t realized the scale of the phenomenon, usually citing just a few of the finds from the Western Baltic lands. In the most complete catalogue of the finds about 20 objects were listed, with nearly half of them found at the burial ground in Kaup near Wehden (Młynowiec). The author of the paper has gathered information about over 40 ‘fasteners’.

Investigated objects are leaf shaped or similar bronze, rarely iron plates with one end provided with a hook, and the other with S-shaped eyelet; both ends are bent to the opposite sides.

The so-called belt hooks were discussed in the past. The problem that attracted special interest was the function that the belt hooks served. Several interpretations were presented, however, most of scholars believed they were belt fasteners (Ge. Gürtelhaken). An alternative explanation assumed that they were fishing lures/hooks.

The author of the paper will focus on few issues. First of all, results of analysis of the distribution of ‘belt hooks’ will be presented. Another issue of a significant importance will be the chronology of the investigated objects. A special attention will be paid to the problem of their function. Were they belt hooks, fishing lures or buckles for fastening clothes?

TH4-12 Abstract 05

Products Made with Inlay and Plating Techniques in the Ancient Prussia in the XI - XIV Centuries

Author: Khokhlov, Alexandre, IA RAS, Tver, Russian Federation (Presenting author)
Co-author(s): - Skvorcov, Konstantin, IA RAS, Moscow, Russian Federation
Keywords: Ancient Prussia in the XI - XIV centuries, the techniques of inlay and plating

Presentation Preference – Oral

Different products made using the techniques of inlay and plating iron with base and precious metal were known in Prussian applied art since the end of Viking era. This technology wasn’t applied in material culture of early middle-ages Prussians. It is unknown where was the source for such sophisticated jewelry technologies often applied Prussian masters at one a thing from start the XI century. These technologies might be the result of multilateral contacts with Scandinavian and eastern territories and perhaps the territories beyond the Volga. These technologies had two chronological stages in Prussia. The first stage: the start the XI century. These technologies might be the result of multilateral contacts with Scandinavian and eastern territories and perhaps the territories beyond the Volga. These technologies had two chronological stages in Prussia. The first stage: the XI – XII centuries. Products of this stage have intricate geometrical shapes that indicate some connection with early Scandinavian samples. Time of their appearance in Prussia is similar with such décor spreading in neighbor territories of the Kurshi and the Volga. The so-called belt hooks were discussed in the past. The problem that attracted special interest was the function that the belt hooks served. Several interpretations were presented, however, most of scholars believed they were belt fasteners (Ge. Gürtelhaken). An alternative explanation assumed that they were fishing lures/hooks.

The author of the paper will focus on few issues. First of all, results of analysis of the distribution of ‘belt hooks’ will be presented. Another issue of a significant importance will be the chronology of the investigated objects. A special attention will be paid to the problem of their function. Were they belt hooks, fishing lures or buckles for fastening clothes?
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 (Unterplienen, Równina Dolna, Poland), Prudnoi/Alt Wehlau, Simonischken, Klincovka (Wiliais, Kunterbrauch), Rybachy (Stangenwalde). Such artifacts are also known in Belorussia and Lithuania that can be explained by the migration of the population West-Baltic region caused by crusader expansion. Numerous decor elements connected with Christianity (different images crosses) appeared in this period. This stage is characterized by the reduction of products plated with silver that was in active usage at the first stage. Mass use of these technologies passed away among Prussian jewelers. In this period such goods served as status indicating jewelry of Prussian nobles. This jewelry tradition passed away completely perhaps under the influence of European fashion after absolute conquest of Prussian tribes by the Teutonic Order.
TH5 SCIENCE AND MULTIDISCIPLINARITY IN ARCHAEOLOGY

Advancement in the use and application of scientific techniques and methodologies in archaeology have significantly altered and contributed to our knowledge of the past. Many of the greatest examples of the research reconstructions of the past have been achieved through the integrated application of multidisciplinary methodologies. This theme seeks contributions that examine how the combination of interdisciplinary research methodologies have affected and influenced development in all areas of archaeology. Debates on both the advantages and the limitations of scientific techniques are invited, together with case study examples that illustrate the improvement of quality and reliability in particular analytical methods.

Closely related to long-standing scientific methodologies in archaeology, bioarchaeology is increasingly presenting a new focus on application of a variety of biological research platforms to our understanding of the past. Employing new technologies, new methodologies and new knowledge from biomedicine, chemistry, physics and biomolecular research, these complement our understanding of the past by adding a “biological dimension” to archaeology. In this theme, we call for contributions and discussion on various aspects of our understanding of the past by adding a “biological dimension” to archaeology. This theme seeks contributions that examine how the combination of interdisciplinary research methodologies have affected and influenced development in all areas of archaeology. Debates on both the advantages and the limitations of scientific techniques are invited, together with case study examples that illustrate the improvement of quality and reliability in particular analytical methods.

INVESTIGATING GEOCHEMICAL AND PETROGRAPHIC METHODS FOR FLINT IDENTIFICATION IN ARCHAEOLOGY

Friday, 2 September 2016, 09:00-13:00
Faculty of History, Room 217
Author: Sobkowiak-Tabaka, Iwona, Institute of Archaeology and Ethonology
Polish Academy of Sciences, Poznan, Poland (Presenting author)
Co-author(s): Werra, Dagmara H., Autonomous Unit for Prehistoric Flint Mining in Warsaw, Institute of Archaeology, Warszawa, Poland
Co-author(s): Hughes, Richard E., Geochemical Research Laboratory, Portola Valley, United States of America
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 of crucial importance in determining the geologic/geographic areas from which artifacts originated. Because flint is notoriously difficult to source using macroscopic means, instrumental methods of analysis, e.g., energy-dispersive x-ray fluorescence (EDXRF), laser ablation-inductively coupled plasma-mass spectrometry (LA-ICP-MS) trace element analysis, scanning electron microscope (SEM), electron probe micro analysis (EPMA) and micropalaeontological 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): Garcés-Angélliès, 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 micropalaeontological 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.
Sourcing prehistoric chert artefacts from Malta using new non-destructive techniques

Author - Chatzimpaloglou, Petros, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: Chert, Malta, Sourcing

Presentation Preference - Oral

The purpose of this paper is to present petrological/geochemical techniques (e.g. LA-ICP-MC), which can contribute to the investigation into the origin of chert assemblages found in prehistoric sites in Maltese islands. This research is part of a greater project (FRAGUS) investigating the extent to which these islands were laboratories of human activity and, in particular, their degree of connectivity with neighbouring areas. The project focuses on the Stone Temples on Malta (between 4th and 3rd millennia BC) and identifies the circumstances under which these unique monuments were built. Although these stone artefacts have been studied in the past, the research on their sources has been inconclusive. The advantages of these techniques are: their great accuracy, the speed with which results are obtained and, most importantly, they are non-destructive. They are considered perfect for identifying the mineralogical and geochemical context of rock samples. These specific characteristics, combined together, can be great indicators of the origin of these chert assemblages. Firstly, the main principles, functions, equipment and limitations of these techniques will be demonstrated. Secondly, preliminary results from both chert assemblages and chert outcrops from Maltese islands will be presented. Moreover, this paper will also show how the results should be processed in order to obtain the necessary and useful information in sourcing chert assemblages. Finally, a comparison will be made between these techniques and those used in similar research in western Greece.

TH5-01 Abstract 03

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)

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 Palaeolithic of the area, a time period represented well in the Western Channel for example at large sites such as La Cotte de St. Brelade, Jersey. It aims to shed light on the now largely submerged Neanderthal resource base by reconstituting 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 in Denmark (Stevns, Falster & Aalborg) and one from Sweden (Kristianstad) that were situated in prehistoric times. However, given the role of secondary flint deposits in Palaeolithic raw material economies, the variability of the archaeological raw material will be discussed in the light of the petrographical and geochemical variability observed in geological samples from secondary deposits of the Mons Basin. Whereas chemical composition of scar surfaces derived from imaging are relevant for post-depositional processes, alteration characteristics of pre-depositional flint surfaces contribute to assessing the information available from those techniques.

Keywords: flint sources, heating experiments, Infrared spectroscopy

Presentation Preference - Oral

Infrared spectroscopy appears to be cheap and fast method for provenancing flint resources. Samples collected from three different outcrops in Denmark (Stevns, Falster & Aalborg) and one from Sweden (Kristianstad) that were situated in prehistoric times. Heating experiments also demonstrate a consistency of results thus allowing to identify the origin of the outcrops regardless visual changes in appearance. The presentation also considers the significance of intentional burning of flint.

TH5-01 Abstract 06

Tracking the Hunters: Towards a Methodology for Neanderthal Flint Procurement in the English Channel

Author - Mills, Josie, University College London, London, United Kingdom (Presenting author)

Keywords: Flint, Geochemistry, Neanderthal

Presentation Preference - Oral

The use of FTIR for provenancing flint in Denmark

Author - Dr. Merkyte, Inga, Virum, Denmark (Presenting author)

Presentation Preference - Oral

Co-author(s) - Dr. Markyte, Inga, Virum, Denmark (Presenting author)

Keywords: flint sources, heating experiments, Infrared spectroscopy

Presentation Preference - Oral

Infrared spectroscopy appears to be cheap and fast method for provenancing flint resources. Samples collected from three different outcrops in Denmark (Stevns, Falster & Aalborg) and one from Sweden (Kristianstad) that were situated in prehistoric times. Heating experiments also demonstrate a consistency of results thus allowing to identify the origin of the outcrops regardless visual changes in appearance. The presentation also considers the significance of intentional burning of flint.
Erratic Flint from Poland. Preliminary results of petrographic and geochemical analyses

Author - Dr. Sobiszkow-Tabaka, Iwona, Centre for Prehistoric and Medieval Studies in Poznań, Institute of Archaeology, Poznań, Poland

Keywords: erratic flint, geochemical analysis, petrologic analysis

Presentation Preference - Oral

Archaeological sites in Poland, and elsewhere in Western Europe, document that flint and chert have a long history of use. The most commonly knapped raw materials throughout the Stone Age and Early Bronze Age, flints from a number of different sources were used for making tools and weapons, fire-lighting tools, etc. When studying prehistoric flint, one of the more interesting issues to be examined is the connection between deposits exploited at the time and the tools recorded at archaeological sites. By following the spread and distribution of particular raw materials we can study the spreading of prehistoric communities, their mobility and mutual contacts, as well as the size and quality of exchange networks.

At the same time, those features which caused siliceous rocks to be highly prized by ancient communities also mean that it is easier to discern a deposit to concrete artefacts found at an archaeological site. This is why researchers try to describe the diagnostic features of siliceous rocks using various petrographic and geochemical methods.

The area of the Visła basin is rich in siliceous rocks and it contains deposits of several varieties of flint. A 'chocolate', grey white-speckled and striped (banded) variety, Vohyňan 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-geographic methods to define their diagnostic features.

This paper presents the results of preliminary 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 micro (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 needs to be analysed to determine the range of chemical composition they contain. It 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 needs to be analysed to determine the range of chemical composition they contain. It 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 needs to be analysed to determine the range of chemical composition they contain. It 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 needs to be analysed to determine the range of chemical composition they contain. It 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 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 (PRZEGLĄDUM 2; UMO-2011/03/N/HS3/03973).

Lithic raw material from eastern part of Polish Carpathians. Results of preliminary research

Author - Prof. Pelisak, Andrzej, Institute of Archaeology University of Rzeszów, Rzeszów, Poland (Presenting author)

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Keywords: erratic 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 2013-2014 on this area resulted in discovery of new resources of various lithic raw material used in the prehistoric: siliceous sandstones, quartzite, siliceous marls, marlstone horizons, flint, raiolite, flint-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 origins of different raw materials is crucial issue in the study of relations 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, horizons, flint, raiolite 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 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, Taralkekivius, 2015, Archaeologia Lituanica, v.16, p.45-62) enables to hypothesize that: a) in certain chronological periods the material for construction of buildings and production of bricks could be extracted from the same or adjacent clay deposits similar in mineral composition; b) there existed brick production technologies specific for that period. So, it is possible to try to create peculiar “multivariate recalibration matrices” with as many as possible dated or characterised by other parameters samples. According to them it would be possible to determine at least approximate date of the newly found interesting brick of unknown chronology or to compare other features.

Geochronological 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, Cl, Zn, Pb, etc.).

Aiming to obtain more precise interpretation of brick origin and technological processes using geochemical methods it would be useful: a) to take more (10) 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 components), c) to use multivariate analysis methods 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.

TH5-01 Abstract 11
Possibilities to interpret of Vilnius old wall bricks using geochemical research method

Author - Barcevičius, Saulius, Lietuva institytus miltus, Vilnius, Lithuania (Presenting author)
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Keywords: brick, geochemical, Vilnius

Presentation Preference - Poster

TH5-01 Abstract 13
Contribution to the flint characterization from the Mons Basin (Belgium). New data for mining sites

Author - PhD student Collin, Jean-Philippe, Univ. of Namur / Univ. of Paris 1, Namur, Belgium (Presenting author)
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Keywords: mining sites, Mons Basin, raw material sourcing

Presentation Preference - Poster

Macro-, meso- and microscopy contribution to the cretaceous flint characterization from the Mons Basin (Belgium). New data for Neolithic mining sites

The Mons Basin (Province of Hainaut, western Belgium) is a geologically rich region, particularly from the point of view of Upper Cretaceous sedimentary deposits, conducive to an important flint extraction activity during Prehistory. Focusing on the Neolithic period, indications of flint procurement as early as the end of the 6th millennium have been recorded, but there are concrete evidences of mining sites in the region since the 5th millennium. Flint extraction activities have lasted at least until the second half of the 3rd millennium. Among those sites, the most notable are Spiennes, Flénu and Douvain.

At a time when research on flint mines emphasizes on the geographical distribution of their end products, the key - but also the main issue - is still the characterization of raw materials. Concerning the Mons Basin, the exploitation of the same deposits (from Campanian and Turonian ages) in a relative proximity led us to combine methods.

Macro- and mesoscopic observations allowed to identify some diagnostic characteristics between different mining sites while selective analysis (e.g., petrography and electron probe microanalysis) has refined our understanding of flint sourcing and diagnostic processes in the Mons Basin. Furthermore, a pilot study on laser-induced breakdown spectroscopy (LIBS) contribution to flint characterization is currently being conducted.
TH5-02 Abstract 01
A multi-disciplinary approach to formation and abandonment processes within later prehistoric houses

Author - Dr. Romankiewicz, Tanja, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)
Co-author(s) - Dr. Hunter, Fraser, National Museums Scotland, Edinburgh, United Kingdom

Keywords: abandonment processes, architectural analysis, Prehistoric building materials

Presentation Preference - Oral

This paper presents recent work on the geowalks in these buildings (geoaarchaeology of soils)

Author - Dr. Cammas, Cecilia, INRAP, Paris, France (Presenting author)
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Keywords: geoarchaeology, huts, Middle Ages

Presentation Preference - Oral

The Medieval period was documented for a long time by texts and iconography. These studies brought numerous testimonies which tended to present the living conditions of the noble persons and the clerics. For more than 30 years, in France, the archaeological research has totally changed this incomplete vision of the period. So, the development of the preventive archaeology, and more particularly on huge excavations called in french 'Grands Travaux' lighted numerous data and artefacts of the beginning of the medieval period.

The national institute Inrap which was in charge of many of these projects, operated numerous related disciplines of the archaeology such as geoarchaeology, archaeozoology, archaeobotany. It was in particular possible to make experiments, such as they were able to be put forward in particular on plan of the Channel relieving the river Saine and the North of Europe (code CSNE). The poster presented here shows the results which were obtained on the same excavation fields of the North of France within the framework of a micromorphological study of the Early Medieval stuff. We especially focused on huts called 'sunken featured buildings'. It was set up that a particular strategy of sampling, which aims at taking into account the allowed time, as well as the average scientifics and the available human being. All the archaeological units of this type having been searched and

TH5-02 Abstract 02
Interpreting silos deposits in medieval Mediterranean France: archaeobotanical approach

Author - Dr. Ros, Jerome, UMR7209, CNRS/MNHNP, Paris, France (Presenting author)
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Keywords: archaeobotany, medieval Mediterranean France, silos

Presentation Preference - Oral

For the last twenty years, large-scale public works have helped to improve medieval archaeological research in Mediterranean southern France. The multiplication of rescue excavations has led to the discovery of several large emaling areas, some of them formed by thousands of silos. The discovery of such structures systematically raises the question of the identification of the type of deposits excavated (in primary or secondary position), and, for primary deposits, the question of the type of products ensiled.

The discovery of storage in primary position remained uncommon and was, as far as 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 emaling 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

Author - Dr. Onrot, David, University of York, York, United Kingdom
Co-author(s) - Rogasch, Jana, Flinders University of South Australia, Adelaide, Australia (Presenting author)

Keywords: bone taphonomy, formation processes, microstratigraphy

Presentation Preference - Oral

In 1987 Michael Schiffer published the hugely influential ‘Formation Processes of the Archaeological Record’, which has continued to be consulted to interpret the biographies of archaeological materials, the formation of refuse and refuse assemblages, the spatial and diachronic development of archaeological sites, and to study sites in the context of their hinterlands. On the approach to the 30th anniversary of Schiffer’s publication, this session aims to examine the contribution that environmental archaeology, and its associated specialisms such as archaeozoology, paleoecology, palaeontology, 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 04
When someone walked in these buildings (geoarchaeology of soils)

Author - Dr. Reilly, Eileen, University College Dublin, Dublin, Ireland
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Keywords: Environmental archaeology, Site formation processes, Taphonomy

Presentation Preference - Regular session

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TH5-02 Abstract 05
Exploring house [after]lives at catalhöyük West via microstratigraphy and animal bone taphonomy

Author - Dr. Onrot, David, University of York, York, United Kingdom
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TH5-02 Abstract 06
Understanding the formation processes of the archaeological record by integrating environmental archaeology and traditional field excavation

Author - Dr. Hunter, Fraser, National Museums Scotland, Edinburgh, United Kingdom (Presenting author)
Co-author(s) - Wouters, Barbara, Vrije Universiteit Brussels, Brussels, Belgium
Co-author(s) - Dr. Onrot, David, University of York, York, United Kingdom

Keywords: Environmental archaeology, Site formation processes, Taphonomy

Presentation Preference - Regular session

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TH5-02 Abstract 07
Understanding the formation processes of the archaeological record by integrating environmental archaeology and traditional field excavation

Author - Dr. Hunter, Fraser, National Museums Scotland, Edinburgh, United Kingdom (Presenting author)
Co-author(s) - Wouters, Barbara, Vrije Universiteit Brussels, Brussels, Belgium
Co-author(s) - Dr. Onrot, David, University of York, York, United Kingdom

Keywords: Environmental archaeology, Site formation processes, Taphonomy

Presentation Preference - Regular session

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TH5-02 Abstract 08
Understanding the formation processes of the archaeological record by integrating environmental archaeology and traditional field excavation

Author - Dr. Hunter, Fraser, National Museums Scotland, Edinburgh, United Kingdom (Presenting author)
Co-author(s) - Wouters, Barbara, Vrije Universiteit Brussels, Brussels, Belgium
Co-author(s) - Dr. Onrot, David, University of York, York, United Kingdom

Keywords: Environmental archaeology, Site formation processes, Taphonomy

Presentation Preference - Regular session

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taken, it was set up an index form of statement taking into account paleo-environmental comments and studies. It is to easily samples with the aim of the study in laboratory. Every sample was coded and inventoried. A ceaseless round trip between field data (sediments and drawings, photos) and the data obtained by the micromorphological study, as well as the overall of the other disciplines allowed to document very finely structures which seemed in prior homogenous.

So, the studies led by the archaeologists during works of preventive archaeology allow to set up real scientific protocols. The BIFs, structures in prior without notable interest, give a lot of information on the everyday life of the populations of the beginning of the Middle Ages in the North of France. Thanks to the interdisciplinary studies led everywhere, it is today possible to have a more just vision of the activities of populations we discover in archaeological field.

TH5-02 Abstract 05
Cesspits and the P-P-P-P-problem: The pitfall of the Pompeii premise and the palimpsest
Author - Dr. Van Oosten, Roos, Leiden University, Amersfoort, Netherlands (Presenting author)
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- Martín-Sþez, Antonio, Universidad de Valladolid, Valladolid, Spain
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- Rodríguez Sabat, Eduardo, Independent Researcher, Vigo, Spain

Given their high yield of artefacts and ecoclasts, cesspits are afforded much time and effort in urban archaeology. While historical sources reveal that cesspits were emptied at regular intervals every few years, archaeologists still treat cesspits as closed contexts where artefacts are fossilized and undisturbed by subsequent cultural or natural processes. This 'archaeological blind spot' results from the lack of attention given to cesspit cleaning activities in the application of traditional archaeological methods. For example, counting ceramics both in terms of the 'minimum number of vessels' and fragments to tackle formation processes is widely known since Schiffer's publications, but has not taken root in urban archaeology.

This presentation is a call for a revaluation of the contextual analysis, meaning that stratigraphy must be the terminus of this process.

TH5-02 Abstract 06
Reinterpreting pits and post-holes: Archaeobotany as a tool to access site formation processes
Author - Dr. Tereza, João, CIBIO - Research Center in Biodiversity and Genetic Resources (Univ. of Porto), Porto, Portugal (Presenting author)
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- Gazaa, Rita, Natural History and Science Museum - University of Porto, Porto, Portugal

The interpretation of archaeological assemblages has been traditionally based on a classification of archaeological contexts in two categories: dispersed and concentrated. These categories have deep influence the interpretation of archaeological assemblages and archaeological contexts. Within this theoretical framework, concentrated plant remains are those found in association to well-delineated contexts, structured or not. These are usually considered to represent short-term events in which human activity must have played a determinant role, thus being mostly suitable for palaeoethnobotanical approaches. On the other hand, dispersed remains are those recovered in sediments dispersed throughout the site. They are supposed to represent the accumulation of remains as the result of different daily activities along an undetermined period of time. As such, they should embody a longer diachrony than the concentrated contexts, thus being more suitable for palaeoecological approaches.

Nevertheless, this oversimplification of archaeobotanical realities does not take into full consideration the formation processes of archaeological contexts, consequently being more prone to mislead their interpretations. We argue that archaeological studies would benefit from using a different theoretical approach, one that integrates the taphonomic processes underlying the deposition of plant remains. On the basis of such approach stand the concepts of primary and secondary deposition and tertiary refuse which have been successfully used for interpreting archaeological contexts and archaeological assemblages (Schiffer 1987; LaMotta and Schiffer 1999). Finally we consider that the integration of archaeobotanical analysis with further archaeological evidences is crucial to better understand depositional processes and to distinguish between primary and secondary waste (Schiffer 1987; LaMotta and Schiffer 1999) and even tertiary refuse (Fuller et al. 2014).

This presentation is a call for a revaluation of the contextual analysis, meaning that stratigraphy must be the terminus of this process.

TH5-02 Abstract 07
Cooking pits, formation processes and democracy
Author - Swedberg, Stig, Kulturlandskapet, Fjällbacka, Sweden (Presenting author)
Co-author(s) - Östlund, Annika, Kulturlandskapet, Fjällbacka, Sweden

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 biastical interpretation and fewer analyses.
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 radioarbon dating were collected.

The results from the analysis of the ratio of firecracked stones show that this is a way to group the cooking pits. The macrofossil analysis concluded that one type of pit was used for processing grain. The lipid analysis also supports 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 pit 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 a 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 men, 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.

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**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)

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Keywords: archaeobotany, micromorphology, Neolithic

Presentation Preference - Oral

At Zug-Riedmatt, excellently preserved waterlogged organic layers were conserved in a depth of 6m below the deltaic 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 microarchaeological methodological approach, 79 profile columns were documented, sampled and separated into layers in an intensive cooperation between archaeobotany, palynology, micromorphology, archaeozoology, geochemistry and field archaeology.

All disciplines involved simultaneously analysed the same samples and actively exchanged their results, experiences and ideas. The aim is to understand layer formation and degradation processes from different perspectives with a focus on taphonomic questions. Our talk provides an insight into the transdisciplinary discussion of three profile columns regarding archaeobotany, palynology and micromorphology. The three profile columns cover the whole occupation layer of up to 1.3 m of thickness, which contains various sediment types. The interplay between lake and deltaic deposits, which overlap with anthropogenic settlement activities, shall be presented. This microarchaeological approach shows that complex, hard to solve questions emerge, which have to be discussed in detail between the involved disciplines.
In this paper we will explore the depositional, post-depositional and current land use processes that have resulted in the present situation and the expression of the surface site as recorded in the archaeological field survey. We will show how the integration of geo-archaeological and geophysical work has provided us with a completely different view on the formation of sites like RB73, and of types of landscape exploitation in these Apennine upland valleys.

TH5-02 Abstract 13

Unravelling the formation process: re-excavating stratigraphy beneath the temples of Malta

Author - Prof. Malone, Caroline, Queen’s University Belfast, Belfast, United Kingdom (Presenting author)

Co-author(s) - M. Gjølholm, Rowan, Queen’s University Belfast, Belfast, United Kingdom

Key words: 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 Erik Peat from the UK joined the team to examine these sites in Malta in the first properly recorded excavations, and their published records provide an invaluable resource for early archaeology. A century later, as part of the ERIC FRAGSUS project, three temples were re-examined, in the quest for new samples for dating and palaeoecological evidence. The results have shown that the temples were built using material from nearby quarries, and also includes evidence for human activity in the form of midden deposits. The temples were constructed using a combination of local and imported materials, which suggests a high degree of planning and organisation. The results provide new insights into the cultural and social practices of the Maltese people at this time, and demonstrate the importance of temple construction in the region.

TH5-02 Abstract 14

Interdisciplinary research for unravelling the chronology of archaeological sites of Ulôw (Poland)

Author - Dr. Moskal-del Hoyos, Magdalena, W. Stawer Institute of Botany, Polish Academy of Sciences, Krakow, Poland (Presenting author)

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Key words: Archaeology, Radiocarbon dating, SE Poland

Presentation Preference - Oral

A group of archaeological sites located near the village of Ulôw in Central Roztocze (Lublin voivodeship, south-eastern Poland) was discovered by people using metal detectors when searching for military items from World War II. The first archaeological survey was carried out in 2001 and proved that an extensive forested area, considered as an unexploited prehistoric site, contained remains of multicultural settlements. The systematic excavations were began in 2002 and have been intensified since 2014, when a research project entitled "Roztocze - the ancient terra incognita?" (Settlement micro-region in the area of Ulôw in Middle Roztocze in the prehistory and its background. Interdisciplinary studies) obtained financial support from the National Science Centre in Poland. The main goal 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 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. The site is still a subject of archaeological interest, and new investigations are planned to further explore the chronology of the site and its cultural significance.

TH5-02 Abstract 15

An interdisciplinary approach to the study of a stratigraphic sequence from Malalbergo (Italy)

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Key words: Bronze Age site, paleo-environmental studies, stratigraphic sequence

Presentation Preference - Oral

On the Middle to Recent Bronze age site of Ponticelli di Malalbergo was recently found in the lower alluvial plain of Bologna, 25 km NE of the city and 25 km south of Po river, 60 km westward the Italian Adriatic sea coastline. The study of a stratigraphic sequence contributes to knowledge of land formation from the Bronze Age to the present day.

The Po river alluvial basin allows a good preservation of archaeological sites due to fluvial sedimentation linked to postglacial sea level rise and tectonic subsidence. The resulting optimal sedimenting conditions guarantee the removal of most of the reworking and pollution conditions usually affecting the outcropping archaeological sites and related palaeosols. In such a way archaeological and palaeo-environmental studies can be successfully performed.

The related silt loitt was laying at 6.65 m of depth (<2.5 m a.s.l) while the Roman age topsoil was recorded at 5.7 m (<3.3 m a.s.l) characterized by anthropophytic layers (Ap horizon). The site was resting on sandy loam sands possibly linked to a possible coeval riverbed or related structures. Clayey loamps set to the Roman age. The roman topsoil was capped by a 2.75 m thick loamy clays hosting 8 thin (<10 cm thick) peaty layers suggesting the size reduction of the former wide and easternwards open, alluvial basin happened probably at the end of the High Middle Ages or the beginning of the Free Common age (XI-XII century AD).

In the 18th century AD the prograding alluvial ridge of the Reno river new course deposited up to 3 m of sandy loams. This site starts for the first time that the core of the alluvial plain was at some extent drained and suitable for human settlement both in Roman and Bronze ages. It is still impossible to state if the sediments predating the Middle Bronze age were delivered by the Apennine alluvial network or Po river anabranching system.

From a physico-chemical viewpoint the palae anthropogenic soil horizon dating to the Bronze Age recorded: 13g/kg CaCO3; 30 g/kg Organic Matter; 8-11 g/kg Ptot; 87 mg/kg C; 2 mg/kg S; 245 mg/kg Zn. As term of comparison the Roman age Ap horizon, instead, recorded: 50g/kg CaCO3; 25 g/kg Organic Matter. The Cu and Zn concentration was higher then the today accepted pollution thresholds suggesting a possible bronze fusion activity performed in the site core.

TH5-02 Abstract 16

Neolithic before Neolithisation? The evidence of first farmers in south-western Slovakia

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Key words: environment, Neolithic, pottery technology

Presentation Preference - Oral

The beginning of the Neolithic in south-western Slovakia was so far mainly studied from typologico-chronological perspective. Most of the find assemblages come from the older rescue excavations, field surveys, stray finds or finds without reliable find context. Recent discovery of a new Early Neolithic site in Santovka tries to fill in this gap. Site lies in south-western Slovakia on the northern outskirts of the Pannonian lowland, in the drainage basin of the creek By, which flows into Ipel. The constant monitoring of the site since 2012 and subsequent archaeological excavation with interdisciplinary approach shed a new light on the transition of Mesolithic and Neolithic. The presence of thermal springs led during the Quaternary to the accumulation of travertine mounds. The Holocene formation of travertine dammed the creek By and led to the accumulation of calcareous clay during the Early Holocene. The analysis of plant microremains and molluscs dated to the first half of the 11th millennium BC shows that the site was covered with mosaic of forest and vegetation of open habitats.
Exceptional discovery was made in the stratigraphically older layer of calcareous clay, where unusual pottery was located. Radiocarbon dates of the organic temper from pottery correspond with the end of 7th and beginning of 6th millennium BC. The pottery is 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 Škavac 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.

TH5-02 Abstract 17
Regional correlations of destruction layers using Earth’s magnetic field: The Levant case study

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Keywords: Paleomagnetism, Stratigraphic correlation

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 more than 3000elysian site Tell Abu Hureyra (37°50’N, 36°30’E) covering Late Bronze and Iron Ages (13th-8th centuries BCE). During parts of this time the radiocarbon calibration severely limits temporal resolution of absolute dating. By contrast, the magnetic field in the Levant shows extreme fluctuations. The data supports the overall stratigraphic picture and demonstrate the potential of future studies to resolve some of the uncertainties and discrepancies between alternative chronologies.

TH5-02 Abstract 18
Applying silence and sound to environmental reconstruction: frameworks, applications, implications

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Keywords: Destruction layers, Paleomagnetism, Stratigraphic correlation

Presentation Preference - Oral

The present contribution will demonstrate how geoarchaeological approaches, and especially micromorphology, can help to consider the archaeological multidisciplinary record.

TH5-02 Abstract 19
Not separating wheat from chaff: considerations for differential recovery of charred plant remains

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Keywords: Dark Earth, Phytolith study, Soil Micromorphology

Presentation Preference - Oral

Urban dark earths are dark coloured, poorly stratified units, often formed over several centuries that have been uncovered in many European towns (Nicosia & Devos, 2014). Due to their lack of any recognizable internal stratigraphy, standard archaeological approaches typically fail to understand their complex histories.

The present contribution will demonstrate how geoarchaeological approaches, and especially micromorphology, can help to understand the complex formation processes, and to discriminate different human activities and natural processes involved in dark earth formation. In a second step, we will also discuss how soil micromorphology (the microscopic study of archaeological soil/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:

TH5-02 Abstract 20
Deciphering formation processes of the urban Dark Earth: a geoarchaeological approach

Author - Dr. Nicosia, Cristiano, Université Libre de Bruxelles, Brussels, Belgium (Presenting author)

Keywords: Dark Earth, Phytolith study, Soil Micromorphology

Presentation Preference - Oral

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References:

TH5-02 Abstract 21
Deciphering formation processes of the urban Dark Earth: a geoarchaeological approach

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Presentation Preference - Oral

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References:
Understanding how such heat conditions can be maintained during destruction of mud brick structures is 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 heating condition is necessary. Using FTIR spectroscopy, micromorphology and paleomagnetism, back on site we show how the Stratum VIA find in an in-situ standing wall shows the same magnetic field directions, suggesting in situ burning, i.e., construction with heat. destruction. Destruction by fire is a well-known archaeological phenomenon around the world, including the Near East. It is common in all cultures and societies and is usually linked to the collapse of societies or the end of a period. In the Near East, it is often associated with the destruction of the Late Bronze Age (ca. 1200-1000 BCE), and mostly associated with religious conflict, as in conquest campaigns. A recent project conducted at Tel Megiddo, a key Near Eastern archaeological site, in which a massive destruction event (Stratum VIA of the Iron Age II) is studied using a geoarchaeological approach. Initial mineralogical analyses, using FTIR spectroscopy, showed that most of the mud bricks found at the destruction level are homogenously heated to about 600°C. This observation posed the question whether the site was constructed with sun-dried or pre-fired mud bricks. A paleomagnetic study of five bricks found in an in-situ standing wall shows the same magnetic field directions, suggesting in situ burning, i.e., construction with sun-dried mud bricks. In order to understand the manner in which sun-dried mud bricks behave during a conflagration, we conducted several sets of laboratory experiments using model bricks fired under different temperature, duration and oxygen level conditions. The result of these experiments was further tested for mineralogical changes under these various hypothetical conditions. Using FTIR spectroscopy, micromorphology and paleomagnetism back on site, we show how the Stratum VIA destruction event can be unargued to components such as spatial temporal patterns and directions of architectural collapse, and propose areas of ignition and fire path spread. Further experimentation with modeled mud bricks revealed that a minimum of 2-3 hours of constant heat, fired from all directions, is required in order to produce destruction. Understanding how such heat conditions can be maintained during destruction of mud brick structures is currently under study.

TH5-02 Abstract 24

The Archaeological Stratigraphic Sequences of the Vitava River Valley

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Keywords: Geoarchaeological archive, settlement episodes, Stratigraphic sequences
Presentation Preference: Poster

Archaeological terrains located on the left bank of the Vitava river in the Czech Republic are the unique “geoarchaeological archive”. These sites are threatened by current building development. But archaeologists don’t always give them so much attention it deserved. Its 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, Děvín and Bubeneč). We are talking about geomorphological temperate eastern slopes of the hills and footills of the Upper Švýca height. Local stratigraphic sequence captures the landscape from the Paleolithic to the present. It often has the character of a “Tell” and has generally polycyclic origin. According to the current knowledge on the riverine presence in the settlement strata, the presence of the soil of both. 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 theoetically or methodologically. In fact, the works of reference continue to be those written by M.B. Schiffer in the last third of the 20th Century. This investigator introduced the concepts of “systemic context” (dynamic stage during which elements shared the culture of their societies and different processes of formation 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 discipline 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 potteries researched 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 preserve the pottery in a very different manner.

TH5-02 Abstract 23

Material culture and formation processes in archaeology

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Presentation Preference: Poster

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TH5-02 Abstract 22

Unravelling Formation Processes Associated with Destruction by Fire

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Keywords: Destruction by fire, Formation processes, Geoarchaeology
Presentation Preference: Oral

Destruction by fire is a well-known archaeological phenomenon around the world, including the Near East. It is common in most sites in Israel dating to the Iron Age (ca. 1150 to 600 BCE), and mostly associated with territorial conflict, as in conquest campaigns. A recent project conducted at Tel Megiddo, a key Near Eastern archaeological site, in which a massive destruction event (Stratum VIA of the Iron Age II) is studied using a geoarchaeological approach. Initial mineralogical analyses, using FTIR spectroscopy, showed that most of the mud bricks found at the destruction level are homogenously heated to about 600°C. This observation posed the question whether the site was constructed with sun-dried or pre-fired mud bricks. A paleomagnetic study of five bricks found in an in-situ standing wall shows the same magnetic field directions, suggesting in situ burning, i.e., construction with sun-dried mud bricks. In order to understand the manner in which sun-dried mud bricks behave during a conflagration, we conducted several sets of laboratory experiments using model bricks fired under different temperature, duration and oxygen level conditions. The result of these experiments was further tested for mineralogical changes under these various hypothetical conditions. Using FTIR spectroscopy, micromorphology and paleomagnetism back on site, we show how the Stratum VIA destruction event can be unargued to components such as spatial temporal patterns and directions of architectural collapse, and propose areas of ignition and fire path spread. Further experimentation with modeled mud bricks revealed that a minimum of 2-3 hours of constant heat, fired from all directions, is required in order to produce destruction. Understanding how such heat conditions can be maintained during destruction of mud brick structures is currently under study.
TH5-02 Abstract 25

EcoPlis: characterizing the prehistoric human occupations in the Lis River Basin (Portugal)

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Keywords: EcoPlis, Human occupation, Prehistory

Presentation Preference - Poster

The River Lis Basin, located in central Portugal, is an ecotone between the coast and the inland mountains. The unique conditions for highly preservation of both organic and inorganic materials make it a key region to acquire high-resolution data from both geological and archaeo logical 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 roots 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 Iberian Peninsula. 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 Azilian to the Chalcolithic and start the excavation of two coves and a rockshelter. Our approach includes the 3D piece-plottting of all visible finds without a cut-line, the complete flotation of the sediments from archaeological layers and samples for phytoliths and parasites. Among other things, we found multiple entrances with human remains in a same short valley and in a same cliff that may correspond to two Early Prehistoric mortuary complexes, a dense shell layer in a Palaeolithic site located over 25 km from the present seashore and, thanks to our protocal, 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

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Keywords: formation processes, La Draga, Palynology

Presentation Preference - Poster

The integration of pollen and non-pollen palynomorphs (NPP) analyses provides essential data to reconstruct palaeoenvironmental conditions in both regional and local scales. The application of these analyses in archaeological deposits also offers the possibility to obtain evidence of socioeconomic practices, in terms of documenting crops, gathered plants, stabling of 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 (Siurana, Spain), a pile dwelling site located in the shore of Lake Banyoles.
BIOGEOCHEMICAL APPROACHES TO ARCHAEOLOGICAL DIET, MOBILITY AND DISEASE

TH5-03

Dietary Isotope and Paleopathology Reconstruction of the First Pastoralists from Cis-Baikal, Siberia

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Keywords: Diet, Pastoralist, Siberia

Presentation Preference - Oral

Nomadic pastoralists first arrived in the western region of Lake Baikal, Siberia, known as the Cis-Baikal, around 3000 years ago. Compared to early and later periods, the lifeways of these pastoralists, who brought with them domesticated animals including 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 animal remains. The non exclusively unresolved problems to discuss about are: i) the impact (absence) of the introduction of new foodstuffs in the health status of a population, ii) growth patterns and health outcomes, iii) changes in human and animal subsistence strategies and consequences on their lifestyles, iv) the exposure to toxins (e.g. trace metals) and how to tell these effectively from post-mortem contamination, and v) the relation between (infectious) diseases and mobility. We welcome papers on case studies in these or similar topics, as well as contributions that address methodological aspects such as intra-skeletal variability or new bone chemistry applications (e.g. FTR, Py-GCMS, multi-isotopic studies, proteomic, etc.).

TH5-03 Abstract 02

Porotic hyperostosis and cribra orbitalia over the Neolithic transition in the Danube Gorges, Serbia

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Keywords: bioarchaeology, Copper Age, Iberia, paleopathology, stable isotope analysis

Presentation Preference - Oral

Marroques Bajos represents one of the largest Copper Age (~ 2000-2250 BC) mega-sites in Iberia and comprises a collection of numerous human remains. The site includes three areas of necropolis ([N1, N2 and N4] where primary and secondary burials were documented. In this paper we explore dental paleopathology, dietary differences and mobility patterns throughout bioarchaeological and multi-isotopic methods (n=108). The evaluation of the health status showed no significant differences in the frequency of caries between the three areas of necropolis. However, at N2 there is a higher proportion of hypoplasia and at N4 of caries than the total sample. Stable isotope of carbon (δ13C) and nitrogen (δ15N) in bone collagen showed different sources of food in both sites. In some late period pastoralists δ13C values become even more negative, which, in conjunction with lower δ15N values, suggests the C4 plant diet may have been consumed either by people or their livestock. Yet, fish remained an important part of the pastoralist diet up to modern times. Many of the skeletons were very incomplete, limiting paleopathological investigation. Of the most lumber vertebrae (n=3). One older male had a healed tuba-fibula fracture and two individuals had genu valgum, in the fifth lumbar vertebra (n=3). One older male had a healed tuba-fibula fracture and two individuals had genu valgum. Of the most lumber vertebrae (n=3). One older male had a healed tuba-fibula fracture and two individuals had genu valgum.
The paper will present and discuss results of stable isotope analysis of carbon and nitrogen for a diet as well as strontium and oxygen for a provenance from 6th millennium 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 rise of the Polish State in the 12th century. The isotopic data nicely document the shaping of social divisions, forming of elites, creating of a state and a religion shift from paganism to Christianity. Chamber graves were characterized by having an inner wooden construction in a form of a chamber and were often furnished with numerous and luxury grave goods.

Such burials were places of eternal rest for men, women and children. For the study of the diet and the provenance were 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 interest in ordinary graves. However, the diet consumed by men and women buried together in double graves differed significantly.

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**TH5-03 Abstract 07**

A paleoecological and isotopic approach to dietary changes in medieval Holland

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Keywords: dental caries, medieval Holland, stable isotopes

Presentation Preference - Oral

The late medieval period in Holland was characterised by substantial socioeconomic changes. While the region was largely undeveloped prior to AD 1200, after 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 rural medieval village of Blokhuzen (AD 1000-1200) to the late medieval town of Alkmaar (AD 1448-1725) 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 Blokhuzen, 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 13C and 15N values in comparison to Blokhuzen. 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 15N values.

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 Blokhuzen, there was a significant difference between males and females in regards to caries frequency but not stable isotope values. This likely reflects the universal biophysical phenomenon of higher caries frequencies in women. In urban Alkmaar, there was no significant difference in male-female caries frequencies, suggesting the diet changed in such a way that the expected difference was eliminated. The males were eating a certain type of food that was rarer in the female diet, that did not shift their 13C values away from that of the females, but elevated their frequency of caries. This could include more starchy or sugars, but also increased consumption of fish 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.

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**TH5-03 Abstract 08**

The mobility at medieval cemetery in Hamina in northern Finland

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Keywords: mobility, strontium isotope 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 strontium analysis method was applied on a large skeletal collection (MIN 260) discovered from the Ikin Hamina cemetery. The site which was used during the 15th to 16th century AD and has been previously studied with stable isotope analysis for diet, which indicates that the population has a large input of aquatic food in their diet.

TH5-03 Abstract 09
Diet, morbidity and mortality of a north Finnish town 1600-1800 AD
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Keywords: CT and SIA, Finnish Lapland 1600-1800, morbidity, mortality and diet
Presentation Preference - Oral

Kemi (65.6 N 25.0 E) has been a small but relatively important town in southern Finnish Lapland since the 17th century. The morbidity and mortality of its inhabitants has been studied on the basis of death records that contain the statistics of nearly 1000 individuals that died in Kemi between 1690 and 1850. These data include the individual’s name and profession, the death date, the cause of the death and, if the death occurred before the age of 17, the date of the death. In addition, the natural mummified remains of some individuals buried under the churches of Kemi and Haukipudas (c.75 km to SE) from the early 17th to the mid-18th century were investigated by means of Computerized Tomography (CT) scanning and stable isotope analyses in order to obtain information about possible pathological features and the diet. Zooarchaeological and ethnoarchaeological data have been used together with isotopic results in the interpretation of the local diet. This paper presents and discusses the preliminary results of this research.

TH5-03 Abstract 10
Dietary variability among earliest domesticated pigs in the Iberian Peninsula
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Keywords: early Neolithic, foddering strategies, stable isotope
Presentation Preference - Oral

Dietary variability among early domesticated pigs in the NE Iberian Peninsula (5700 3500 cal BC): a stable isotopic perspective Domesticated pigs (Sus domesticus) played an important role in the early Neolithic economy of the western Mediterranean. Studies from the Iberian Peninsula reveal that their exploitation followed a systematic pattern oriented to the production of meat, for example with animals slaughtered between the age of 18 to 24 months. While this pattern appears relatively homogeneous over this broad geographic area, differences in management strategies may have existed between sites, perhaps as a function of environmental conditions, site use and community organization. Previous studies have shown the potential of stable isotopes for assessing variability in foddering strategies, but this approach has never been systematically applied to animal bone remains. The four principal components extracted by PCA were interpreted as two main diagenetic changes: i) a primary process leading to the preferential loss of collagen a-helix and a residual increase in carbohydrates, and ii) a secondary process related to the loss in 15N values, thus supporting their use for paleodiet reconstruction.

TH5-03 Abstract 11
What can FTR tell us about archaeological bone collagen preservation?
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Keywords: bone collagen, FTIR, quality indicators
Presentation Preference - Oral

The collagen of human and animal bones is routinely extracted and analysed in Scientific Archaeology (e.g. paleoecological studies, 14C dating, etc.). Reliable information can only be obtained from analysis of collagen with a “good” level of integrity, a condition that has been determined by different approaches based on, for instance, elemental composition (C and N content), C:N ratios, collagen yield, amino acid profiling or amino acid racemization. In addition, spectroscopic techniques provide a non-destructive method to investigate the molecular structure of extracted collagen; however, a deep knowledge of multivariate statistics is required to deal with the large amount of data generated. We used FTR spectroscopy to characterise non-thermalised collagen extracted from 50 skeletons recovered in 8 necropolises from NW Spain, representing a wide chronological period (~3 500 years), multiple soil environments and different funerary deposits. The second derivative and the standard deviation spectra were used to identify the most relevant absorption bands. Principal components analysis (PCA) and multiple regression models were developed to synthesise the spectroscopic information and to estimate collagen quality parameters.

The four principal components extracted by PCA were interpreted as two main diagenetic changes: i) a primary process leading to the preferential loss of collagen a-helix and a residual increase in carbohydrates, and ii) a secondary process related to the loss in 15N values, thus supporting their use for paleodiet reconstruction.
Finding a common framework for skeletal science in Archaeology

**Abstract**

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 FTIR, pyrolysis-GC-MS and proteomics. All these methods are under the umbrella of biogeochemical approaches, since they study the chemical, physical, geological, and biological properties of bones and teeth. Their most usual pursuit aim is to reconstruct different pre-mortem features (i.e. diet, mobility and health) of the individuals the skeletons belonged to. Thus, it is worth to remark that the properties we analyse in skeletons are in fact approximations (i.e. proxies) of the multiple processes governing bone and tooth formation and degradation.

My own research started in the field of Physical Anthropology with emphasis in osteological variation and paleopathology. In the last years, I have been more involved in the application of biogeochemical techniques, discovering their utility in unraveling pre-mortem characteristics and how complementary their data are with more classic macroscopic approaches. I also realized that less attention has been paid to the role of post-mortem processes (diagenesis) on the chemical transformations of bone and their effect on pre-mortem signals.

Despite the recent advances in every specific field, and with few exceptions, most of the investigations have been highly disciplinary, seldom involving other close research areas. An example is the few connections between paleodiet reconstruction using stable isotopes and the study of ancient health, which has been discussed in the recent workshop “Paleodiet meets paleopathology”. What does it really matter? As Physical Anthropology teaches us, the focus should be put in the populations since they better reflect the individual variations (n=19). Avoiding the bias single case studies may introduce. And the population perspective should be embedded within an integrated vision of the environment, whose changes challenge human populations at many levels (e.g. health, resources availability, migrations). The changes also pertain to specific human activities such as mining and metallurgy which may pose a threat (e.g. metal pollution) both to the societies and the environment.

Moving our focus from the specific interpretation of the data to the understanding of the processes involved will surely allow us to see the big picture that can explain aspects of human life in the past. In my opinion, a common, coherent framework based on the population/environment perspective should be implemented to be able to understand our past properly.

**Keywords:** Stable isotopes, paleodiet, paleopathology

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**Famine to find God? Isotopic approaches to Nuns' diet of the Convento de Belmonte, Cuenca, Spain**

**Abstract**

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 (9.6-8.6‰). This may be reflecting the wide variation of ecosystems surrounding the site including some areas with saline geological materials (e.g. regional salt mines). No correlation has been found between the size of the sheep and their isotopic signal. Galus also show a quite large variation on δ15N, while pig values are more homogeneous. Terrestrial animals δ15N ranges from -18.7% to -21.0%, including herbivores, which suggest a low intake of C4 plants in some of them.

In contrast, human δ13C values are within a limited range (-17.6%- -18.6%), but δ15N shows a continuous shift between 9.7 and 12.7‰. The latter is an unexpected result considering that a religious community should consume basically the same kind and amount of food. There is no relationship between 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 autacotrophicism of proteins. The paleopathological study also supports the assumption of a very austere life, e.g. muscular/skeletal stress markers and osteoarthritis have a high presence in the sample. This intriguing hypothesis demands more research in order to unveil the most intimate life of the female inhabitants of the cloisters in their way to find God.
Since 1983, excavations at the site of Montiel (Spain) had led to the discovery of two cemeteries, representing two societies and cultural traditions: one Muslim (9th-13th century AD) and one Christian (13th-15th century AD). The geochemical composition of these osteological remains (10 Muslim individuals and 21 Christians) was investigated to see how different religious beliefs, culture and social status might have influenced the diet of these populations which were buried in a similar environment. This study aims to compare the results obtained with historical sources.

The nature and location of dietary components determine their specific geochemical composition which passes on through the food chain and is archived in consumers’ bones. The Muslim and Christian skeletal remains can therefore be used as witnesses of individual’s dietary habits and preferences, at least for the last few decades before their death, as a result of the different mineral part of their geochemical composition. The other contributory factors are the food consumption, as well as potential mobility. In this study we used bone nitrogen isotopic ratios ($\delta^{15}N$) and sulfur isotopic ratios ($\delta^{34}S$) for the analysis. Nitrogen reflects dietary constituents (lipids, carbohydrates and proteins), while the composition of bone’s organic component (collagen) reflects the geochemistry of ingested protein. The geochemical analysis of bone collagen can therefore provide a detailed picture of 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 ($\delta^{13}C$), the origin of water supply, deduced from bone oxygen isotopic ratios ($\delta^{18}O$), as well as individual’s trophic level position, addressed using bone nitrogen isotopic ratios ($\delta^{15}N$). While these isotopic tools have been routinely employed in past dietary studies and measured using an AMS, bone $\delta^{15}N$ and $\delta^{18}O$ ratios were also analysed to provide additional information on the trophic level, marine food consumption, as well as potential mobility. Bone $\delta^{15}N$ and $\delta^{34}S$ contents were measured using a cutting-edge technique (CAMECA-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 environmental geochemical baseline for each analytical proxy applied, and to enable the discussion of the Muslim and the Christian society in Montiel.

In 2008, a burial site was discovered in Rogalin (Eastern Poland). Interdisciplinary investigations were carried out and it was concluded that the site was a unique example of Strzyzow Culture, an agricultural culture found in Eastern Poland and in Western Ukraine dating from the Early Bronze Age (2000/1950–1600 BC). The Strzyzow culture spread over the area from the eastern part of Lublin Upland, that is the area between the upper Wisla river and the Bug river, to the area of southwestern Volhynia crossing the Horyn river in the area of present-day Ukraine. The highest density of its sites is in the area of the modern Lublin Plateau and near the town of Hrubieszow. Approximately of the Stone Age, the moistland pastoral Corded Ware culture disappears in its existence form, and post-Corded Ware traditions become the foundations for the creation of new archaeological cultures which are chronologically assigned to the Early Bronze Age. The western part of Poland, in the Odra and Warta river basins, is occupied by the Unetice culture, and the central and eastern part (upper Odra and Vistula river basins, Lublin region, Volhynia, Podilia) is the area of the Mierzanowice culture. Approx. 2000 BC, on the basis of the occurrence of the Urnfield cultures and under the influence of eastern groups such as the Yamnaya culture and the Catacomb culture, the Strzyzow culture, specific in terms of funeral rites and material culture, comes into existence. It develops side by side with the Mierzanowice culture until approx. 1600 BC, then giving way to the Trzciniec culture.

From 2008 to 2015 fifteen graves were discovered. Interdisciplinary investigations of excavated skeletal remains were carried out. It corroborates the knowledge gained from archaeological, anthropological, radiological, odontological and genetic investigations. But 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 panoramic images which are essential for skeletal and dental age estimation, to determine the biological status of skeletons, to diagnose any bone pathologies and abnormalities. Two skulls from graves 10 and 15, were subjected to identification tests, i.e. face approximation process using 3D computer software.

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 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. Genetic investigation allowed to establish sex of the children - 2 males and 5 females.
The megalithic necropolis of Panor (Spain) was discovered in 2012 and supposes the latest addition to the finds of megalithic cemeteries in the region. The analysis of these remains, along with other finds from the burial chambers, has provided new insights into the Funerary and Milieu of the deceased. The study of bone and teeth is key to the understanding of the past as they represent direct evidence of life on Earth. The mineral present in bone and teeth (bioapatite – a highly substituted hexagonal calcium phosphate apatite) contains several elements that can be used to reconstruct palaeoenvironments, palaeodiets, mobility patterns, etc.

Unravelling Cremated Bone – Structural, Elemental and Isotopic Studies

Cremated bone occurs in many archaeological sites as small gray and white fragments. The high temperatures reached during heating induce structural, elemental and isotopic changes to bone apatite (the inorganic fraction of bone). These changes are investigated here by infrared spectroscopy and mass spectrometry ($^{81}$O, $^{81}$Oe, $^{87}$Sr/$^{86}$Sr) in both modern heated bone and archaeological cremated specimens.

In contrast, the effect of burning on the strontium present in bone is minimal. Furthermore, as observed through artificial heating experiments, post-burial alterations also appear to be extremely limited, which is to be expected due to the higher crystallinity of calcined bone apatite compared to unburned bone and even enamel. These experiments demonstrate that calced bone provides a reliable substrate for mobility studies using its strontium isotope composition. The results of this work greatly extend the application of strontium isotopes to places and periods in which cremation was the dominant mortuary practice, or where unburned bone and enamel do not survive. Furthermore, carbon and oxygen isotope analyses and infrared spectroscopy provide insights into the reconstruction of ancient cremation practices.
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 rite and ends with the deposition of the ashes in the definitive burial place. The difficulties related to the study of the funerary rite are connected with the quantity and quality of information that can be obtained. The stratigraphic analysis of the urn content potentially documents the depositional process from its filling to its deposition in the definitive grave, including any changes related to the interaction with the surrounding environment, tampering, and so on.

Manual laboratory micro-extraction permits an ordinate empty of the urn through an arbitrary division of its content in horizontal sections, from top to bottom, joined to an accurate graphic and photographic documentation. One of the limits of this method is the difficulty to fully understand the spatial relationships between the layers and materials contained in the urn and their alterations.

Multidetector CT (MDCT) permits a careful, non-destructive volumetric study of the whole contain of the urn, keeping unchanged the spatial relationships between the layers. The differences of X-ray density of the layers and of the material contained in them permit to easily individuate the interfaces between them. Briefly, MDCT offers many advantages in respect to micro-extraction from stratigraphic point of view, suggesting its utilization before any non-repeatable operation made on the urn.

Our experience after MDCT scan on 40 cineraria from Neolithic to Roman age will be presented.
TH5-04 Abstract 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 cemeteries 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 quantity of the available data makes possible new and more detailed analyses of these complex, multi-faceted pyre goods. This paper will review new and existing evidence from early Anglo-Saxon cemeteries in East Anglia to explore how animals were used in funerary rites. Animals were a fundamental and ubiquitous part of early medieval society, providing a context for human action and perception and acting dynamically within that context. Their role in cremation rites is considered to be not simply symbolic, but as a complex interaction between identity, agency and cosmology.

TH5-04 Abstract 08

Cremation in the Scottish Chalcolithic

Author - Bloom, Anna, UCL Institute of Archaeology, London, United Kingdom (Presenting author)

Keywords: Cremation, Scotland

Presentation Preference - Poster

Cremation in the Chalcolithic is often considered a source of changes to mortuary practices, and is linked in some way to the arrival of the Beaker 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 actually looking at a break in recorded evidence?

TH5-04 Abstract 09

Advances in 14C dating of cremated bones at HEKAL Laboratory, Debrecen, Hungary

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Keywords: radiocarbon, dating, cremated bone, Bronze Age

Presentation Preference - Poster

A compilation of 14C dates over the last 50 years shows that less than 6% of all the bone dates were performed on purified bioapatite. The effective separation of the phase to be dated and the secondary calcite seems to be a challenge for researchers due to their identical chemical formula. Nevertheless physical and chemical changes which occur during the cremation process make cremated bones less susceptible to this type of contamination. In spite of all the difficulties a huge demand is shown for a reliable bioapatite preparation and measuring method since in a lot of cases dating is only possible by means of such findings.

At HEKAL laboratory, Debrecen, Hungary, we have dated several hundred of bone samples using their organic collagen fraction. As a next step we would like to adopt a method for 14 C dating of bioapatite fraction, a process which starts with the effective extraction of the carbonate content of the samples. In the course of developing our process cremated bones from the early and middle Bronze Age (2600/2500-1600/1500 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 bioapatite samples, after the repetitive rinse with sodium hypochlorite and acetic acid step, the crushed and sieved samples were reacted with phosphoric acid. The revealed CO2 gas was subsequently purified from other gases, graphitized by sealed tube method and its 14C content was finally measured by the MICADAS AMS.

Based on our first results fractions with different particle size (0,2-0,3 and 0,5-1 mm) yielded identical carbonate content and 14C age results. However, combining the age of the three parallel bioapatite samples has proceeded to be the same, that to organic fraction a difference of 200-400 years was experienced presumably due to the chemical pre-treatment.

On this poster we would like to present both the evolution of our carbonate pre-treatment protocol and dating problems arisen in the case studies of the presentation entitled ‘Cremated Dating’? Case studies for the dating of Bronze Age cremation burials from Hungary.

TH5-04 Abstract 10

Excavator bias and laboratory techniques of cremation burials

Author - Mgr. Pichhora, Erika, Charles University, Prague, Czech Republic (Presenting author)

Keywords: cremation burials, excavator bias, laboratory techniques

Presentation Preference - Poster

The aim of our research is to assess three methods of analysis of cremation burials: computer tomography (CT), micro-excavation; sieving of burial infill. We used eight burials from Jenöves- Pühlamédi site (Czech Republic) for the purpose of the study. Four burials were saved and four burials were micro-excavated and scanned by CT. Burials under the study comprised "nit" burials, um burials and um-sherd burials. Results show significant bias caused by possible indecise handling by the excavator. The most useful method for analyzing highly fragmentary burnt bone appears to be computer tomography (CT) together with micro-excavation. When only CT is used, the precise bone identification is not possible, whereas during micro-excavation tiny objects like metal slags can be overlooked, dislocated fragments lost, and burial volume measured imprecisely. Combination of the two methods ensures that the excavator reconstructs activities of past populations and not results of his/her own procedure.

TH5-04 Abstract 11

Cinerary urns radiology and knowledge sharing: a web-based "paleopacs" proposal

Author - Innocenti, Dario, Monfalcone, Italy

Keywords: Cinerary urns, Database

Presentation Preference - Poster

Cremation is a ritual treatment of the dead body that represents both a potential source of notices about the ancient historic societies and a real challenge for a physical anthropologist. With the introduction in the medical clinical practice of digital high-definition powerful radiological tools (MDCT, RM, QICT, CBCT etc.), is possible to carry out a non-destructive study of the cinerarium and its cremated remains in some way comparable with laboratory micro-excavation. Unfortunately, actual studies are based on a relative restricted number of cases, while the problems that we must tackle is correct interpretation of the images and the quantitative results need a large base of data and a effective share of the experience about it.

PAcCS (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 palaeoradiological and archaeological images and data, filling the gap of the actual relative paucity and dispersion of the palaeoradiological studies. This operation is not trivial because many specific problems must be solved as standardization, architecture, reliability and sharing rules of the system. A web-based, open source paleoPACS project and prototype with a section devoted to radiology of ancient cineraria is analyzed and presented.

THS-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 (Encounters 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 approaches to 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.

THS-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: Komarov burial ground, the Late Roman period, the Middle Volga Region
Presentation Preference - Poster

The research focuses on human remains from Komarov burial ground (the first half of the 6th - the first half of the 7th centuries). The excavations have been conducted since 2013. Currently, 21 cremated burials have been unearthed. These burials can be divided into three groups: human, animal and mixed burials. Four burials among them can not be attributed to any of the groups due to fragmentariness and small amount of bones remained.

Human burials. The maximum size of the fragments does not exceed 40-50 mm. The total weight of bones varies from 150 to 850 grams. As regards the colour characteristics, the bones of white and pale-grey colour predominate. The colorimetric scales comparison revealed the maximum temperature of cremation that did not exceeded 700° C.

In a number of cases, the remains contain transverse fractures, frequently in a curvilinear pattern, and more irregular longitudinal splitting. These features bear an evidence that the bodies were cremated during the first months after death, when bones still contain lipids and organic elements. Animal burials. Two burials were attributed to this group. Unfortunately, the species were not identified within the framework of this research. The maximum total weight of bones in such burials was 1 kilogram. The colour characteristics analysis showed the simultaneous presence of weakly burned, unburnt and white bones, indicating that the temperature of cremation varied from the lowest to over 800° C.

Besides the remains with thermal deformation and fissures, these burials also contain burned ‘dry’ bones, dehydrated and delipated at the moment of cremation.

Mixed burials. The third group contains human and horse remains, with two burials contain inhumations with animal bones. The first one contains the fragments of pelvic skeleton of horse, the second one – the pelvis, the scapula, metapodial of horse. The colour analysis of the identified human remains found the same features specific to the first group. The cremation temperature for the animal remains did not exceed 300° C.

The gender and age of cremated people was identified in 14 cases. Only one of them was a 7-8 years old children. Other burials belonged to adults. The majority of them was 45-55 years old women. Only two burials contain remains of men. The insufficient state of conservation, fragmentation and the lack of necessary morphological markers made impossible the gender determination in 5 cases.

The further studies of Komarov 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.
Plague, an infectious disease caused by the bacterium *Yersinia pestis*, occurred in at least three major historical pandemics: the Justinianic Plague (6th to 8th century), the Black Death (from 14th century onwards), and the modern or Hong Kong Plague (19th to 20th century). Yet DNA from bronze age human skeletons has recently shown that the plague first emerged at least as early as 3000 BC. Plague is, as any disease, both a biological as well as a social entity. Different disciplines can therefore elucidate different aspects of the plague, which can lead to a better understanding of this disease and its medical and social implications. The session shall address questions like:

- Which disciplines can contribute to the research on the plague? What are their methodological possibilities and limitations?
- How can they work together in order to come to a more realistic and detailed picture of the plague in different times and regions?
- Which ways had societies to react to the plague? How can they be studied or proved?
- Which commons and differences can be seen between the Justinianic Plague and later plague epidemics? Are there epidemiological characteristics that are essential and/or unique to plague?
- What are possible implications of the pandemic spread and endemic occurrence of plague through the ages for the interpretation of historical and cultural phenomena?

We would like to invite researchers from the disciplines of archaeology, anthropology, biology, history, medicine and related subjects to present papers in our session.

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**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)

**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)**: Sjögren, Karl-Göran, University of Gothenburg, Gothenburg, Sweden

**Co-author(s)**: Kristiansen, Kristian, University of Gothenburg, Gothenburg, Sweden

**Co-author(s)**: Wiårslévs, Eike, Center for GeoGenetics, Copenhagen, Denmark

**Keywords**: ancient DNA, paleogenomics, plague

**Presentation Preference**: Oral

There are three species of *Yersinia* that cause disease in humans: *Yersinia enterocolitica*, *Y. pseudotuberculosis*, and *Y. pestis*. While *Y. enterocolitica* and *Y. pseudotuberculosis* cause mild, self-limiting gastrointestinal infections, *Y. pestis* is responsible for the rapidly progressing, invasive, and often fatal disease called plague. Although *Y. pestis* is thought to have killed over 200 million people throughout history, it is a relatively "young" pathogen, only recently emerged from *Y. pseudotuberculosis* between 5,000 – 20,000 years ago. In this presentation, we will discuss the types of infections and diseases specifically caused by *Y. pestis*. Its modes of transmission, both between flea and mammal as well 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.

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**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)**: Zimber, Daniel, Northwestern University, Chicago, United States of America

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**Keywords**: evolution, plague, pneumonia

**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 fulminating, 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.

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**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)

**Co-author(s)**: Kristiansen, Kristian, University of Gothenburg, Gothenburg, Sweden

**Co-author(s)**: Wiårslévs, Eike, Center for GeoGenetics, Copenhagen, Denmark

**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. Yersinia pestis is an obligate symbiont of the flea, and hosts, the e.g. *Antirrhinum nitidus* and *Rattus rattus*. The possible origins of the disease and the 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.

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**TH5-05 Abstract 04**

**Reconstructing ancient pathogen - 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

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**Co-author(s)**: Orlando, Ludovic, Center for GeoGenetics, Copenhagen, Denmark

**Co-author(s)**: Sjögren, Karl-Göran, University of Gothenburg, Gothenburg, Sweden

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**Co-author(s)**: Wiårslévs, Eike, 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* pests. 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 epidemics. 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).

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**TH5-05 Abstract 05**

**Plague in the eastern Mediterranean region 1200-1000 BC?**

**Author**: Prof. Wall, Lal, 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 fulminating, 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 epidemic of bubonic plague with high mortality in the eastern Mediterranean region at the relevant time. Recent analyses of Bronze Age DNA sequences resembling Yersinia pestis indicate that the infection was endemic in human populations, and that it acquired sufficient virulence to cause bubonic plague at some point in time between 1600 and 950 BC.

L. Wallig: Was the disruption of the Mycenaean world caused by repeated epidemics of bubonic plague? Opuscula Archaeologica 41, 121-130.


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TH5-05 Abstract 06

Plague Before the Plague: Early Bubonic Plague in Greek Medical Literature

Author - Muñoz, 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 Justinian Plague. The new evidence that Y. pestis was active near the Mediterranean some 1,500 years before the Justinian Plague therefore calls for a reevaluation of the evidence for plague in antiquity before the Justinian 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, Rupus 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, when sources cited 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 Aetius both demonstrate an awareness of Y. pestis. Intriguingly, Galen, who flourished in the mid second century, only a few generations after Rufus, does not show any awareness of bubonic plague. First, this paper will demonstrate that there is no compelling evidence of Y. pestis in the Hippocratic Corpus. While the term boubōn (boubōn) to describe glandular swellings appears twelve times in the Hippocratic Corpus, none of these twelve instances suggest that these boubōnes are plague buboes as opposed to other glandular swellings.

A passage by Rufus of Ephesus that has been preserved in the Medical Collections of 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 corresponds with some 9th and early 10th century descriptions of Y. pestis and to sixth-century descriptions of the Justinianic plague.

In this passage, Rufus cites three little known authors who also knew of “pestilential boubōnes”: Posidonius, Dioscorides, and Diosynus Kurtos. The names Posidonius and Dioscorides could correspond to a number of possible figures, though being contemporaries it seems likely that they refer to little known authors of the first century BC. While it was previously thought that this Diosynus Kurtos was active in the third century BC, I will argue that Diosynus Kurtos could have been active anytime before the first century AD.

Finally, I will argue that, like the Hippocratic authors, there is no robust evidence that Galen was aware of bubonic plague. The use of the term boubōn in Galen refer most often to common lymphangits and do not resemble plague buboes. While the passage in Rufus suggests that Y. pestis was active in the Mediterranean from around the first century BC to the first century AD, after the first century AD there are no new descriptions of Y. pestis until late Antiquity.

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TH5-05 Abstract 07

Placing the Plague of Justinian in the Yersinia pestis phylogenetic context

Author - Kliink, Jennifer, McMaster University, Hamilton, Canada (Presenting author)
Co-author(s) - Wagner, David, Northern Arizona University, Flagstaff, United States of America
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Over a period of 150 years from about 1200 BC, the Mycenaean states collapsed. The great Mycenaean centres did not decline slowly during this period, but suffered sudden destruction at the very peak of their prosperity. Five hypotheses have been proposed to explain the collapse: invasion, civil war, local risings, earthquakes and climate change. However, none of them seems to provide a satisfactory explanation of the existing archaeological material. At about the same time, similar disturbances and destruction also afflicted Cyprus, Syria and Anatolia, and the Hittite empire came to an end. The temporal and geographical distribution of these disasters and the subsequent course of events in the Aegean region show a strong similarity to developments in the European region following the two later pandemics of plague. In addition, there is strong documentary evidence that there was at least one epidemic of bubonic plague with high mortality in the eastern Mediterranean region at the relevant time. Recent analyses of Bronze Age DNA sequences resembling Yersinia pestis indicate that the infection was endemic in human populations, and that it acquired sufficient virulence to cause bubonic plague at some point in time between 1600 and 950 BC.

L. Wallig: Was the disruption of the Mycenaean world caused by repeated epidemics of bubonic plague? Opuscula Archaeologica 41, 121-130.


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TH5-05 Abstract 08

Early medieval burials of plaque victims: examples from Aschheim and Alteneding (Bavaria, Germany)

Author - Dr. Gutsmiedl-Schumacher, Doris, Freie Universität Berlin, Berlin, Germany (Presenting author)
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Keywords: early medieval cemetery, Justinianic Plague, Upper Bavaria

Presentation Preference - Oral

With this paper, we present burials from two early medieval cemeteries, Aschheim-Bajuwarenring and Altenending/Kletham, where the causative agent of plague, Yersinia pestis, could be detected palaeogenetically.

The burials from the early medieval cemeteries of Aschheim-Bajuwarenring and Altenending/Kletham 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 gravel plain 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 [...]” (Procopius, De Bello Persico II 23, 15). On the contrary: the burial rites, as far as reconstructable, had been carefully conducted. The only difference is that the so far confirmed victims of the plague seem to have been more often buried in double or multiple burials. However, the screening of single graves 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 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)
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Keywords: ancient DNA, phylogenetics, plague of Justinian

Presentation Preference - Oral

The phylogenetic tree of the plague-causing pathogen Yersinia pestis has expanded in the last five years to include ancient draft genome sequences, which have allowed facets of the history of this disease to be explored in ways that were previously impossible. This pathogen has caused at least three human plague pandemics: the Plague of Justinian (6th-8th centuries), the Black Death (1347-1351/1352 with waves continuing from the 14th centuries and the 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 lineages that caused the Plague of Justinian and the Black Death 800 years later were independent emergences from rodent reservoirs in humans. These results show that rodent species worldwide represent important reservoirs for the repeated emergence of diverse lineages of Y. pestis into human populations. In contrast, recently published Y. pestis sequences from the 18th century plague outbreak in Marseille, France do show ancsty 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.
Understanding Black Death: News from Denmark

Author: Dr. Gamble, Julia, University of Toronto, Toronto, Canada (Presenting author)

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 biochemical or molecular work has been done on the disease in Denmark. As an acute infection, the Black Death epidemic left no diagnostic anatomical signs on the skeletal remains of medieval populations. Thus far, our understanding of the epidemic relies on historical accounts and on modern clinical understandings developed from more recent outbreaks of bubonic plague (a disease caused by Yersinia pestis, which is one of the prime contenders for the causative agent of Black Death). In reality, the causative agent of one of the most significant epidemic crises in recorded history is still an incredibly contentious subject, and our understanding of the circumstances affecting the health of populations around the period of the Black Death epidemic is limited. Yersinia pestis has been identified in Black Death cemeteries in Europe, but thus far, no published work is available from Denmark. By building a better understanding of the pathogen load of the populations in Denmark at the time of the Black Death crisis, as well as both before and after the epidemic, it will be possible to attain a better understanding of the role Yersinia pestis may have played in the population, and of the immune changes and responses to the epidemic. The current paper presents preliminary results from an international team combining bioarchaeological and molecular methods to gain a better understanding of the epidemic’s impact on the population surrounding the Black Death epidemic in Denmark.

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)

Work has been done on the disease in Denmark. As an acute infection, the Black Death epidemic left no diagnostic anatomical signs on the skeletal remains of medieval populations. Thus far, our understanding of the epidemic relies on historical accounts and on modern clinical understandings developed from more recent outbreaks of bubonic plague (a disease caused by Yersinia pestis, which is one of the prime contenders for the causative agent of Black Death). 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 biochemical or molecular work has been done on the disease in Denmark. As an acute infection, the Black Death epidemic left no diagnostic anatomical signs on the skeletal remains of medieval populations. Thus far, our understanding of the epidemic relies on historical accounts and on modern clinical understandings developed from more recent outbreaks of bubonic plague (a disease caused by Yersinia pestis, which is one of the prime contenders for the causative agent of Black Death). In reality, the causative agent of one of the most significant epidemic crises in recorded history is still an incredibly contentious subject, and our understanding of the circumstances affecting the health of populations around the period of the Black Death epidemic is limited. Yersinia pestis has been identified in Black Death cemeteries in Europe, but thus far, no published work is available from Denmark. By building a better understanding of the pathogen load of the populations in Denmark at the time of the Black Death crisis, as well as both before and after the epidemic, it will be possible to attain a better understanding of the role Yersinia pestis may have played in the population, and of the immune changes and responses to the epidemic. The current paper presents preliminary results from an international team combining bioarchaeological and molecular methods to gain a better understanding of the epidemic’s impact on the population surrounding the Black Death epidemic in Denmark.
One of the most devastating events in human history was the second plague pandemic, which began with the Black Death (1347-1353). Sporadic outbreaks of plague continued in Europe until the 18th century, when the disease essentially disappeared. Initial sequencing of Yersinia pestis genomes from London victims of the second plague pandemic identified the Black Death as the event that gave rise to most of the Y. pestis genetic diversity present around the world today. This result raised further interest regarding the relationship of this lineage to the ones associated with post-Black Death outbreaks, and to modern plague lineages.

Recent climatic and ancient DNA studies have attempted to explore these relationships, although a clear consensus is still yet to be reached. Here, we present three historical Y. pestis genomes from the second plague pandemic in Spain, Russia and Germany. Our results provide support for low genetic diversity in the plague bacterium during the Black Death, followed by a subsequent eastward travel of lineages to later become the source for the worldwide third plague pandemic, which began during the 19th century in China. In addition, our data from a post-Black Death outbreak in Germany are best explained by the persistence of a European plague lineage that is now likely extinct.

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**TH5-06 Abstract 01**

**Mid-Holocene settlement complexity in Northern Ostrobothnia, Finland**

*Author: Pesonen, Petri, National Board of Antiquities, Helsinki, Finland (Presenting author)*

*Co-author(s): LiDAR, Neolithic, settlements*

**Presentation Preference: Oral**

**Additional Information**

LiDAR mapping has recently become a standard tool in archaeological survey in Finland. In 2015, a set of LiDAR visualizations from Northern Ostrobothnia were investigated and a large number of housepits sites were later inspected in terrain. A total of 481 new housepits 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 Iijoki (Kierikki) and River Kemijoki (Törmävaara) areas in the north.

The sites are roughly dated between c. 4000-2500 calBC, to the period of the suggested Mid-Holocene population peak further stressing the relevance of this period in Finnish archaeology. It is not only the large number of the pithouses themselves, but the complexity of the settlement patterns as well opening exciting new avenues to the study of complex hunter-gatherer societies in the region.

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**TH5-06 Abstract 02**

**Changing the perspective of Neolithic civilization: Sopot culture tells discovered by remote sensing**

*Author: Dr. Stjepan B., Institute of Archaeology, Zagreb, Croatia*

**Co-author(s): Katalinic, 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 previously unknown prehistoric sites. We should emphasize a large number of settlements with circular enclosures which can be ascribed to the Sopot culture. A systematic analysis and interpretation of all obtained images helped improve our insight into settlement patterns of the Sopot culture, its relation to earlier Starčevo culture settlements, but also our entire knowledge about settlement density in the Neolithic of southern Carpathian Basin. The project also revealed numerous links and similarities in setting up fortification and construction with circular enclosed settlements in western Hungary, Lower Austria and Slovakia.

The results obtained so far show an increasingly large number of registered sites of the Sopot culture, including a large number of 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, Antonino, University of Cagliari, Cagliari, Italy (Presenting author)
Co-author(s) - Prof. Ranieri, Gaetano, 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, baetylæ of very great dimension, models of nuraño 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 baetylæ, showed characteristics anomalies that are repetitive all over the excavated area.

Starting from these remains, all the GPR data acquired during the entire survey, from 2013 to 2015, over an area of about 12 hectares, were analysed to detect patterns which matched those identified in the excavated area. Basing on this kind of approach, it was possible to try an interpretation of the GPR data also in the unexcavated areas.

The GPR data have revealed that the subsoil anomalies are flat and closely resemble to those observed in association to tombs in the excavated area. As in the excavated area, these kind of anomalies are often aligned along linear paths in NNE-SSW direction. These alignments are very extended both northward and southwest with respect to the known archaeological area.

Some others anomalies, scattered over the investigated area, display shapes very similar to those from baetylæ.

Another frequent pattern was also recognized but without direct correspondence to those from the dug areas. The new anomalies detected in the surrounding areas show size of some metres. Without a direct link to excavated remains, it is difficult to give a sure interpretation of them. Basing on their distribution and on the archaeological framework inferred from the excavations, it is possible to suppose that this kind of anomalies could be associated to the presence of ancient roads.

Such kind of approach allowed us to tentatively extend the interpretation of GPR data to an area wider than the investigated one. Actually, the area investigated from the archaeologists is less than 1,000 square metres that is very small if compared to those surveyed by GPR (about 130,000 square metres).

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.

TH5-06 Abstract 04
Using LIDAR in Normandy: a global changing in perception of territorial organization in Antiquity

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Keywords: LIDAR, Seine valley, Normandy, Territorial organization since Gaulish period

Presentation Preference - Oral

In years 2010-2011, a LIDAR survey campaign was led by the « Group of Public Interest Seine- Aval » (GIP-SA) from the upstream of Rouen to the English Channel with the aim of drawing up accurate topography of the Seine valley and watersheds adjoining the river. This data, available on over 1100 km², have for primary purpose of anticipating the rise of seal level, with the global climate changing, by calibrating the defense structures against the sea accordingly.

This very appropriate survey campaign had covered the public forests and also numerous private woods of lesser importance. The areas of wetlands have been processed jointly by the Ministry of Culture and Communication and the Office National des Forêts. They generated images ready to be used in archaeological analysis on more than 300 km² (situation in 2015 – to be increased in the future). The contributions are considerable, under forest cover or not, but the zone with woodland needed to be treated first for the virtual forest removal.

A reweeding of the regional archaeological documentation then forces us to reconsider the state of knowledge, particularly in terms of regional archaeological mapping. Dozens of new settlements, or anomalies, need to be added in the National archaeological map and inventory. In the same meaning, the global understanding of the territorial organization from Gallic and Gallo-Roman periods is considerably renewed. Indeed, the opilla (hill forts) that did not exist this part of Seine valley are particularly well readable, and the understanding of their insertion in the territorial organization becomes more relevant. Their morphology and their relation to the topography and the road system are greatly reinterpretated. In addition, the “antique” road called “Chausée Jules César”, serving the plateau on the north side of the Seine, finally shows his consistency as a strong element of organizing Calétes and Villicasses pagi. This organization seems largely inherited from a structure already in place before the end of the Iron age. Connected with the latest studies in geoarchaeology and archaeogeography, the new data from LIDAR also reveal the great adaptation of the drawing of the gallo-roman road to the territory through which it passes (topography, hydrology, toponomy).

Collecting informations and data analysis will continue for several years, but the data from the LIDAR have been already used in two PhD and several Master’s degrees. Two systematic excavations, initiated in 2012, are strictly the result of the new opportunities offered by this tool under development. Medieval, modern and contemporary times, also benefit from this data renewal. But many things are still to come.

TH5-06 Abstract 05
Airborne LIDAR data for the study of Roman military presence in NW Iberia

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Keywords: Archaeological prospection, LIDAR, Roman Military Anthropology

Presentation Preference: Oral

The Roman military settlements are usually characterized by the perishable nature of the structures and the material culture associated to them. Since these sites are almost invisible in the landscape, the use of remote sensing techniques for their study became essential. Although the use of certain remote sensing tools – i.e. aerial photography– on this issue in the Iberian Peninsula is not new, the development of Roman military archaeology in recent decades greatly demanded a significant renovation of the methodological approaches. In this way, we put into practice a low-cost methodology combining historical and modern aerial photography, satellite imagery, airborne LIDAR, GIS and conventional archaelogical field survey techniques. These tools actually provide a new and qualitatively differential approach, allowing us to study the spatial, locational and morphological characteristics of these sites, and thus leading to a more contextualizing approach. In this paper, we will focus on the differential context of the use of airborne LIDAR data for this particular methodological approach. By analyzing the results of the tool to different landscapes, terrain types and vegetation canopies, we can outline the potential and limitations of it. On that basis, we can then develop a predictive model for its use when studying Roman military sites such as temporary/marching camps. This technique allows us to map archaeological landscapes as a whole, so we need to develop different strategies to increase the visibility of certain types of features in the landscape. Landscape is not just a messy amount of archaeological features, but a palimpsest of multiple temporarities we need to read and understand.

TH5-06 Abstract 06
Assessing ephemeral protohistoric occupation by off-site geophysical prospection in Calabria (Italy)

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Science and multidisciplinarity in archaeology

Science and multidisciplinarity in archaeology

Keywords: Multichannel GPR, Wide Area Prospection

Presentation Preference - Oral
TH5-06 Abstract 07

Remotely Visible? The Search for Communities within the Irish Landscape

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Keywords: Integration, Landscape Archaeology, Remote Sensing

Presentation Preference - Oral

More than 1,000 years on, early medieval ecclesiastical and secular sites are still clearly visible on the Irish landscape, marking the locations of long-abandoned settlements. This complex period saw the introduction of Christianity to Ireland and resulted in dramatic changes to the landscape with the establishment of ecclesiastical sites of varying scales, and the appearance of enclosed agrarian settlements. Although the archaeological remains are abundant, many of these areas are now considered "ruined" and are somewhat sparsely populated. This has benefited a remote sensing approach as aerial imagery and lidar have access to a relatively untouched landscape base. These techniques have made a substantial contribution to developing an overview of the early medieval landscape by allowing us to refocus our attention on small-scale settlement patterns, moving away from a previous concentration on national patterns. New discoveries are being made in this period, which has been subject of many (settlement) surveys in prior years but has never been covered by a macroregional non-destructive (remote sensing, geophysical) study. The project is enthusiastically oriented towards existing Archaeological Record of Poland (AZP), a nation-wide archaeological mapping programme focused on the identification and recording of archaeological features without any apparent surface expression, in three landscape zones with different geology, morphology and soils, and with potentially different archaeological records. In the sandy and gravelly soils of the foothill zone bordering on the coastal plain of Sybaris (100-400m asl), an exploratory swath of magnetic gradiometry across the already intensively field-walked agricultural area "Contrada Damale" revealed evidence of anthropogenic features without associated surface artifacts. Scatters of these features have direct parallels with archaeologically relevant anomalies (null foundations) detected on known prehistoric surface sites, and suggest that settlement densities have been seriously underestimated. At the Monte San Nicola Hilltop, a large-scale magnetometer survey on the silty soils of the Plio-Pleistocene marine terraces landscape (50-500m asl) resulted in a set of circular pit-like anomalies which, after an intensive fieldwalk survey, could be related to diffuse pottery of the Late Bronze Age / Early Iron Age. Now believed to be the partially ploughed-out remains of a cremation cemetery, the experiment has added a rare example of this site type. Finally, in the generally eroded upper valley at Contrada Maldalena, where soils consist of schists and marls (700-1000m asl), large-scale on- and off-site magnetic gradiometry did not result in any archaeological features. However, some seemingly natural magnetic anomalies turned out to have a complex genesis which is still relevant to our understanding of the archaeological surface record. Besides these intensive geophysical studies, we also collected long transects of magnetic susceptibility measurements in all three landscape zones to determine the geological background and to confirm any anthropogenic and natural magnetic anomalies would be distinguishable. We discuss several examples of gridted and ungridded on-site MS surveys to demonstrate the effect and implications of this approach.
One interesting feature of the 15 settlements along the Varde Stream system mainly links to an almost preplanned structure. The settlements are situated along the stream with approximately 1 km of distance between each other. This particular situation differs considerably from other areas in West Jutland where the settlements are situated more sparsely. The Varde stream settlements are located mainly on the north side of the meadows that runs along the stream and allows for a utilization of both the meadows and easy access to the bay and the Wadden Sea. The settlements are registered mainly as pit-house croppmarks, 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. Now, due to the aerial archaeological data, it might be possible to contribute to, or deconstruct, these assumptions.

TH5-06 Abstract 10

The 16th century In Depth Defenses of the Nissan River Valley Revealed by Remote Sensing

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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 land of the enemy. The outnumbered defenders were unable to offer any serious resistance for about a week, thus giving the invasion force free access to the Nissan River Valley – one of the main roads to central Sweden. From the available sources, we know that the project Getaryggen 1567 broadened its scope after having located and investigated a battlefield from the conflict. By using a combination of written sources, field surveys, LiDAR, and GPR it has been possible to trace both the preparations made by the defenders time to gather reinforcements. But due to a number of circumstances this did not happen in 1567. Instead the outnumbered Danes were forced to retreat and dig in man’s way.

The remains of these defenses and their historical importance went almost unnoticed until recently. The research project Getaryggen 1567 broadened its scope after having located and investigated a battlefield from the conflict. By using a combination of written sources, field surveys, LiDAR, and GPR it has been possible to trace both the preparations made by the Swedish forces and the tracks of the Danish army. Careful analysis of LiDAR data explains why certain sites were chosen as defensive positions or used for temporary camps. It has proven to be the most effective method for mapping settlements that vanished during the events 450 years ago. The importance of remote sensing for the Getaryggen 1567 project cannot be overstated. In a densely forested landscape, very different from what it looked like in the mid-16th century, modern techniques have made it possible to investigate a military campaign and even interpret its consequences. By doing so, we can begin to understand the true conditions of the local population in a border region. People were subject to recurring warfare and suffering, a situation with too many parallels to our own time!

TH5-06 Abstract 11

Above and below the surface. The use of Remote Sensing in studying the former battlecamps

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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 battlecamps in the region of the Flawka and Bzura* is the scientific project, which reveals that archaeological Remote Sensing can be extremely useful in reflecting also recent tragic episodes in the history of human and landscapes entanglement. Three seasons of research made us realize how little is known about the material dimension of the Eastern Front of the Great War, despite numerous written sources. In our presentation we will focus on showing the ways in which the Advanced Remote Sensing Techniques can reveal the enormous amount of information as well about soldiers who found themselves in trenches of Great War and local communities touched by that war as about things and landscapes. We will try to expose, the fact, that archaeological methods including advanced remote sensing techniques are adequate and universal - regardless of whether they relate to material remains of Paleolithic hunter or last century soldier’s activities – only as long as they are driven by the relevant question. Without it, we never get a relevant answer The area of our field of research covers over 500 km². Our practices have enabled us so far to produce the questions which can give us an insight into the ways in which the fellowships and clashes of the soldiers, their lives and deaths, influenced the analyzed landscape between 1914 and 1919. We will present the detailed results of archaeological research on selected sites related to Great War and recognized via aerial photography, LiDAR and geophysical surveys. By showing the cemeteries and remains of no man’s land in two different conditions - well preserved in woodland and destroyed by agriculture - we will elaborate the problem of a matching the particular Remote Sensing Technique to particular environmental conditions and its 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

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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 or unmanned aerial vehicles (UAVs) documenting complete sites and excavation areas. Image-based 3D reconstruction is also a key technique for supporting processes of interpretation and decision making during ongoing field work. In addition, the use of photogrammetric solutions in Underwater Archaeology, using Unmanned Underwater Vehicles (UUVs) will be an important step for archaeological research in flat areas and coastal transition zones that currently constitute some of the most sparsely documented 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- and low-cost technology. Traditionally working under constraints of strictly limited time and financial resources, archaeologists are increasingly turning to off-the-shelf hardware and free and open source software for data processing. Our contribution will show-case several international case studies that demonstrate how low-cost UAVs/UUVs, free software and well-designed workflows combine to enable archaeologists to capture monuments, sites or entire landscapes from the air. Our technological focus is on the innovative transition from high-resolution, single-shot imagery to using large numbers of frames extracted from video streams. Despite the lower resolution of the latter, we believe them to be an ideal source of data for robust 3D reconstruction, due to superior recording speed and frame overlap.

TH5-06 Abstract 13

Digging into the Swiss Neolithic with Modern Methods – 3D Documentation and Biochemical Analyses

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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.
A view from above: GIS and LIDAR vs. trowels and spades

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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 and Neolithic landscapes in this area of 274 km². The approach of surveying for new sites has been employed by means of GIS and LIDAR modelling as well as actual excavations. Here we present primary results of this endeavour as well as shortcomings of GIS and LIDAR modelling if it isn’t used together with an actual archaeological fieldwork.

Uniquely found in the ancient necropolises in Crimea with the magnetic survey in 2014-2015

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Keywords: Late Scythian 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 Djan-Baba studied three not robbed ground children’s graves with a variety of implements and unique family stone cacti with numerous graves of I c. BC. It was found numerous burial items, among which glass, pottery red and black vessels, more than 3 thousand of different types of beads, many iron objects and their fragments. Wares made of bronze and white metal are presented by coin and various ornaments, including fibulas, some of which are very rare in the Northern Black Sea. Also it was found one hundred and eleven small gold items of women’s dresses decor, as well as fragments of gold foil. The burial belonged probably to a woman of noble birth (preklasta?). With her, perhaps, connected the specific cult vessels - stucco incineration burners, large non-Black Sea sink, numerous gold objects painting dresses, pendants, rings.

Another not robbed crypt was discovered in the necropolis of the ancient settlement Kutchuk. 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, pavement made of yellow metal, moon-shaped amulet, plaques and belt details.

The investigated crypt was probably used during the second half of I c. BC - first half of I 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.”
Results applied on digital elevation model in combination with aerial photography were carefully analyzed and compared with susceptibility and shallow drilling, waste disposals of a workshop, few pit furnaces from the Late Roman period (4th and 5th centuries). Types of sites are quite rare in northern parts of Croatia, and in order to get a better understanding of the development and location and preservation of the prehistoric ditches, considering the potential damage caused by modern deep-plowing since the original aerial photographs were taken. A remote-controlled unmanned aerial vehicle (UAV) and ground-level magnetometry/ electrical resistance tomography were used at several sites following the harvesting of the fields. A fixed wing SenseFly eBee UAV was used to create near-infrared (NIR) imagery at four sites: two around Lucera in the northwest of the Tavoliere, one near Foggia in the center, and one in the southwest near Cerignola. Photogrammetry produced a high-resolution (10 cm/pixel) digital terrain model. The magnetometer was used in transects of 20 x 160 m at two of these sites (Posta Barone Grella in the south, Posta del Giudice in the north), and was highly successful in showing both boundary ditches and internal structures. Additional remote sensing is planned, potentially at different times of the year and prior to harvesting to identify optimal conditions for its use in subsurface site prospection.

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 Sudine, parts of a primary iron processing smelting workshops were discovered and explored. Since these types of sites are quite rare in northern parts of Croatia, and in order to get a better understanding of the development and organization of the site, noninvasive methods were applied. With the help of magnetic method, measurements of magnetic susceptibility and shallow drilling, waste disposals of a workshop, few pit furnaces from the Late Roman period (4th and 5th century), as well as settlement remains from Late Iron Age (3,2, and 1st century BC) were discovered. Additionally, geophysical results applied on digital elevation model in combination with aerial photography were carefully analyzed and compared with excavated archaeological structures. All the gathered information importantly contributed and changed our views on this unique multiperiodical site and its environment.

**TH5-07 Abstract 01 Multilevel approaches to dietary reconstruction in Anglo-Saxon to Medieval UK**

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**Keywords:** dental calculus, dental wear, diet

**Presentation Preference** - Oral

This presentation focuses on the use of complementary methods for dietary reconstruction in a number of Early to Late Medieval assemblages from Leicestershire and Rutland, in the East Midlands, UK. These methods include the macroscopic analysis of dental wear in the anterior and posterior dentition employing estimates of the area of exposed dentine on the occlusal surface of all teeth, as well as microscopic analysis of the dietary debris embedded in dental calculus deposits (mineralised dental plaque). Such a combination of techniques has rarely been applied to date, and never before in the region examined. These assemblages were selected because dietary reconstructions, especially for the Early Medieval period, are a primary area of interest highlighted by the Archaeology Research Agenda for the region.

The Early Medieval material under study dates to 500-900 AD c. and originates in the Anglo-Saxon cemeteries of Empingham and Rothley, while the Late Medieval material dates to 1250-1450 AD and originates in the cemeteries of St. Michael’s and...
St Peter’s, located in the North East quarter of Medieval Leicester. The individuals selected for this study belonged to different social groups, the elite and the poor, offering a unique perspective on social differences in food quality. The biomedical-archaeological methods in the study of the dietary patterns in this material offer much greater resolution than any of these methods used in isolation. In specific, macroscopic dental wear provides an overall picture of the wear accumulated on the teeth throughout the life of the individual, and its degree and pattern (bilateral asymmetry: differential expression in the anterior versus posterior dentition) can provide insights into the intrinsic toughness of the food consumed as well as the extent of food processing. However, this method cannot provide direct information on the actual foodstuff that entered the mouth. The analysis of dental calculus dietary microdebris can fill in this gap, since dental calculus constitutes a primary depositional environment within the mouth. Moreover, the presence of the exact foodstuff that entered the mouth on the parts of the calculus formed. The approach can identify a variety of plant micro-remains originating from food consumption often not available from traditional archaeological deposits due to preservation bias.

The combination of the above methods offered important insights to the evolution of diet from the Anglo-Saxon to the medieval period as well as to social differentiations during medieval times. Coupled with historical evidence and archaeological information derived from the material cultural remains, the proposed multidisciplinary bioarchaeological approach has the potential to enrich our understanding of past dietary patterns by elucidating complementary trends at the macroscopic and the microscopic level.

Non-Destructive Trace Element Analysis of Human Bones to Examine Diet and Mobility

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

Keywords: ancient diet, bone chemistry, elemental analysis

Presentation Preference - Oral

The theoretical basis for elemental analysis of human bone to study diet and mobility is well-established, yet until recently the number of studies done is few and far between. Instead, analyses of carbon, nitrogen, oxygen, and strontium isotope analysis have dominated "bone chemistry" studies over the last 25 years. Nevertheless, elemental analysis of calcium (Ca), iron (Fe), barium (Ba), strontium (Sr), lead (Pb), zinc (Zn), arsenic (As) and other elements can support and supplement isotope-based interpretations, and be of significant use in cases where bone collagen is not preserved. Elemental analysis, however, has potentially greater concerns than isotope studies, due to degradation and contamination of the mineral portion of bone. 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.

Non-Destructive Trace Element Analysis of Human Bones to Examine Diet and Mobility - Oral

In sickness and in health. A community in death from a Neolithic Megalithic tomb (La Mina, Spain)

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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 Birmark period (AD 600-900) to the present day. Interpretation of the radiocarbon dates has been hindered by radiocarbon offsets, caused by marine resources, in the diets of humans and mammals sampled for radiocarbon dating. Analysis of ancient human from the Point Barrow vicinity have thus far provided high δ13C values between -15.7‰ and -12.6‰, and high δ15N values between -17.5‰ 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 Asian 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 (Alcabilla de las Peñas, Soria), dating to 3890-3660 BC, is one of the unique passages of the Iberian Peninsula. After the communal burial chamber had been sealed, the structure was dismantled, dismantled and monumentalized, thus becoming both a ceremonial site and territorial landmark. The tomb and its artificial faunal and human remains are in the focus of ongoing investigations focusing on cultural, social as well as bioarchaeological issues including DNA analyses (Rojo Guerra et al., 2015; Haak et al., 2015). The human skeletal remains (MNI=20) were commingled and highly fragmented due to the postricket remodeling, yet the osteological analyses still revealed decisive insights into the former community (Rindlsbacher, 2015).

Neolithic megalithic tombs in Spain and other European regions held only a select group of individuals from among the communities that built them. It becomes apparent that the life courses as well as the social status of the individuals had an impact on the decision whether or not someone was to be buried in the communal megalithic chamber. Different demographic profiles emerge for the women and men buried there, hinting at separate social roles between the sexes. There is evidence that individual health status and its influence 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 communal monument of La Mina and widen our understanding of such sites in general. The full potential of investigations concerning past communities can only be obtained by an integrative approach encompassing archaeology, physical anthropology as well as further bioarchaeological procedures which will still continue for the Megalithic tomb of La Mina.

References:

TH5-07 abstract 07
Diet and health: Culture: Females vs Males
Author - Dr. Koepke, Nikola, University of Zurich, Zurich, Switzerland (Presenting author)
Keywords: gender, long-run trajectory, net nutrition
Presentation Preference - Oral

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 econometric 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 (Kromlo, 1998). Essential fact is that diet and health (subsumed as the net nutritional status: WHO, 1995) are closely interrelated to social and cultural behaviours respectively to 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 (Hortel, Drewith & Olesy, 2009). Female discrimination can result in either immediate feminicide after birth (George, 2004; Klaen & Wink, 2002; Otsu, 2008) or in the general neglect of girls on different levels (public endowments, household allocations) concerning diet and health; consequently it can result in a decreasing nutritional standard for both females and their male contemporaries during their growth years. If significant this affects height dimorphism and health disparities later in life (Bogn, 1999; Ewek & Tanner, 1978; Fronclig & Begin, 1993; Harris, G inserted & Machado, 2005; Moradi & Guntupalli, 2005; Sabir & Ebrahim, 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 nutrition 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 force the offspring to endure malnutrition (Barber, 1995; Currie & Vogl, 2013; Dsbar & 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 so I compiled observations for the 88 centuries B.C.E. to 14th century C.E. from 138 counterparts. No relationship is evident by any other factor (such as sex or age), and no significant variation in BMI values was observed.

TH5-07 abstract 08
Gender and diet: experimental study in bioanthropology
(these case of the cemetery of Larina, France)
Author - Batista-Goulart, Luana, CEPAM - Universidade de Noa Antropologia, Nice, France (Presenting author)
Co-author(s) - Séjou, Inés, INED and CEPAM, Nice, France
Keywords: dental microwear, diet, gender 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 (Hésus-sur-Imm, Iser, France; 6th - 7th 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 ashemned skeletons. During the mastication, different types of food leave different kind of marks on the teeth’s surface. Microwear analysis method has been in previous research to compare the diet of two different social groups from the Larina site, but not to compare the two genders. Subsequently, our
Fish 'n' Picts: Reconstructing diet in early medieval Scotland using stable isotope analysis

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Keywords: early Medieval, Picts, Stable isotopes

Presentation Preference: Oral

First mentioned in late Roman writings as troublesome tribal groupings north of the Roman frontier, the Picts went on to become the first kingdoms in eastern Scotland in the post-Roman period. Although current archaeological investigations are unsurprisingly important new information about the Picts, many aspects of the Pictish past remain elusive. The dearth of historical sources and current lack of Pictish domestic sites and animal bone assemblages, very little is known about many economic and social aspects of Pictish life - such as diet. The stable isotope analysis of bone collagen is useful as a means of assessing past dietary habits, particularly the relative contribution of marine and terrestrial protein to the diet. These techniques also have the potential to investigate dietary variations within groups, such as between different biological sexes or burial types.

Here, we present carbon and nitrogen isotope data from bone collagen from a number of Pictish burials and cemeteries, providing novel insights into Pictish lifeways. Data generated are compared to limited previously-published Pictish datasets and to data from other contemporary archaeological British groups. Results suggest limited intra-group dietary variability, and a relatively homogenous diet across the areas studied. Marine fish consumption is low relative to later Medieval and Viking sites in Scotland, and in comparison to contemporary Romano-British samples, similar to data derived from Anglo-Saxon sites. The conceptual role and importance of fish, rivers and other water bodies to the Picts is also briefly explored (particularly with regards to the positionings of cemetery sites, and the depiction of fish on Class I brooches). Presentation preferences - Oral

Regional differences in subsistence economy in 16-19th c.c. Lithuania: stable isotope evidence

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Keywords: diet, stable isotopes

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 periods 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 isotopes 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 research is the possibility of allocating human remains to a particular site according to their stable isotope ratios.
Understanding food poverty: Lessons from the present and the past

**Author** - Hunt-Watts, Holly, University of Leeds, Leeds, United Kingdom (Presenting author)

**Presentation Preference** - Oral

Food poverty in the UK is currently on the rise and evidence from reports of public health expenditure highlights both the cost of this problem to the public and the impact that poor diet can have on the social and physical aspects of peoples’ lives. There are many disciplines which can be used to examine the effect of food poverty on the British population, but the three involved in the research behind this paper are, nutritional epidemiology, history, and archaeology. Each of these subjects has its strengths and weaknesses but has not yet attempted to understand the changes in the nutritional health of the population which has occurred over such a long time period. Nutritional epidemiology is concerned with the impact of nutritional quality on a population’s health, and is often involved in providing guidelines for public health policies. Concerned only with the recent past, but more focused on the present, nutritional epidemiology is able to examine food poverty. Contrary to this, history only reveals information about past public health through records of the time, such as poverty surveys and government policy records. Evidence for poverty in the archaeological record can be found using landscape archaeology, the archaeology of buildings, and osteoarchaeology.

Although the approaches are very different, all three disciplines often have data about populations rather than individuals. Unlike the approaches that rely on the geographical or social aspects of individuals to define these groups, when working in archaeology it is possible to define groups by historical periods as well as the geographical location of the burial site and other social and cultural dimensions of any skeletal populations under investigation.

This paper aims to introduce a new method of studying diet using these three disciplines, and highlights the value of the approach in examining public health in the past and present, to make informed suggestions for the future. That modern clinical studies and surveys help to form an understanding of the past is indisputable, and the public is made aware of the osteological nature of archaeological research through high-profile cases. The role of archaeological and historical research in understanding and informing modern policies is both less apparent and significantly less explored as a research option. This paper will therefore suggest an interdisciplinary approach to the study of food poverty.

Diet and environmental changes: an example for medieval Scandinavia

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**Keywords** - Diet, Environment, Scandinavia

**Presentation Preference** - Poster

Environmental changes modify constantly agriculture production and the route of certain animal species either by land, sea or air. This study seeks to relate the already isotopic data of 813C and 815N in bone collagen with the variations in the temperature and moisture in Eastern Sweden. Due to the large number of individuals and the published information, the sites of Birka and Sigtuna were chosen for this study. Archaeological sites located during the Viking Age with an important link between both of them. The sample comprises 27 individuals from Birka and 76 from Sigtuna, already published, whose radiocarbon ages cover from 700 to 1700 AD. For this same period, we identified four environmental phases, regarding changes in temperature and humidity in Scandinavia that were reconstructed using different approaches (paleotemperature, 818O studies in speckets, palaeohydrologic information, ice cores, etc.). The isotopic results show a large variability of the data over time, especially during the first warm phase (ca 700-1100 AD) while data are more homogeneous in the following stages. For this same period, we identified four environmental phases, regarding changes in temperature and humidity in Scandinavia that were reconstructed using different approaches (paleotemperature, 818O studies in speckets, palaeohydrologic information, ice cores, etc.). The isotopic results show a large variability of the data over time, especially during the first warm phase (ca 700-1100 AD) while data are more homogeneous in the following stages; however, neither significant differences nor a clear pattern in diet along the environmental phases have been detected. As other authors have previously noticed, studies have to be highly dependent on the site the individuals belong to. The hard climatic conditions common in Scandinavia as well as rigorous social stratification may have limited the effect of the environmental changes in diet.

The possible influence of the reservoir effect on the radiocarbon dating are also discussed. We think it is worth bringing attention to the fact that few studies have attempted to combine the changes in climate with the isotopic results, so we recommend further research in both fields for a better understanding of their influence in past populations.

Multi-isotopic Investigations of Diet in Anatolian Early Bronze Age Populations

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**Keywords** - palaeodiet, Stable isotopes, Turkey

**Presentation Preference** - Poster

This is the talk 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 kofaklı (north Anatolia, Samsun region, on the Black Sea coast), Titik Höyük (south east Anatolia, Urfa region), Bademacı (south Anatolia, Antalya region), and Baška Tepe (south west Anatolia, Isparta region). This research is incredibly significant as it is the first time that quantitative scientific methods have been used to address questions and hypotheses about dietary habits in the EBA period of Anatolia. It is the first time that stable isotopes analyses have been used to study dietary habits in the EBA period of Anatolia, and is the first project of its kind both in terms of methodology and scale. Analysis of carbon and nitrogen stable isotopes (δ13C and δ15N) employed on bone collagen from ca. 200 human and faunal osteological samples taken from the Anthropology Lab of Hacettepe University, Ankara Turkey, and was conducted at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany. The research is a bioarchaeological one and therefore it utilises stable isotope analyses in conjunction with osteological and archaeological evidence and research to place the dietary habits of these populations within a wider framework. For example, during the EBA in Anatolia, and especially between the early and late EBA, dramatic changes are seen in architecture, burial habits, and social and socio-political structure including the organisation of urban settlements, resources, food, labour, and trade. There is also an increased incidence of peri-mortem cranial traumatic injuries which are indicative of an increase in inter-personal conflict and arguably an increased organisation of warfare during the period. This is furthered by the building of fortifications and burnt layers at many EBA settlements in Anatolia. Despite the substantial social and socio-political changes during the period, the results show that during the EBA in Anatolia there is a significant degree of homogeneity in dietary habits both at an intra- and inter-site and regional level, and across the millennium of the EBA within the C3 based. Furthermore, the results suggest that we can now begin to discuss an “EBA package” with regards to foods resources.
TH5-10 Abstract 03

Building in the detail: micro-stratigraphies of Neolithic structures at the Ness of Brodgar, Orkney

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Keywords: micromorphology, occupation surfaces, structure biographies

Presentation Preference - Oral

Since 2004, excavations at the Ness of Brodgar, within the ‘Heart of Neolithic Orkney’ World Heritage Site, have revealed a large complex of monumental Neolithic structures spanning over a millennium of activity. These structures show evidence for complex biographies potentially reflecting both ritual and domestic activity. Excellent preservation of in-situ deposit sequences comprising occupation and surface layers are complemented by rich and complex artefact assemblages, unique artwork, and well-preserved suites of environmental material. An extensive and ongoing programme of micromorphological sampling has complemented the excavation strategy within the Ness of Brodgar structures, with the aim of addressing questions of building function and significance, settlement organisation, the use of interior space, and patterns of resource utilisation.

This paper presents the analysis of micromorphological sequences from two key structures currently under excavation: Structure 1 and Structure 8. These vary significantly in size, shape, internal layout, the depth and complexity of surviving deposits, and episodes of remodelling through time. Requiring very different approaches to sampling, the resulting micromorphological sequences highlight the importance of detailed integration not only with excavation strategy, but also supporting geoarchaeological and environmental techniques. Structure 1 shows a very detailed and clearly defined sequence of interior deposits which provide a unique insight into the complex biography of a building which saw extensive remodelling through time. Here, the micromorphological sample set examines an extensive vertical sequence of in-situ deposits adjacent to the central point of the structure and its large monumental hearth. These span several episodes of carefully constructed surface which alternate with occupation related deposits rich in anthropogenic inclusions. Of particular interest is the changing composition of these surface constructions through time, and the potential relationship of this to internal layout and the remodelling of the building as a whole – do the compositions of these surfaces have a significance beyond the practical? Contrasting with this is the sample set from the very different Structure 8. Over 18m long and featuring a large and diverse set of features such as cists, hearths, internal divisions and recess areas indicating potential specialist activities, Structure 8 shows a far thinner sequence of surviving internal deposits - the result of a short life span due to subsidence and collapse. This prompted a very different micromorphological sampling strategy. Individual samples precisely located at points of interest within and adjacent to not only key structural features, but locations referencing the interior geography of the building provide an opportunity to explore both the microstratigraphy of specific areas within Structure 8, and the use of space within the building through time.

Keywords: Canals sedimentary fills, Geoarchaeology, Micromorphology

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 unfounded settlement with domestic and economic structures covering an area of about 15,000 m². These structures are associated cemeteries in short distance. Basel-Gasfabrik is among the large, unfounded, proto-urban settlements playing a major role at the La Tène period and usually connected with trade and craft production, both of which also apply to Basel-Gasfabrik.

To date, more than 600’000 artefacts and 900’000 animal bones have been recovered, mostly from infilled storage or 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, clau and burnt bone fragments as well as charred plant remains and coprolite fragments. Those dark, calcareous sediments may clearly be addressed as “occupation layers” and form a major source of material used to fill in the settlement’s pits. Geoarchaeological investigations showed that the pits were infilled in a short time in the course of just one or two distinct events. Thus the question is raised as to how and where those dark sediments were formed before they were used as backfill.

This question will be addressed by means of micromorphometric and geochemical analysis of well-preserved preserved settlement structures like trampled loam surfaces, stone packings, shallow depressions, probable house floors, ditches and pits in order to characterize different activities and their corresponding sediments. Initial results show that there are significant differences in sediment compositions, associated anthropogenic contents and taphonomic processes 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 analogies like the inventory of an infilled pit. Without knowledge of how (prehistoric) communities handled their resources and their waste, of what happened with used or discarded materials, with accidentally or intentionally broken objects, with fuel and organic waste, with dung and human faeces, interpretations of archaeological features must remain mostly guesswork.
or by the 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 which they took place. Even movements of the craftsmen between the different parts of the workshop might in some cases be visible. The use of charcoal, and the dragging of the smaller fractions of debris such as hammerscale, from the areas in which they originally have been deposited. A number of examples ranging from the organisation of one roasting and iron smelting in the Iron Age to medieval smithies are presented.


**TH5-10 Abstract 09**

Function, environment and dating of Mesolithic sites in Champagne: malacological answers

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Keywords: malacology, Mesolithic, palaeoenvironment

Presentation Preference - Oral

In the past two years, in Champagne (France), malacological investigations have been carried out in pits dated from Early Mesolithic to Late Neolithic. In 2014, at Roi-sur-Saint-Loup Le Champ au Loup (Aube), a first analysis of three pits has led to assess the scope of malacological results in such structures. The results of this first exploratory study have prompted the pursuit of larger-scale investigations, in 2015, at Roi-Le Parc de l’Étalonne (Marne), where malacological assemblages of about forty structures have been analysed. The presence of abundant malacological remains within the most structures demonstrates that they have been left open after their digging and then filled gradually by a natural accretion of sediment and organic matter. In addition, the composition of mollusc fauna and the environment has reconstructed their environment and its evolution. All the studied structures have been dug in a forest environment but the proportions of the different molluscan species vary through time. The malacological successions found in Champagne are echoed in the malacological reference series dated from the first part of the Holocene in the Paris Basin and its margins. In light of these reference series, some radiocarbon dating from Roi-sur-Saint-Loup and Remy are questioned.

**TH5-10 Abstract 10**

Humans and Early Holocene environment in southern Cyprus: The case of Klimonas (PPNA)


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Keywords: Cyprus, Geomorphology, Neolithic

Presentation Preference - Oral

The site of Klimonas, in the district of Limassol in Cyprus, constitutes the most ancient human village in the island. Klimonas was settled at approximately 8800 cal BC (PPNA). Beyond the study of the site itself, Klimonas and its surroundings can provide much information on the palaeoenvironment and palaeotopography of the region. Its position, on a slope formed by colluviums deposits and next to the fluvial terraces of the stream Athaki, offers good conditions for a geomorphological study. The extra-site study on Klimonas is conducted on two scales: the first concerns the slope of the site and the second the Athaki valley. The study of a section directly related to the site provides information on the palaeotopography of the site when it was settled and the environmental changes and their study shed light on the climatic conditions and on the river dynamic during their formation. The radiocarbon dates of palaeosols of the two sections under study show that they have been accumulated between the Last Glacial Maximum (LGM) and the beginning of the Holocene, providing a unique palaeoenvironmental record for the whole island; part of them is dated between the Last Glacial and the beginning of the Holocene, providing a unique palaeoenvironmental record for the whole island. The study of these two sections directly related to the site and the Athaki valley, offers good conditions for a geomorphological study. The study of a section directly related to the site provides information on the palaeotopography of the site when it was settled and the environmental changes and their study shed light on the climatic conditions and on the river dynamic during their formation. The radiocarbon dates of palaeosols of the two sections under study show that they have been accumulated between the Last Glacial Maximum (LGM) and the beginning of the Holocene, providing a unique palaeoenvironmental record for the whole island; part of them is dated between the Last Glacial and the beginning of the Holocene, providing a unique palaeoenvironmental record for the whole island.

TH5-10 Abstract 11

From water to land and back: multidisciplinary researches at Marine Cave of Bergeggi (Italy)

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Keywords: Geomorphology, Prehistory, Submerged site and cave

Presentation Preference - Oral

In late nineteenth, the geologist Arthur Iser first recognized the importance of the Marine Cave of Bergeggi (Bavona – Liguria, Italy), where he found a complete stratigraphy referring to Quaternary, with different stages of marine transgression and regression. The site is fact known in the largest karst cave and the most important coastal cave of Liguria, with a submerged and an emerged part, both shaped by marine processes that occurred during different sea level changes. After these earliest researches, and during many decades, the cave has 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 artefacts 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 archeological study of the cave has been abandoned. In recent years, a team of geomorphologists has then identified some marine and continental deposits, landforms of marine origin (i.e. marine wall grooves and L. Lithopaga bands), as well as one of the best documented marine wall groove dated to MIS 5.5 of the whole Tyrrhenian coast.

In the light of these new data, and thanks to the possibility to examine the submerged section by diving directly on site, the writer has then conducted, in 2014, a non-invasive archaelogical 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 time and during earlier campaign, studied by the writer on permission of the Archaeological Museum of Florence.

**TH5-10 Abstract 12**

Subalpine soil memory and legacy (French Alps)

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Keywords: human activities, legacy, subalpine ecosystems

Presentation Preference - Oral

In the Alps, human used the subalpine section since the Mesolithic: first used for hunting and gathering, then pastoralism suggested since the Neolithic (Giguet-Covex et al., 2014; Penal et al., 2011; Schneiher 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 palaeo-environmental studies also revealed long-term impacts, especially on plant cover and composition (Bois et al., 2012; Giguet-Covex et al., 2011; Pansu 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, O13C, O18H,...), botanical survey and environmental DNA (eDNA) analyses on mountain archaeological soils, to track the “soil memory” and the “ecosystem memory” (i.e. the legacy).

A series of on- and off-site samples were taken from different structures (enclosures and complex of huts/cabins) dated to the Bronze Age, Medieval and Modern periods, across the Faraval plateau (2107-2380 m a.s.l, French Alps) (Walsh and Mccoi, 2013). Samples were also taken at higher altitudes where the pastonal pressure is very low today. Sampling of these different parts of the pastoral will be used to assess the modification of plant cover linked with the use of the structure. The study of plant cover will include the analyses of plant communities and the plant biomass assessed via eDNA quantification. Moreover, spatial variations in soil geochemical signatures within and beyond the archeological structures will be used to assess the potential past human activities (pastoralism and mining activity) within the structures.
This poster will present, in particular, results from XRF analyses, which reveal differences in phosphorus (P) content on and off site. We will also detail the ecological preferences of plants relative to the nutrient content on and off site. The presence of certain plants exclusively inside structures demonstrates the influence of the past human activities (700 years ago) on these micro-ecosystems. However, this “legacy effect” is not apparent on the Bronze Age (4200 years old) enclosure, which raise the question of the time required for the resilience. Another interesting result is the presence of lead in the modern deposit of these structures. These results reveal the soil memory effect linked with ancient mining activity. Late Holocene and past cores taken around the study area revealed lead pollutions 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).

References:
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 the given dataset and the element concentration of 16 metals, LOI, pH and MS 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. Dorina, Marine, Institute of archaeology NASU, Kishinev, Transnistria, Moldova
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Keywords: Early Iron Age, magnetometry, settlement pattern

Presentation Preference - Oral

At the end of IX – beginning of XIII century BC revolutionary changes occur in the Middle Dnieper area (Ukraine), relating to Cherniakasaya culture. All settlements and villages of Cherniakasaya 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 Zhabotynskaya phase distinguished after eponymous and references 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 course of the settlement the ditch was revealed and partly excavated. The ditch divides the settlement with total area of 50 ha into two parts. The ditch was recognized from magnetic survey and traced along 180 m. Total depth of the ditch is 4.20 m. The ditch is observed from the depth 0.8-1 m. Its width on this level is not less than 10m, the width on the bottom is 1.1-2 m. The lower parts of all ditch's constructions are 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 width of the ditch in the upper part (to the depth 2,30 m).

The ditch was laid on early not the initial stage of settlement being, it had been preceded by earlier constructions. Archeological excavations proved the earlier constructions and complexes synchronous to ditch were observed on both sides of it. For this reason, the purpose of the ditch is controversial. We can assume that it was dug for the defense, as evidenced by its characteristic profile (wall are almost vertical in the lower part of the ditch and the bottom is very narrow). But defensive ditches, as a rule, correspond to terrain, shielding from the open area of the village, located on a narrow headland or surrounded by gullies. The role of the ditch could be not purely defensive, but religious or “social”, separating two areas of the settlement with different purposes.

TH5-10 Abstract 17
Transcending disciplines in integrated studies of the Early Iron Age sites in Slovenia

Author - Dr. Škrla, Matjaž, University of Ljubljana, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Dr. Meštrović, Branislav, University of Ljubljana, Ljubljana, Slovenia
Keywords: Early Iron Age, Integrated studies, Transcending disciplines
Presentation Preference - Oral

Integrated studies of the Early Iron Age landscapes have in the recent years witnessed a tremendous upswing. Archaeology has thus become a melting pot for diverse disciplines, which in a way also met their borders in complex conditions of prehistoric settlements and their landscapes. Our first research step was always aimed at the understanding the basic geology of the area, which was studied with the help of ALS derived data. The next step we took was a geological and geomorphological field survey, whereas selected crucial areas were researched also with various geophysical methods, e.g. magnetic method using measurements of total magnetic field by applying corrections of orignal variations using base station as well as magnetic polarization in gradient mode, GPR method from very low to high frequencies (50-400 MHz), low frequency EM method and measurements of top soil magnetic susceptibility.

The ground truthing of the identified features, natural or anthropological, was then conducted to determine the areas for intensive geophysical surveys, using a range of different techniques and analytical methods, covering wide areas of the settlement and its surroundings, including iron working areas, the flat cremation cemeteries or barrow cemeteries.

With the next step, the geochemical mapping with a pXRF, which we have carried out on one settlement so far, has invited also chemistry into the circle of disciplines, creating the integrated maps of the researched sites. Preliminary conclusions on archaeologically relevant correlations between different data sets are based on multivariate statistical analyses adopted to specific natural settings on metamorphic rocks.

As the last field research step we have applied low- or medium-invasive archaeological methods as driftling or test-trenching. The wide range of data, which was created by applying different methods deriving from various disciplines, has “broken” us into not only interdisciplinary but rather transdisciplinary research. Under such circumstances scientists from various disciplines can not only do their research, but have to combine and interfere with it others to produce common results, which are not a sum of the included data, but its multiplied product.

(Further co-authors: Matej Doležec, Nina Zupančič, Manca Vinazza, Igor Mederič, Matjaž Morčič, Petra Basar)

TH5-10 Abstract 18
Resources & disposal in an island landscape:
microarchaeology at the Ness of Brodgar, Orkney

Author - Dr. Shihtli, Lisa-Marie, Newcastle University, Newcastle, United Kingdom (Presenting author)
Keywords: geoarchaeology, neolithic, orkney
Presentation Preference - Poster

Pilot work at the Ness of Brodgar have shown a range of deposits in middens, including ashes, burnt bone and organic remains. This research is investigating the materials being exploited, through analysis of these ash deposits and how this varied spatially and through time. Using a combination of micromorphology, geochemistry and phytolith analysis we can detect traces of fuel use that are often missing from the charred macrobotanical record.

TH5-10 Abstract 19
Biogeochemical and environmental biomineralization in the Neolithic hypogeum Hå Saflieni, Malta

Author - Marcetti, Diego, Ecogeo srl, Bergamo, Italy (Presenting author)
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Keywords: Biogeochemistry, Biomining, Micromorphology
Presentation Preference - Poster

Work carried out within the tender HM22/3/2015 committed by Heritage Malta to Ecogeo srl di Bergamo, Italy and Joseph Cachia & Son Limited, Malta.

The phenomenon of the megalithic architecture developed in the Maltese Islands during the Neolithic between 3500 and 2500 BC yielded some of the oldest free-standing megalithic structures anywhere in the world.

The Hå Saflieni Hypogeum is an underground rock-cut burial site, with both carved and built elements similar to the architecture found above ground. It is organized on three levels, which were progressively carved starting from the surface level. The oldest level dates from about 4000 BC; subsequent chambers were added later and filled with funerary deposits up to the Tarxien Phase (3000-2500 BC).

The Middle and Lower levels were delicately carved by a variety of tools, currently under study, specialized both for excavating the soft bedrock, i.e. the Gospqina limestone, and for the final sculptural profile to be obtained and painted. Indeed, ceilings and the uppermost exposed walls, were painted with varying red ochre designs, such as honeycombs and spirals. These are currently threatened by several mechanisms of rock surface alteration and biotransformation. During a two season campaign in 2015-2016, biogeochemical, palyno-micromorphological and fluorescence studies were carried out in order to improve the understanding of the deterioration mechanisms active within the hypogeum. The study of microbial communities was approached by molecular analysis (Next Generation Sequencing), direct observation in light, fluorescence, electron microscopy and MALDI-TOF (Matrix Assisted Laser Desorption/Ionization Time-of-Flight) mass analysis technique.

The pollen influx to the hypogeum was studied both on traps to measure the airborne fraction, and on the sediment recently released by invertebrates on the rock surfaces. In this study, fungal communities were also detected and related to water seepage. The invertebrate communities were sampled by traps set at all the different subterranean layers. Environmental parameters characterizing circulating waters and bedrock properties were measured and monitored together with radioactive gases.

Resources & disposal in an island landscape: microarchaeology at the Ness of Brodgar, Orkney

Author - Dr. Shihtli, Lisa-Marie, Newcastle University, Newcastle, United Kingdom (Presenting author)
Keywords: geoarchaeology, neolithic, orkney
Presentation Preference - Poster

Pilot work at the Ness of Brodgar have shown a range of deposits in middens, including ashes, burnt bone and organic remains. This research is investigating the materials being exploited, through analysis of these ash deposits and how this varied spatially and through time. Using a combination of micromorphology, geochemistry and phytolith analysis we can detect traces of fuel use that are often missing from the charred macrobotanical record.
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 biomineralization. Finally, the surface distribution of biomineralization, biofilm and cutans types was mapped.

**TH5-10 Abstract 20**

**Housebuilding adaptation to the environment in the Neolithic of the south of Western Siberia**

**Author:** Dr. Ryabogina, Natalia, Institute of the problems of Northern development, SB RAS, Tyumen, Russian Federation (Presenting author)

**Keywords:** Environment, Housebuilding, Neolithic, Western Siberia

**Presentation Preference - Poster**

Natural capabilities and intellectual basis (set of skills and knowledge) of people at a particular time inseparably connected and could be considered as an adaptive resource of ancient groups.

Within this approach we have analyzed the archaeological materials of excavations of the Neolithic settlements on the Mergen’ lake, which have been carried out for several years in the forest-steppe of Western Siberia. We focused on the details to illustrate the adaptation techniques of housebuilding to the environment in the mid-Holocene. On the geochronological data, supplemented palynological and phytoliths on-site data, we reconstructed significantly different landscape around the settlement in the Early Neolithic (6-5 thousand BC), than today’s. Continuously-inhabited settlement was located directly at the lakeshore and surrounded by open steppe landscapes, almost treeless. The climate was drier, although episodes of extreme flooding are also marked by stratigraphic and palynological data. Apparently later in the Chalcolithic (3 thousand BC) on this site were only seasonal constructions, but other constant settlements have been found on elevated terraces. Forest-steppe landscapes with birch forests were widespread at that time there.

The dwellings on Neolithic stages was classified on preserved traces of ground constructions, organic materials and archaeological finds, we made a graphic reconstruction of the external appearance of buildings and analyzed the dynamics of housebuilding tradition. We compared the archaeological and palaeoecological data and focus on the structural features of the houses: 1) the presence of more 6 light underground houses, accessibility of natural materials for the construction, episodes of backfill (raising) floor, the internal structure of living quarters, the specifics of the heating, ventilation and drainage systems, anthropogenic pressure on the vegetation around the settlement. An important addition was a trasological study of the function of backfill (raising) floor, the internal structure of living quarters, the specifics of the heating, ventilation and drainage systems

**TH5-10 Abstract 21**

**Geoarchaeology of Caspian settlements in eastern Maghreb: spatial organisation of outside areas**

**Author:** Ed-Dargach, Wessel, 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:** Caspian settlements, Geoarchaeology, the eastern Maghreb

**Presentation Preference - Poster**

The geoarchaeological research on Caspian settlements in the eastern Maghreb region is based on soil micromorphology. This research is important to understand the systems of settings of these nomadic and/or sedentary populations, by the characterization of the sedimentary records related to activities and their organisation. The micromorphological analysis reveals complex occupation dynamics, dominated by anthropogenic processes interacting with natural processes. Occupation surfaces show a great variability of sedimentary micro-facies according to 1) the nature of activities, 2) their spatial localisations, 3) micro-local climatic conditions and 4) the frequency degree of soils. In the outside areas, the occupation surfaces reflect differentiated spaces: areas near to the buildings or combustion structures, domestic wastes areas, passageway areas and multifunctional areas still characterized by several types of activities. Sedimentary archives contribute to increase our knowledge of the organisation and the functional modes of household spaces of Caspian settlements.

The aim of this communication, is to present new results about formation processes of occupation surfaces of outside areas, from several Caspian sites from Eastern Maghreb: Doukaneit El koutilla (Biliana-Tunisia) Kef Elzahar (Kairouan-Tunisia), El Mekta (Gabes-Tunisia) and SMH-1 (Hergla-Tunisia).

**TH5-10 Abstract 22**

**Inferring the Neolithic pits function from sedimentary record:**

**Author:** Dr. Wattez, Julia, INRAP, Paris, France (Presenting author)

**Co-author(s):** Gandelin, Mural, INRAP, Paris, France

**Keywords:** circular pits, Micromorphology, Neolithic

**Presentation Preference - Poster**

Middle Neolithic settlement on south of France are often characterised by negative features and by the lack of occupation surfaces, mainly due to post-depositional erosion. Pit clusters are usually dwelling evidence, such as in the site “Le Piou”. About one hundred circular pits are arranged around an empty space, which its nature stays unknown. Some of these features are identified as human or animal burials but for the most of them, the primary function is under discussion: dumps because of the cultural remains diversity (potsherds, lithic, charcoal, animal bones), or storage structure due to the shape of the pits section. The pits’ fillings differ from massive to stratified deposits dealing with the question related to the function and to the rhythms of uses.

Few geoarchaeological researches using micromorphological analysis were carried out on the functional history of those pits. The research strategy applied, considers the pit as a system of activities.

In order to evaluate the cultural sedimentary record and to discriminate micromorphological indicators related to any activities (construction, uses), and to post-functional processes, seven pits were sampling. Radiocarbon dating (4261 to 4174 cal BC), place these pits to Early Chassean Culture.

Geoarchaeological results indicate that the circular pits correspond to a constructed space, with activity surfaces regularly maintained and transformed by trampling. Correlation between stratigraphic and archaeological record allows us to propose a new interpretation on the functions of the pits (domestic/craft activity areas, cellar-storage) which will be presented and discussed in this paper.

**TH5-10 Abstract 23**

**Micromorphology of combustions structures at Birnirk and Thule sites of the Cape Espenberg site**

**Author:** PhD student Vanlandeghem, Marine, UMR 7041 ArScan, Équipe “Archéologies environnementales”, Nanterre, France

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**Keywords:** Alaska archaeology, Combustion structures, Micromorphology

**Presentation Preference - Poster**

In Northwest Alaska, human societies have adapted their subsistence strategies to extreme conditions. At the coastal Cape Espenberg site, excellent conservation conditions have allowed the preservation of many cultural features (architecture, hearths, middens) within a series of aggrading beach ridges. Remains of semi-burrowerenean houses and associated material culture indicate the sites relate to the Birnirk and the Thule cultures. The houses associated with the Birnirk culture are in ridge E-6 and reveal a multi-room architecture and two to three occupation levels dated to the 11th-13th century. Thule and later Kotzebue period houses are found on ridge E-5 and E-4. They show a long entrance tunnel leading to a rectangular room that contains a sleeping platform elevated above the occupation level. Unusual concentrations of archaeological charcoal and burned organic matter have been uncovered inside and outside of Birnirk houses, revealing the presence of small domestic hearths inside and firepits outside. However, Thule culture houses only have external burned areas and firepits. Ceramic lamps appear to be the sole source of light and heat inside these houses.

The variability in the form, fill, and spatial organization of combustion structures raises questions regarding their usage, status and maintenance by people who occupied these houses. To further understand fire management in the arctic tundra, and the function and status of combustion structures, soil samples were collected from combustion structures (hearths, firepits, charcoal’s concentration and soil occupation, ...) for anthracological and micromorphological analysis. This sampling protocol provides the opportunity for a multivariate, comparative and diachronic analysis of combustion structures between one Birnirk house and three Thule houses at Cape Espenberg. Our goal is to identify the diversity of fire-related activities in the excavated Birnirk and Thule houses, whether domestic (cooking, boiling water, heating, lighting, etc.) or specialized (ceramic firing, smoking and / or drying of foods, etc.). In this poster we present results of the soil micromorphological analysis and compare the areas sampled in terms of function and spatial organization in light of prior results of charcoal analyses.
**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

**Keywords**: computing, methods, open-source

**Presentation Preference** - Oral session

In recent years, considerable attention has been paid by archaeologists to the potential of an ‘open science’ approach within archaeology, focusing firstly upon open access publication, and more recently on the imperative for open data. Papers in this session address the third pillar of open science within archaeology: open methods, as underpinned by the use of Free and OpenSource Software (FOSS). The benefits of FOSS in archaeology are manifold, ranging from inclusivity, through transparency and research integrity, to practical issues such as cross-compatibility. Closed-source proprietary software has created a two-tier system, selectively disadvantaging individuals and institutions with more limited resources while hindering the free exchange of data, obfuscating methodological detail, and increasing the risk of digital obsolescence. By contrast, FOSS allows for universal access and encourages reproducibility and compatibility of research methods, while facilitating collaboration, archiving, and data re-use. The range of FOSS applications in archaeology has grown significantly in the last decade, expanding from traditional heartlands in GIS and spatial analysis into omics, morphometrics, bioarchaeology, and field recording, to name but a few. This session aims to draw attention to innovative ways in which archaeologists are applying the open source philosophy. Contributors will present cases in which the use of open software is instrumental in achieving objectives – whether in terms of expanding access to archaeology; developing reproducible methods; or enabling otherwise impractical research and collaborations. We also welcome papers proposing innovative packages with the potential to facilitate such contributions. By raising awareness about the uses of FOSS in archaeology, we hope to promote the Freedom of Software movement within archaeological practice and to demonstrate how the discipline is developing towards a more democratic and egalitarian approach to information technology.

**TH5-11 Abstract 01**

**Digital media as an effective platform to archaeological data dissemination**

**Author** - Eng, Boíca, Natalia, Universidade de Minho, Braga, Portugal (Presenting author)

**Co-author(s)** - Bernardes, Pauulo, Universidade de Minho, Braga, Portugal

**Keywords**: 3D models, Information System, open-source software

**Presentation Preference** - Oral

The Unit of Archaeology of the University of Minho (UAUM) start to be concerned about digital preserving of the archaeoological 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 digitalized and stored in an Oracle DB. Later in 2000, in 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 strategy enabled a second generation of the back-office, ensuring modularity, integration and customization facilities according to the user’s needs.

The designed Information System (2ArchIS) supports several modules, which range from the stratigraphy of any kind of excavations to the territory analysis and landscape characterization, connecting the alphanumeric data with images, vector graphics, cartographic documentation and bibliography. Furthermore, it can also integrate data resulting from the analysis and interpretation tasks.

The architecture of 2ArchIS also favours the data exchange with external applications. It is possible to export data to archED and AROGIS enabling the automatic creation of a graph regarding the stratigraphic matrices 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 manual segmentation over a 3D model segmentation or even to carry manual segmentation over a 3D model.
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)
Co-author(s) - Pope, Matthew, University College London, London, United Kingdom
Co-author(s) - Ashton, Nick, British Museum, London, United Kingdom
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Co-author(s) - Wilson, Andrew, University of Bradford, Bradford, United Kingdom
Keywords: Open Source, Web mapping, mapping to facilitate resource discovery.

Presenting Preference - Oral

Putting the pieces back together: automated refitting using open source software
Author - Dr. Davis, Robert, University of Bradford, Bradford, United Kingdom
Co-author(s) - Evans, Adrian, University of Bradford, Bradford, United Kingdom (Presenting author)
Co-author(s) - Sparrow, Thomas, University of Bradford, Bradford, United Kingdom
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Co-author(s) - Roberts, Mark, University College London, London, United Kingdom
Keywords: Automated refitting, Birstong, Open source software

Presentation Preference - Oral

Refit analysis is a powerful tool that can be used to address questions regarding taphonomy and assemblage formation processes, technology and spatial organisation. However, it is a method constrained by a reliance on human experts and time, and is further limited by factors such as assemblage size, raw material characteristics and technology. The time required to conduct refit analysis increases exponentially with assemblage size, while success rates decrease. Further, error rates in refitting remain untested, although inter-analyst variability in terms of experience and skill is clearly an important factor. A refit study can rarely be considered as complete, which can create uncertainty over the extent to which past human behaviour reconstituted through refitting is representative of the full suite of behaviours represented at a site. The Fragmented Heritage project is addressing this potential. This project 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.

TH5-11 Abstract 05
Metal Detecting in Brandenburg
Author - Prof. Dr. Schopper, Franz, Brandenburg State Authorities for Heritage Management and State Museum of Archae, Zossen, Germany (Presenting author)
Co-author(s) - Frank Danielisova, Alzbeta, Institute of Archaeology of the CAS, Prague, Czech Republic
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 State the archaeological finds are property of this state and a technical supported searching needs official permission. So we are cooperating with the Brandenburg State Authorities for Heritage Management and State Museum of Archeology (BLDM). After controversial discussions the BLDM established a program to give metal detectorists the possibility to participate in the research work of professional archaeologists and for the benefit of the state.

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 archeology not only in eastern Germany. The training is organised by the Archaeological Society in Berlin and Brandenburg. Professional archaeologists are giving lectures on ancient periods 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 BLDM, 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 BLDM. For example to get detailed information on 16th to 19th century battlefields. Or when we try to understand the structure of abandoned military 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 our 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 01
Metal Detecting Survey in Archaeology
Author - Mark, Ian, Institute of Archaeology of the CAS, Prague, Czech Republic (Presenting author)
Co-author(s) - Frank Danielisova, Alzbeta, Institute of Archaeology of the CAS, Prague, Czech Republic
Co-author(s) - Hornak, Milan, VI MAGNA s.r.o., Vutry, Slovakia
Keywords: Metal detectors, methodology, survey

Presentation Preference - Regular session

While a number of archaeologists perceive metal detectors 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 majority of 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 METHODS OF METAL DETECTING SURVEY IN ARCHEOLOGY
Saturday, 3 September 2016, 09:00-13:00
Faculty of Philology, Room A7

TH5-12 Abstract 04
Rapid, medium scale (millimetre to micrometre) high precision 3d scanning is used to produce digital models of fragmentary metal artefacts from archaeological finds. This process has the potential to dramatically increase the scope of refitting studies. By substantially reducing the required manipulation algorithms that dissect and compare surfaces within a given assemblage of material. This outputs probability surfaces and can 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 potential. This project 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.

Acknowledgements: This research is part of the Fragmented Heritage project funded by the Arts and Humanities Research Council (AH/L00888X/7).

Acknowledgements: This research is part of the Fragmented Heritage project funded by the Arts and Humanities Research Council (AH/L00888X/7).
The hilltop settlement Gradišče above Bašelj:
metal detecting survey vs. archaeological research

Author - Karo, Špela, Zavod za varstvo kulturne dediščine Slovenije, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Knific, Timotej, Narodni muzej Slovenije, Ljubljana, Slovenia
Keywords: archaeological research, Gradišče above Bašelj/Slovenia, metal detecting survey
Presentation Preference - Oral

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, Cherepovets State University, Cherepovets, Vologda region, Russian Federation
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Keywords: Palaeoecology, Palaeoclimatic, Early Neolithic sites, environment of Holocene, pit-bog settlements, Voze Lake

Presentation Preference - Oral

The pit-bog sites are located in the basin of Voze Lake in the Vologda region of Russia. The Pogostinets 15 site is dated to middle Mesolithic period, but the Karavakhka 4 site belongs to the Early Neolithic period. The archaeological finds were found under layers of peat and gyttja, and the alluvial sand and clay deposits. The numerous finds from bones, flint, shell, wood, ceramics, animal bones and remains of wood fishing constructions were excavated. The application of geochemical, pollen and radiochronology 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 environmental development during the period from the beginning of the eight (Boreal period) to the middle of the sixth millennium BC (Atlantic Period), and the way ancient people interacted with the natural environment. The human groups occupied this area around ca.7800 cal BC. In the end of Boreal in beginning of Atlantic period the interruption of sedimentation occurred. The next stage of sedimentation was in the period of water level increasing. The climate became warmer. The large-leaved trees were spread. The early Neolithic people occupied the Karavakhka 4 site around ca.6200 cal BC.Probably, the favourable environment was the main factor that attracted the ancient people at this place of the lake. The wood fishing constructions belongs to this period. The birch prevalence on this place could be an indicator of anthropogenic factor in this context. The next stage of anthropogenic activity was in the middle of Atlantic period. The amount of artifacts in this cultural layer is not too much as in the layer of beginning of Atlantic period. It could be explained by the decreasing of water level, lake eutrophication and the decreasing of lake productivity. The differences in landscape conditions in Boreal and Atlantic periods in the Voze Lake basin have influenced on the changes of economic strategy of ancient people. The investigations were support by RFBR, project 14-06-98866.

TH5-13 Abstract 02

Baltic Sea Lithuanian coastline changes in Mesolthic: landscape and peoples subsistence economy

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Keywords: Mesolithic inhabitants, Palaeoenvironmental situation, the submerged prehistory

Presentation Preference - Oral

The submerged prehistory of the eastern Baltic has attracted great archaeological, geological, pollen, macrofossil, diatom, radiocarbon analysis the last years. The exploration was concentrated in order to localize the former Yoldia Sea and Ancylus Lake coasts, their seashore underwater landscape reconstruction (coastal vegetation, relics flora composition, their age, paleo, diatom analysis) and their potential settlement development in Lithuania waters. Studies in 2014-2015 revealed northern part of the Curonian plateau (underwater peninsula) sea bottom formation and cost lines in the 15-30 m depths. Yoldia Sea and Ancylus Lake shoal submerged paleolandscape studies were compared with the data from the Bannogian Highland (West Lithuania) ongoing pollen, diatom and archaeological investigations, which showed that in the Mesolithic period of human living and farming conditions were different. Palaeoenvironmental situation plays a leading role in the reconstruction of the human settling during the Early Holocene in coastal and continental area of Lithuania. Relfict submerged forest vegetation composition remains confirms that the natural conditions at the first period of Baltic coastal water basin were favorable to live and succeed in farming for Early Mesolithic Kunda (Pulli) and Maglemose cultural communities. The tested area was favorable place for human settlement which included coastal fauna, coastal migratory birds and marine resource, seals especially in the Late Pre-Boreal and Early Boreal. Yoldia Sea and Ancylus Lake shore zone examined small lake surroundings could have been settled by Mesolithic inhabitants. In the first case – early Mesolithic Kunda culture (Pulli stage), and second – Maglemose settlers.
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, molluscs recovered from archaeological shell middens sites can provide information on past climatic and environmental conditions, as well as human subsistence practices. Seawater temperatures (ST) can be reconstructed using geochemical techniques such as the analysis of stable oxygen isotope ratios on marine mollusc shells. In this paper we aim to reconstruct the evolution of ST in northern Iberia (Spain) from ~50 to 7 ka cal BP using oxygen isotope ratios obtained from the limpet Patella vulgata (Linnaeus, 1758). Modern and archaeological specimens from seven sites were analysed, producing a long-term record of environmental changes. Results suggest that important changes in ST took place during the time period investigated, with significantly higher seawater temperatures during the Holocene compared to the Late Pleistocene. Results also show a 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.

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TH5-13 Abstract 07
Changing mammal communities influence Neanderthal and Anatomically Modern Human food resources

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Keywords: Faunal palaeoecology, Food resources, Neanderthal

Presentation Preference - Oral

Neanderthal extinction has been approached from many perspectives in recent years, one of which is the difference in diet between Neanderthals and Anatomically Modern Humans (AMH). Difference in diet between the species may have influenced their ability to respond to climate change, i.e. the ability of AMH to diversify food resources has been suggested to have been advantageous and responsible for increases in population density. Both Neanderthal and AMH relied heavily on meat resources as proven by both zooarchaeological studies and stable isotope studies.

It has been claimed that Neanderthals exploited species for food that are often associated with warmer, more forested environments. Meanwhile, AMH apparently exploited a more diverse array of species, however, most of these are associated with more open, cooler habitats. These observed differences in resource exploitation by the different hominins have undergone little statistical testing; thus the aim of this paper is to test if these observations remain probable after statistical testing and interpret the data in more detail, as was previously impossible.

We conducted statistical analyses on a database that consists of radiocarbon dates from over 400 archaeological sites and associated faunal assemblages, with a geographic range of Europe limited to the East by the Urals and Caucasus and a temporal scope of 60-10 ka BP. The faunal part of the database comprises of mammals that are of medium to large size. The multivariate analyses are run on different aspects of the fauna; the herbivores, omnivore and the carnivore guild are tested separately and together. The temporal component, which reflects the palaeoenvironmental and palaeoclimatic changes, is taken into account by running the analyses over meaningful time-intervals. Principal Component Analysis (PCA) is used to study the differences in resource exploitation between Neanderthals and AMH. Improvements in radiocarbon dating allow us to track changes in diet through time and space for both Neanderthals and AMH. We used Cluster Analysis (CA) in a GIS setting, showing that sites cluster according to similar species composition through time and space.

The PCA confirms that Neanderthals are indeed more closely associated with species living in forested environments and AMH are more closely associated with species living in open environments. The geographical application of CA shows there are geographical changes through time and space in species composition of archaeological sites, and this suggests that both Neanderthals and AMH have changed their diets through time and space. These analyses increase our understanding of the hominins adapting to changing climates and the results may be used in modelling the demise of Neanderthal populations.
Stable Isotope Markers of Herd Management in Prehistoric Croatia

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Keywords: animal management, Croatia, stable isotopes

Presentation Preference: Oral

We use stable carbon, nitrogen, and sulphur isotope values as proxies of diet and local environment to highlight differences in herding and management practices between domesticated species in prehistoric Croatia. Bone samples from known domesticated (sheep, goat, cow, and pig) and wild species (deer and wild boar) are taken from sites in two distinct Croatian landscapes: central Dalmatia and Lika. Sampled Dalmatian sites are all Neolithic coastal open-air villages with evidence of a heavy reliance on domesticated species and possible seasonal transhumance routes between valleys and the nearby Dinaric Alps. Iron Age settlements in Lika, in contrast, are located on rugged karstic terrain and ringed by mountains that made movement of livestock to the sea unlikely. We expect stable isotope values to reflect differences in management strategies (e.g., transhumance vs. local grazing), and explore the use of sulphur as a tool for both more fine-grained dietary analyses and an environmental indicator. Analysis of faunal stable isotope values from these geographically distinct sites constitute the first step in addressing questions of herding intensity, migration, development, spread, and ultimate divergence between domesticated and wild species.

Anthropogenic impact on the changes in landscape in the track “Adzhiel” in the Eastern Crimea

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Keywords: antiquity, Crimea, landscape

Presentation Preference: Poster

The connection between location of ancient settlements with the conditions of the environment and agricultural potential is obvious. It is equally obvious, the dependence of the choice of location for the settlement with the landscape. In this connection, great interest is the analysis of the historical situation in a particular area in the presence on it of one or more dominant objects of human impact on the environment. In our case, that is the territory of the track 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 km2. The name of this area connected with Adzhiel guch, located here. As a result of studies of the XX century, there are discovered many barnes 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, 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, that says, that in ancient times these territories were not built up, but could be also used for agriculture. Settlement structures are located primarily along the boundaries of the modern field, in areas with less fertile soils. The territories occupied by modern fields as underlying natural landscapes in the middle and lower Ploschei rocks - sand, clay, iron ore, shelly limestone; rocks of Mettsa 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 micelian carbonic-blot sandstone, earth are one of the most fertile soil types on the Karch Peninsula. There is a spatial matching soil types and underlying pre-Quaternary rocks, which in turn is likely to determine the features of talus formations of the Quaternary period, directly acting as a soil-forming grounds.

In this paper, 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 palaeoecological and soil conditions of the area - the types of soil in the track 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.
The work was performed as part of research “Structural and spatial study of monuments as a paradigm of the archaeological research of history of a particular region (for example, the tract)” Adzhiev and “the settlement (Belayka)” in the Tula State Lev Tolstoy Pedagogical University (reference number 2014/388 Ministry of Education of Russia, research № 1799).

TH5-13 Abstract 13

Geomorphology and early Neolithic migration routes into the Transylvanian Depression

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Keywords: Carpathians, Early Neolithic, migration routes

Presentation Preference - Poster

In this paper we discuss the geomorphological conditioning of the migration routes of the early Neolithic communities into the Transylvanian Depression (Carpathian Mts., Eastern Europe), as reflected by the spatial and temporal distribution of the 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 route across the Carpathian Mts was eastward from the Pannonian Basin, along the Mureș River. During Starčevo – Criș III, the communities were present only in the western part of the Transylvanian Depression, at the edge of the Apuseni Mountains. They have split along the main rivers and some small tributaries, and moved to the north, along Someșul Mic River and its right side tributaries. Starting with Starčevo – Criș III, the number of the early Neolithic communities has increased, mainly along Mureș River and its main tributaries (Târnava Mică, Târnava Mare, Argeș), associated with a slow eastward movement. A secondary eastward route was along the low alluvial plains (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 III and IV. From there, further to the east, Neolithic sites are generally absent along the main (1-5 km wide) floodplains but present in the hilly area (crossed but smaller and narrower valleys), suggesting a possible geomorphologic control on the spreading routes. The third route was along Olt River and seems to have occurred only during Starčevo – Criș III and IV. These communities moved to the east, along the main river and occupied Brâgii Depression and other small scale intramountain basins, at the eastern edge of the Transylvanian Basin. However, it is controversial whether Neolithic populations have crossed the Carpathians south to north to reach this route, or have spread eastwards, branching off route I above.

Based on these observations, the authors discuss the natural condition in some specific case studies, in order to offer answers to some key questions:(i) Why Someșul Mare – Someș Valleys seems to had been avoided by the early Neolithic communities? (ii) Were the Carpathians crossed only along the Mureș river, east or did Neolithic populations used two routes, the second along the Olt River, south to north? (iii) Are there preferential routes in the western alluvial plains, being known the complex fluvial relief in the area (abandoned palaeomeanders, extended wet zones, isolated fluvial relicts, low fluvial terraces)?

The authors acknowledge financial support from projects PN-III-P2-2012-3-0547, PN-IR-TE-2014-1-1993, PN-III-P1-2011-3-0057, financed by UEFISCDI. Romania.

TH5-13 Abstract 14

North Atlantic and Labrador seasonal climate: isotopic evidence from micromilled bivalves and wood

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Keywords: micromilling, seasonal climate, tree-rings and bivalves

Presentation Preference - Poster

High-resolution records are exceptionally important for reconstruction of past environmental and climatic conditions. Micromills are particularly important devices because they obtain discrete samples at high temporal resolutions, thus allowing for reconstructions of intra-annual environmental and climate variability. Seasonality of temperature and precipitation are one of the most significant parameters of climate that directly influence terrestrial and marine environments. Here, we present sub-annual 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 analysed for δ18O(CaCO3) values to obtain snapshots of ambient seawater temperatures at a sub-monthly resolution. Our data suggest that the
TH5-14 Abstract 01
Towards a global history of human land use over the Holocene
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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 goal of the project is to provide relevant, empirical data on global past anthropogenic land-cover and land-use change to climate modelers. The LandCover6k working group infers land-use data from fossil pollen records (lake sediments and peat deposits), and uses multi-proxy palaeoecological archives and archaeological records (including pollen, wood and plant micro/macroremains). We focus on regions of the world where humans have had a significant impact on land cover during the last 6000 cal BP (6k calendar years in some regions earlier than 6k ago) through deforestation and diverse agricultural practices.

We outline why land-use change is important for understanding climate forcing and why its effects on climate remain poorly understood. Among the effects of land-cover change on climate, the best known is biogeochmical effects, in particular the influence on the carbon dioxide between the land surface and the atmosphere. The biogeochemical effects are less well understood. Moreover, the net effects of both biogeochemical and biogeophysical processes due to land-use change are still a matter of debate. The pollen-based reconstructions of past land use and pollen-vegetation modelling approaches, with mapping of pollen-based land-cover change using spatial statistic, historical and archaeological data are upscalated and summarized on maps of major land-use categories. The results of both analyses will then be used to revise existing Anthropogenic Land-Cover Change (ALCC) scenarios, which currently use models to reconstruct human impacts [e.g., Kaplan et al. 2009; Kein Goldewijk et al. 2011]. Our major focus is on the reconstruction of land-use history; the goal is to ensure that interpretations are archaeologically robust, well-informed by current understanding of human land use history and useful to the archaeological community.
Integrating syntheses of land use by archaeologists, historians, and historical geographers, we present a preliminary meta-analysis of land use, including different modes of land use – foraging, agriculture, pastoralism, and urbanism – by indigenous and European peoples in the Central Europe. Our treatment considers eastern North America, the Great Plains of North America, and Middle America, including Mexico. We focus on specific time periods within the Middle and Late Holocene, as land use rapidly transformed from generalized foraging, to specialized foraging, to intensively managed commodity (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 land-cover reconstruction and archaeological models

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Keywords: archaeological modeling, REVEALS, vegetation cover

Presentation Preference - Oral

TH5-14 Abstract 06
Animal subsistence in the Eneolithic period from South-East Romania

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Keywords: Eneolithic, Romania, Zooarchaeology

Presentation Preference - Oral

The presence of the first tell settlements in the southeastern Romania and their development between 4700-3500 BC allowed some observation about animal paleoeconomy evolution over several cultural sequences (Boian, Gumelnita, Salcuta and Cernavoda I). Thus, the existences of numerous tell settlements with a complex stratigraphic and chrono-cultural sequences attested (e.g. Hanușca, Vălceac, Casacianale, Visteani, Dragănieni, etc.), Gumelnita gave us the opportunity to record some changes in the livestock and hunting activities. Regarding the livestock activity, cattle and sheep/goat prevail, shows highly significant variations by region. The slaughtering curve study nees 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 tell settlement, so this is closely linked to the sedentary lifestyle of the Eneolithic populations. Additionally, animal bones 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 end. Furthermore, in Eneolithic settlements in southeastern Romania, we can remark the fauna oscillation in several directions, which demonstrates that 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)

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Keywords: food economy, Funnel Beaker Culture, South-Eastern Poland

Presentation Preference - Oral

In the first half of the fourth millennium BC, in the upper Vistula basin, from the perspective of the past material culture, the last units of the Longobard-Police Complex (included to the so-called Danubian Neolithic) disappeared. In that period a new archaeological phenomenon appeared and was gradually spreading; it was the south-eastern group of the Funnel Beaker Culture (SE TRB). In central-European prehistory, significant changes in systems of Neolithic food economy and settlement have been associated with this culture. In the most complete and systematic way they were modelled by J. Krúk, in the 1970s and 1980s. These transformations would consist of overcoming of ecological and topographical constraints (barriers), characteristic of Danubian Neolithic, and including into the Neolithicocus virtually all landscapes of a given territory (“second stage of Neolithisation”), i.e. western part of Lesser Poland in our case. These processes would involve a much more widespread use of fire as a basic agro-technological tool and the formation of a shifting, slash-and-burn mode of cultivation. The long-term functioning of such a system would lead to the appearance of large, deforested areas (grasslands and parklands) of anthropogenic origin, in the second half of the fourth millennium BC. The main aim of the presentation will be to evaluate that model, with the use of new archaeological, paleoecological and palaeoenvironmental data, obtained i.a. in the settlement of the TRB at Mieczuwa (the Przélocz district). In the view of these data, it seems that the aforesaid model can be applied only to certain areas of the upper Vistula basin, mainly lowlands highlands. Economy and settlement of Neolithic groups living in the fourth millennium BC in other ecological conditions, such as not associated with broad-spaced, extensive human interference in the environment. Consequently, the presentation will also be an attempt at explaining and understanding the causes of this variability.

TH5-14 Abstract 08
High resolution record of land use, vegetation and erosion history from Lake Skogstjern

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Keywords: land cover, vegetation, erosion, palaeoecology

Presentation Preference - Oral

TH5-14 Abstract 09
Human impact 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 16-1010SS.
In connection with two rescue excavation projects in Southeastern Norway, the Vestfoldbaneprosjektet and the project E18-Rruit-Davali, a cooperation between the Museum for Cultural History, University of Oslo, and the Graduate School “Human Development and Environmental Change” at the University of Oslo 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 questions of human impacts on the vegetation during the Mesolithic as well as the process of neolithisation, with the introduction of agricultural practices and animal husbandry in Southeastern Norway, can be discussed. While the latter contributes with important data to an ongoing discussion, the former is a new field of research. The coring site Lake Skogstjern provides pollen analytical investigations with a high temporal resolution of 12 to 38 yr/cm, showing a detailed picture of landscape development in a long-term perspective. Complementary techniques of non-pollen palynomorphs- and microscopic charcoal analysis as well as loss-on-ignition and determination of geochemical element distribution were also employed on its sediments, allowing the consideration of the palaeoecological interactions, climate, and human influence for more than 10,500 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 humans and surroundings and from a mobile to a sedentary way of life.

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TH5-14 Abstract 09

A varve preservation record of climate change and human impact from Lake Tiether See (NE Germany)

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Keywords: human impact, lake sediments, varve chronology

Presentation Preference - Oral

Annually laminated (varved) lake sediments represent unique archives in continental areas providing both, precise chronologies and seasonal resolving proxy data. Lake Tiether See in NE Germany provides such an archive for an integrated multi-proxy study based on high-resolution sediment analyses.

Lake Tiether See was formed during the last glaciation and is part of the Klocksin Lake Chain, a subglacial channel system that crosses the Pomeranian terminal moraine. 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 ~8,000 years. The chronology of the core sequence is based on a multiple dating approach including varve counting, radiocarbon dating of terrestrial plant remains and tephrochronology. We present a combined approach of microfossiles analyses using thin sections, µXRF analyses on split sediment cores, geochemical analyses of bulk samples, diatom and clodocera 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 Tiether See exhibits distinct decadal- to centennial-scale alternations between well- and non-varved intervals with an increasing trend of non-varved periods since ~4000 cal yr BP. These non-varved episodes generally coincide with phases of increased vegetation openness as reconstructed from pollen data. Predominantly varved intervals before AD 1924 are characterized by low productivity and concur with closed forests in the lake catchment. In contrast, well-preserved varves after AD 1924 are linked to increased lake productivity likely due to anthropogenic eutrophication. In this study we discuss the influence of climate change and human activity on varve preservation. We propose that the observed long-term increase of non-varved intervals is linked to gradual climate change in the Late Holocene triggered by insolation change, whereas superimposed centennial- and decadal variability of varve preservation caused by a complex interaction between human activity and short-term climate changes.

This study is a contribution to the Virtual Institute of Integrated Climate and Landscape Evolution Analysis – ICLEA – of the Helmholtz Association (grant number VH-VI-415) and uses infrastructure of the Terrestrial Environmental Observatory (TERENO) of the Helmholtz Association.

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TH5-14 Abstract 10

Early agriculture and landscape evolution in the Central Mediterranean

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Keywords: Agriculture, Neolithisation, 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 5500 cal BC. At around 3000 cal BC there was a cultural fluorescence that saw the construction of elaborate communal hypogia, 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.

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TH5-14 Abstract 11

Environmental changes and agricultural systems in NW Iberia during the Middle and Late Holocene

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Keywords: Agricultural systems, Environmental changes, Middle and Late Holocene, Northwest Iberia, Carpathy

Presentation Preference - Oral

Interpretable approaches gathering archaeological and carpathological data with broad palaeoecological data can provide insights on relevant interactions between geographical changes and the evolution of human societies and their agricultural systems. Northwest Iberia stands as an appropriate study-case since abundant palaeoenvironmental studies allow us to understand the main 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 palaeoarchaeological 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 by 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 landscape and other features.

Developments in storage facilities are also recorded. Especially, underground storage (pits), that proved to be an important strategy for long-term preservation. Moreover, the palaeoenvironmental records suggest significant changes on several levels such as vegetation or hydrology cover. Increasing erosion events occur as the result of anthropogenic deforestation to obtain farmland and pasture. Besides their clear differences, these two important moments revealed important economic and social changes.

Human communities became sedentary and a process of territorialization took place, enhancing the connection between settlements in Northwest Iberia, a region where good agricultural soils are not abundant.

In the first moment (Middle/Late Bronze Age), the oldest evidence of millet, (Platium multiflorum), 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.

TH5-14 Abstract 12
The anthropization of the Cantabrian Mountains (NW Iberia) during the Later Prehistory
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Keywords: Anthropization, Landscape Archaeology, Later Prehistory
Presentation Preference - Oral
This paper attempts to provide a historical narrative that accounts for the biography of the cultural landscapes of the Western part of the Cantabrian Mountains based on a social interpretation of archaeological data and paleo-environmental sequences. A diachronic perspective is adopted drawing on in the theoretical and methodological framework of Landscape Archaeology. This is achieved by analyzing the patterns of settlement and subsistence deployed by human groups during the five millennia that mediate between the emergence of agriculture and animal farming (c. 4800 BC) and the Roman conquest of the area under study (late 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 itinerary forms of production and settlement. Later in the Bronze Age, the anthropization of the territory significantly increased, revealing a certain tendency towards the territorialization of human groups. The Iron Age implied the almost complete adoption of sedentary forms of life by human groups. Iron Age communities developed new livestock and farming practices, now intensified with the emergence of stable crop fields. This new productive pattern led to the emergence of a compartmentalized and highly anthropized landscape around the hillforts. However, this general scheme shows some gaps and exceptions which should be considered in detail. In the first place, they could reveal the limits of the data available for the region. But, more interestingly, they might point out the emergence in the social or cultural livelihoods performed by the communities who inhabited the Cantabrian Mountains during the Later Prehistory.

TH5-14 Abstract 13
Human-environment interactions in the Alps: Archaeological and palaeoenvironmental approaches
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Keywords: Alps, Bronze Age, Pastoralism
Presentation Preference - Oral
Our understanding of high altitude (European) alpine landscapes and the economic practices that developed therein has been 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 a.s.l) is the patchy nature of our various datasets, moreover, human-environment interactions operate at many spatial and temporal scales, and the integration of palaeo-environmental evidence 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 DNA. Within the context of the Alps, we argue that these seemingly disparate data allow us to assess a specific and significant form human niche construction (i.e. pasture) during the Late Neolithic and Early Bronze Age. This can be considered a form of coevolution; the intensification and extension of pastoralism, which included high-altitude summering on the plateaus. This was part of a process where a form of agriculture, and the development of a karst landscape in western Ireland

TH5-14 Abstract 14
Chalcolithic-EBA farming, soil loss, and the development of a karst landscape in western Ireland
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Keywords: Chalcolithic, Early Bronze Age, land use
Presentation Preference - Oral
The timestop 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 periodically 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 1200 – 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 palaeoarthropod records) and also looks at whether contemporary climatic shifts might have played a role. This informs both our understanding of prehistoric farming practices and also the role of human activities in the formation of karstic landscapes.

TH5-14 Abstract 15
Seeing Beyond the Site: Later Prehistoric Landscapes of southeast Ireland
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Keywords: archaeology, Ireland, palaeoenvironments
Presentation Preference - Oral
In this paper we outline the initial results of an integrated palaeoenvironmental and archaeological study from southeast Ireland, funded by 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 ‘Celtic Tiger’ era development-led excavations. The project has compiled and critically assessed the evidence for lifeways and subsistence strategies derived from multiple archaeological sites, including data from faunal and macrofossil analyses and chronological modeling of radiocarbon dates. These data have been integrated with evidence for patterns of landscape change and human
TH5-14 Abstract 16

Land use and vegetal biodiversity in the Iron Age landscape of Brittany (France)

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Keywords: Iron Age Brittany (Mid-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 montal biodiversity, estimated at about 5% per decade, it is easy to understand why. Palaeo-ecological research can provide insights into the relations between past vegetal biodiversity and environmental change. Climate changes and human activities are generally accepted to be the prime drivers behind these processes. Nevertheless, detailed analyses of the correlation between past human agency and vegetal biodiversity in Northwest Europe are still quite rare. In this paper we aim to reconstruct and explain spatio-temporal trends in past vegetal biodiversity by integrating data on vegetation dynamics, human subsistence and land use patterns. The landscape of Brittany (North-Western France) during the Second Iron Age (450-50 BC) is selected as a case study. Compared to many other parts of Northwest Europe, Brittany is rich in high-resolution palaeoecological 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 slow 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 aim to integrate these different types of data and assess how the results contribute to wider discussions on the link between human behaviour and biodiversity.

TH5-14 Abstract 17

Invisible Prehistoric sites: development of land use by Eurasian nomadic population

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Keywords: Bronze and Iron Age, land use pastoralists, seasonality

A new methodological approach used to detect seasonal campsites occupied by Bronze and Early Iron Age pastoralists living in the desert and steppe areas in the South-East of the Russian Plain helped identify different subsistence and economic activities. Comprehensive studies of two types of the sites by employing the methods of archaeology, soil studies, geography, geomorphology, geobotanics, geochemistry, palaeobotany provided an opportunity to obtain conceptually new data on the location and operation pattern of winter and summer pastures and camps themselves.

To identify temporary camps, it is important to identify those land areas located in proximity to the camps where grazing was the most suitable at certain times of the year, taking into account natural features. For the winter season it has been demonstrated that deeply cut gullies with rather steep slopes facing south, south-west and south-east are most suitable for winter grazing, determining the existence of temporary winter camps in such areas.

The arrangement of summer temporary camps demonstrates a reverse pattern. It is assumed that summer camps and pastures were located near streams on open wind swept watershed sections rather than near subordinate features of the relief. Such camps can be discovered only if the soil was overlaid by natural deposits, which may occur on sections with sand.

TH5-14 Abstract 18

Hunter-gatherer exploitation of biodiverse Kwongan heathland in Holocene southwestern Australia

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Keywords: Human land use, Palaeoecology, Zoocenology

Presentation Preference - Oral

The Kwongan sandplains of southwestern Australia are a global biodiversity hotspot, characterised by diverse, fire-sensitive heathland vegetation and niche-restricted mammalian fauna. Archaeological evidence indicates that Aboriginal people exploited littoral resources along the region’s coastal fringe during the mid- to late Holocene, but use of the biodiverse kwongan heathland landscapes is poorly understood.

In this paper, we explore the palaeoecological and palaeoecological evidence for human land use and terrestrial resource exploitation in the northern section of the kwongan sandplains. We compare the palaeoecological evidence provided by the small mammal faunal record from two cave sites with the regional archaeological evidence for human occupation and subsistence during the mid- to late Holocene, and explore the connections between human activity, environmental change, and ecological composition through time. This study indicates that while littoral resource exploitation may have been a minor feature of human occupation of the region, particularly after sea levels stabilised in the mid-Holocene, terrestrial and lacustrine resources played an important role in regional subsistence and land use.
Keywords: Anthracology, palaeontology, trace fossils, Geoarchaeology, land use, palaeoecology

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 gulles within the catchment areas. Depopulation of the catchment area would, in contrast, cause the surface stabilization and either grassland or forest soil formation. The combination of pedological, ichnological, palaeontological, and anthropological studies was utilized to reconstruct the history of human occupation of 6 small watersheds on the East European Plain.

The sites with a good archaeological record were used to form “training sets” for our study. From 4 to 8 cycles of erosion and accumulation occurred in our study sites during their Holocene.

Each cycle began with fires, leading to the increase in runoff 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 survey and radiocarbon dating 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 gulles as roads and dreyoways. 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. (40th millennium BC, the Chalcolithic/Bronze Age). Small-scale deforestation associated with the swidden cultivation is dated here by VII-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 burrowing rodents, typical steppe inhabitants.

The results can be applied to reconstruct the land use history in areas with poor archaeological data, and determine when certain land use practices came in use.
Extending the human provenancing repertoire: Neodymium isotopes

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Keywords: Human provenancing, Isotope

Presentation Preference - Oral

Recent developments in mass spectrometry have made it possible to explore the potential of new isotope systems for the provenancing of humans, complementing the existing systems: strontium (Sr), oxygen (O), hydrogen (H) and lead (Pb). The addition of another isotope system to the isotopic human 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 ionisation mass spectrometer (TRITON-Plus) equipped with 1013 c1 resonators at the Vrije Universiteit Amsterdam. This study presents the neodymium concentration and composition results of third molars from modern Dutch residents.

These results will be compared to other isotopic systems (Sr and Pb) and the possibilities for Nd as an archaeological human provenancing tool will be discussed.

TH5-15 Abstract 02

Zinc isotope compositions of bone and dental enamel and their relationship to diet

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Keywords: archaeochemistry, 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 isotopes 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 colum chromatography and the Zn isotopic ratios were measured using MC-ICP-MS. The isotopic composition of traditional food tracers (13C and d15N) has been assessed in parallel. We will show that 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

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Keywords: Hydrogen, Bone, palaeoecology

Presentation Preference - Oral

Palaeodietary studies commonly analyse d13C and d15N ratios in archaeological bone to infer past dietary habits, although d15N ratios can be influenced by a range of factors other than diet ( acidity, manuring, soil conditions, etc.). d15N 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 813C and 815N ratios and improve our understanding of palaeoecological habits and subsistence practices. Hydrogen in organics 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 d2H ratios from the non-exchangeable hydrogen fraction.

TH5-15 Abstract 04
Stable isotope ratios and trace elements in modern mammal tooth enamel

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Keywords: bioapatite, isotopes, trace elements
Presentation Preference: Oral

Bioapatite from mammal tooth enamel is a popular biomarker used in the reconstruction of palaeoenvironment and palaeoecology. It records information about the animal’s environment and diet on a sub-annual scale and is proven to be highly resistant to diagenesis, allowing the preservation of its original chemical composition through archaeological and geological timescales. In this study, stable carbon and oxygen isotope analysis are used as a stepping stone to investigate the use of other chemical proxies for the reconstruction of environment and diet from mammal teeth. Concentration profiles of trace element distributions (measured with pXRF and cross-validated with Laser Ablation ICP-MS) and stable isotope ratios (δ13C, δ18O) are combined to test the reliability of trace element profiles from mammal teeth in recording seasonal changes in environment and diet of the animal.

A method is presented that links the various geochemical records within a tooth sequence using mineralization sequences and oxygen isotope seasonality. This way, a 3 year trace element and stable isotope record from horse tooth enamel is created showing seasonal variation in trace elements and isotope ratios linked to changes in climatic conditions and diet through the animal’s lifetime.

This study shows how an entire new set of trace element proxies, that can be measured quickly and non-destructively, may yield information on palaeoenvironment and palaeodiet. These trace element measurements yield information from precious archaeological samples that could otherwise be obtained solely through destructive sampling. The versatility of the pXRF and LA-ICP-MS methods opens up a wide range of applications for trace element analysis in archaeology.

TH5-15 Abstract 05
The geochemical relationship between soil, plant and streamwater: implications for migration studies

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Keywords: Geographical discrimination, Multi-element composition, Strontium isotopes
Presentation Preference: Oral

Strontium isotope (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 geochemistry 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

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Keywords: LIBS, Seasonality, Shellmound
Presentation Preference: Oral

The Farasan shell mounds are one of the largest traces of the Arabian Neolithic Period, with over 3,000 sites having accumulated between 7,000 and 4,000 cal BP. Seasonality data based on stable oxygen and carbon isotopes have determined year-round exploitation of shellfish.

Additionally, they revealed patterns of seasonal stratification within individual layers. This was used to determine sub-annual accumulation rates, exploitation intensity, and degrees of bioturbation within the stratigraphy. This dataset is now being analysed more thoroughly by using Laser Induced Breakdown Spectroscopy (LIBS). LIBS is a rapid and cost-effective laser ablation method, that is able to measure the elemental composition of shell carbonates to determine season of death. By providing a high sampling resolution (<100μm) and short processing time, large sample sizes can be analysed in great detail. In turn, it allows us to analyze exploitation and accumulation patterns of the Farasan islands in more detail. More specifically, this study aims to answer questions regarding (1) how analyzing 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

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Keywords: archaometric research, chemical analysis, pottery
Presentation Preference: Oral

The basic carrier of information on the project in question is pottery from Wielkopola’ska’s sites dating back to the early pre-iron age. The multi-level analysis of the existing source base assumes its full elaboration with regards to classical archeological description, connected comparatively with an innovative use of the methods of chemical analysis. The analysis will cover archeological materials obtained mostly as a result of a source search query conducted in museums, but also among entities that currently conduct excavation research. The chemical tests will be performed on the pottery using three independent procedures: Sr isotope analysis, REE analysis, inductively coupled plasma optical emission spectrometry (ICP-OES). The elaborated procedures and instrumental analytical techniques enable performing tests that have so far been practically unavailable in archeometric research.

TH5-15 Abstract 08
Elemental and Sr/Nd isotopic investigation of late Hellenistic to early Roman glass bowls and sand raw materials from Lebanon

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Keywords: Natron glass, Sand raw materials, Isotopes
Presentation Preference: Oral

Excavations in the Souks area of Beirut, Lebanon, not only revealed large amounts of glass artefacts from the Hellenistic to early Roman period, but also remnants of primary tank furnaces, dating to the early 1st century CE. We determined the major elemental compositions of 86 mid-2nd century BCE – early 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 to investigate the possibility of a local origin.

TH5-15 Abstract 09
Science and multidisciplinarity in archaeology

Science and multidisciplinarity in archaeology

TH5-15 Abstract 10
The potential of large-scale seasonality studies, results from the Farasan Island shellmound complex

Author: Dr. Hausmann, Nikias, 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 carbonates to determine season of death. By providing a high sampling resolution (<100μm) and short processing time, large sample sizes can be analysed in great detail. In turn, it allows us to analyze exploitation and accumulation patterns of the Farasan islands in more detail. More specifically, this study aims to answer questions regarding (1) how analyzing 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.
All glasses were soda-lime-silica in composition, with natron as a flux. Strongly coloured glass was coloured with Co, Cu and Mn. Pale coloured glass has varying MnO to 1.9%, suggesting that they were intended to be coloured. Colourless bottles can be divided into three groups: Mn-, Sc- and mixed Mn-Sc-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 Sc-decoloured glass was made from a different sand source with higher SiO₂ and lower Al₂O₃ and CaO. Mixed Mn-Sc-decoloured glass has intermediate compositions, suggesting they are the result of melting. Sc and Nd isotopic analyses confirm the different primary origin of the Sc-decoloured glass. The isotopic signatures of the other glasses correspond well to those measured in some of the Lebanese sands, suggesting they were indeed produced locally.

The Sb-decoloured glass was made from a different sand source with higher SiO₂ and lower Al₂O₃ and CaO. Mixed Mn-Sc-decoloured glass has intermediate compositions, suggesting they are the result of melting. Sc and Nd isotopic analyses confirm the different primary origin of the Sc-decoloured glass. The isotopic signatures of the other glasses correspond well to those measured in some of the Lebanese sands, suggesting they were indeed produced locally.

Iron isotopes as a new tool for ancient metal provenance studies. Isotopic ratios 57Fe/54Fe and 56Fe/54Fe were measured after applying a Multiple Collector Mass Spectrometer after sample dissolution and Fe purification. We first developed this approach by analysing materials from archaeological experiments on iron ore reduction. In order to compare our results with classical tracing methods, we also analysed the Fe isotope compositions of archaeological materials whose provenance hypotheses have been established with trace elements analyses of slags. Furthermore, some materials coming from different regions of ferrous and non-ferrous metal production were analysed to assess the tracing potential of Fe isotopes compared to trace elements and Pb isotope analyses.

Our first results show that the bloomery process does not induce Fe isotopic fractionation, i.e., the signature of metals and slags reflect that of their corresponding ores. Moreover, Fe isotopes analyses tend to confirm the provenance hypothesis of ancient artefacts established with trace elements analysis of slags. The results obtained so far suggest that Fe isotopes are a relevant tracer for archaeological materials, which can be applied to ferrous metals. The combination of Fe isotopes along with more classical involving trace elements or Pb isotope analysis could allow to refine provenance hypotheses of ancient metals.

Keywords:
Iron, Provenance

Iron Slag and the Quest for Provenance
Author - Bauzyta, Ema, Aarhus, Denmark (Presenting author)

Iron, Provenance

Keywords: Iron, Provenance

Presentation Preference - Oral

Over the past few decades our growing ability and competence in determining the provenance of archaeological artefacts using scientific methods has been one of the most exciting developments in the field of archaeological science. However, when it comes to iron and attempts to determine its geological source, more questions than answers have been posed. The 3-year research project launched by UnIReNet centre based at the University of Aarhus is facilitating the collaboration of geologists and archaeologists and aims to employ a multi-disciplinary approach in order to determine the extent to which the chemical composition of iron ores is preserved in the iron slag. We investigate the slag from east Africa Swahili coastal sites, presenting the potential for both, local and imported material. The artefacts are subjected to petrographic, metallurgical, elemental and isotopic analyses in order to determine the validity of methods and the feasibility of further analyses. Thematic experiments are devised and performed so as to replicate thermodynamic processes and define their significance in altering elemental and isotopic ratios. We hope to share the preliminary results and stimulate conversation on potential further approaches that may be taken in order to improve the data and overcome some of the challenges we are facing.

Keywords:
Iron, Provenance

Presentation Preference - Oral

Interpretation of Heavy Elements Traces in pXRF Analyses on Prehistoric Copper Alloys

Keywords: copper alloys, trace element, XRF

Presentation Preference - Oral

X-ray fluorescence analysis for metals has become a valuable addition to the available methods of doing archaeometallurgy; if, on the one hand, the method’s limits are confined to only a few microns depth from the surface, the non-destructive nature of the method allows for as many samples as wished to be taken, and to have at our disposal a huge amount of data, previously inaccessible, that can be used to calibrate and compensate the limits of the analysis method. The most recent generation of instruments
are able to detect elements in traces, these data, in prehistoric archaeometallurgy have been used not only to understand the composition of a prehistoric alloy, but even to understand which ores have been exploited to obtain the metal. 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 Anatolian contexts. After some speculations, it may be possible to hypothesise that these concentrations are due the precipitation of heavy elements in a liquid state copper melt. These indicators may allow identification of the orientation of objects during the casting phase, giving important data about the technologies used in the production of items and item categories, allowing production categories to be compared within object or type categories.

TH5-15 Abstract 13
Chemical and physical composition of disturbed and less disturbed soil of the Dukšteliai 1 site
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Keywords: Early Mesolithic and Neolithic-Bronze Age, Geochemical and LOI analyses, Human inhabitance
Presentation Preference - Poster
In 2013 an archaeological investigation of the first inhabitation of River Neris basin in Lithuania has been initiated. As a part of the research, a newly discovered prehistoric site Dukšteliai 1 on the lake Dukštelis shore (Eastern Lithuania) was excavated in order to gather some new archaeological data for comparison with the material from other prehistoric sites in River Neris basin, and also to gain additional knowledge about the first inhabitants in this region. After excavating 100 m² of the site structures were uncovered which, according to the first artefacts typology, correspond to Early Mesolithic or Neolithic-Bronze Age. Also the new palaeobotanical and geochemical data on Dūkštelis Lake bottom deposits indicated at least two episodes of human inhabitance at the lake shore.

In order to reveal the functional use of the prehistoric settlement elements, two structures were chosen for closer study - a probable hut and a hearth. The research was interdisciplinary, together with archaeological methods of investigation - examination on the distribution of the finds (lintel tools and their processing refuse, burnt bone, charcoal pieces, ceramic fragments) and their correlation with the two structures - several natural science methods were used to make a research on the content of the structures. Ground formation and microscopic bioarchaeological research was done in order to find macro-botany remains that could reveal some details about prehistoric people diet. Geochemical analysis and loss on ignition method (LOI) were also used to find out if there are any elements significant for interpretation but undistinguished during the archaeological excavation. The samples for geochemical and LOI analyses were collected from the structures as follows: in the middle of the structure, 20 cm from the centre and in periphery. It was presumed that the latter represented less disturbed soil. Determination of major and trace elements Al, Ba, Br, Ca, Cl, Cr, Cu, Fe, Ga, K, Mg, Mn, Na, Nb, Ni, P, Pb, Rb, Sr, Ti, Zn, S was done using energy-dispersive x-ray fluorescence Spectro Xepos equipment and the Turbotquant calibration method for pressed pellets. Also samples were dried at the temperature of 110°C; then heated at 550°C and 950°C to burn out the organic matter and carbonates, respectively.

As a result, insignificant geochemical difference between samples has been observed and only minor inequality of element contents could be seen. Using Ward’s method and Euclidean distances a tree 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
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Co-author(s) - Young, D. S., University of Reading, Reading, United Kingdom
Keywords: Late Holocene, multiproxy palaeohydrological data, Littleton Bog, Ireland.
Presentation Preference - Regular session
Poster
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 (lintel tools and their processing refuse, burnt bone, charcoal pieces, ceramic fragments) and their correlation with the two structures - several natural science methods were used to make a research on the content of the structures. Ground formation and microscopic bioarchaeological research was done in order to find macro-botany remains that could reveal some details about prehistoric people diet. Geochemical analysis and loss on ignition method (LOI) were also used to find out if there are any elements significant for interpretation but undistinguished during the archaeological excavation. The samples for geochemical and LOI analyses were collected from the structures as follows: in the middle of the structure, 20 cm from the centre and in periphery. It was presumed that the latter represented less disturbed soil. Determination of major and trace elements Al, Ba, Br, Ca, Cl, Cr, Cu, Fe, Ga, K, Mg, Mn, Na, Nb, Ni, P, Pb, Rb, Sr, Ti, Zn, S was done using energy-dispersive x-ray fluorescence Spectro Xepos equipment and the Turbotquant calibration method for pressed pellets. Also samples were dried at the temperature of 110°C; then heated at 550°C and 950°C to burn out the organic matter and carbonates, respectively.

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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.
A 8000 year history of climate and environmental change in South Greenland

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Keywords: Greenland, Raised mire, Trackways

Presentation Preference - Oral

We propose here a synthesis about the Holocene environmental history of South Greenland, with a focus on the last millennium. We correlated stratigraphic records and a suite of biological and physical proxies (pollen, non-vascular palynostratigraphy, diatoms, chironomids, magnetic susceptibility, grain size distribution, C and N isotopes and molecular markers) were used to examine the evolution of Holocene environment and then the legacy of Norse farming activities. The archaeology of Littleton Bog, now a drained and milled peat production site, was surveyed in 2008 and this was followed by targeted excavations carried out in 2008 in advance of peat extraction; excavation revealed over 30 archaeological features, mostly wooden trackways, of which 2 features have been dated ranging from the Early Bronze Age (ca.3500 cal BP) to the Iron Age (ca.2000 cal BP). A high-resolution multiproxy palaeoenvironmental record from the site was developed to provide palaeoenvironmental context for the rich archaeological record, and to assess the interactions between human activity and past environmental change at the local scale. This record, spanning from ca.4000 cal BP onwards, comprises testate amoebae, plant macrofossils, peat humification and pollen data. The testate amoebae, plant macrofossil and humification-derived bog surface wetness (BSW) records show broad agreement, but comparisons with recently published regional 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 peat production bog provide a key opportunity to examine the complex interactions between both alienic and autogenic environmental change and human activity.

THS-16 Abstract 03

Reconstructing cattle management in Neolithic Switzerland using multi-isotopic analysis

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Keywords: multi-isotopic analysis, cattle management

Presentation Preference - Oral

The lakeshores settlements in Switzerland provide the unique opportunity to study various aspects of the Neolithic society and its economy. Understanding cattle management is one of the key questions in our research project that focuses on several sites in the lower Lake Zurich basin and the site of Arbon Bleiche 3 at Lake Constance. In this paper, the potential drivers for crannog construction are examined, by analysing the distribution of crannog dates both chronologically and spatially. For this purpose, a database of crannogs was constructed from the sites and monuments records of Scotland, Ireland and Northern Ireland. Two types of analysis were performed on the database: a probability density function and the allocation of crannog dates to time intervals, which might be compared by comparing the distribution of crannogs to known climatic events, the theory that low lake levels might have contributed to their expansion can be explored. The spatial distribution of crannogs is also compared to the probable extent of nearby kingdoms and the timing of political events, such as the impact of the outcome of the Battle of Moira in AD 637, to gain a deeper understanding of the defensive and/or status properties of these sites. To assess whether local wealth may have been a factor in their expansion can be explored. The spatial distribution of crannogs is also compared to the probable extent of nearby kingdoms and the timing of political events, such as the impact of the outcome of the Battle of Moira in AD 637, to gain a deeper understanding of the defensive and/or status properties of these sites. To assess whether local wealth may have been a factor in the construction of the sites, the distribution of crannogs has been compared to major transport networks in the late Prehistoric and Medieval periods. This study can be used to support the archaeological interpretation of the individual sites and attempts to develop a large scale understanding of crannog construction and occupation.

THS-16 Abstract 05

Insights into crannog occupation phases from National Sites and Monuments Records

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Keywords: crannog, GIS, Wetland, Medieval, Iron Age, Ireland, Scotland

Presentation Preference - Oral

Crannogs are man-made islands that are ubiquitous on the north-western fringes of the British Isles. Over 1500 have been identified, but their function is not that well understood, with some crannogs apparently simple workshops, while others were royal occupation sites. They were built mainly during the Iron Age and Medieval Periods, but there is evidence that this tradition started in the Neolithic and some sites were occupied in the 1st century AD. In this paper, the potential drivers for crannog construction are examined, by analysing the distribution of crannog dates both chronologically and spatially. For this purpose, a database of crannogs was constructed from the sites and monuments records of Scotland, Ireland and Northern Ireland. Two types of analysis were performed on the database: a probability density function and the allocation of crannog dates to time intervals, which might be compared by comparing the distribution of crannogs to known climatic events, the theory that low lake levels might have contributed to their expansion can be explored. The spatial distribution of crannogs is also compared to the probable extent of nearby kingdoms and the timing of political events, such as the impact of the outcome of the Battle of Moira in AD 637, to gain a deeper understanding of the defensive and/or status properties of these sites. To assess whether local wealth may have been a factor in the construction of the sites, the distribution of crannogs has been compared to major transport networks in the late Prehistoric and Medieval periods. This study can be used to support the archaeological interpretation of the individual sites and attempts to develop a large scale understanding of crannog construction and occupation.
The discovery of the remains of a spectacularly well-preserved settlement at Black Loch of Myrton, South West Scotland has opened up the possibility for an investigation of early Iron Age society in northern Britain that goes far beyond what has been previously possible. With recent breakthrough in dendrochronological dating of later prehistoric structures in Scotland it is now possible to approach issues of structural duration on a human scale, meaning that models for the Iron Age societies that lived in lakeside settlements in this area can be constructed to a level of detail never previously possible.

This paper will present the archaeology of the Black Loch village recorded so far, and consider the hypotheses that will be tested through the multidisciplinary palaeoenvironmental techniques used by the Celtic Crannogs project.

Palaeoenvironmental methods offer the opportunity of retrieving information from a range of proxies around lakeside settlement usage that would otherwise be difficult to obtain without excavation and can augment studies where excavation is possible. These methods also allow us to place these sites within a wider environmental context which can aid our understanding of local and regional conditions across the time period in question. Sediments are retrieved both on and adjacent to, these structures and can be analysed for ecological, biological and environmental data.

Here, we present 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 lakeside settlement consists of a small number of structures constructed on peat/fen material at the margins of a small, productive loch. The main aim of the work is to inform our understanding of living conditions on the site, any associated impacts upon the nearby lake system and explore the wider implications for our understanding of lakeside settlements of this period. Beetle remains provide an understanding of both the environmental conditions across the site and on-site activities. Analyses indicate beetle and invertebrate assemblages indicate a substantial increase of nutrients during this period. The increased variety of submerged substrates due to crannog construction and use are driving changes in lake environments. Preliminary results indicate that XRF data (Cu, Ti, 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.

This lake-side site is one of very few wetland archaeological occupation sites in Ireland that extends over the Mesolithic-Neolithic transition. The site consists of a series of constructed brushwood layers with intermediate peat lenses built beside, or into, the adjacent lake, with up to five different occupation phases. Within these layers are a variety of archaeological features, including upright stakes, wooden 'planks', hearths, and abundant lithics (Frederieck, 2010). Biocartilage investigations of the site have been undertaken as part of a DEL NI funded PhD research project. Results from fossil beetle and dung fungal spore analyses suggest the presence of structures maintained over the Late Mesolithic phases of the site's usage. Synanthropic beetles typically associated with thatching and/or bedding materials indicate the persistence of dry, sheltered areas across the site. This evidence is significant and challenges assumptions about the nature of late Mesolithic settlement in Ireland (Woodman, 2000). Analyses of coprophilous spores reveal the presence of the dung of grazing animals within several specific contexts over the same period. This is intriguing given the apparent absence of large grazing herbivores in Ireland prior to their introduction during the Neolithic. The 'platform crannog' appears to have been a well-maintained site occupied on a seasonal or refurnishing basis.

Here, we explore the significance of these findings within the context of current debates around the nature of the Mesolithic, its implications for the Mesolithic-Neolithic transition in Ireland as well as broader debates around the origins of the synanthropic fauna.
Science and multidisciplinarity in archaeology


TH5-16 Abstract 10
Insights into the occupation of a Scottish Iron Age wetland village using organic geochemistry

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Keywords: Human-environment interactions, Organic geochemistry, Wetland settlement

Presentation Preference - Oral

The first wetland village discovered in Scotland - Black Loch of Myrton, exhibits excellent preservation of early Iron Age life. It is therefore an excellent opportunity to explore how Celtic people lived and interacted with their environment. This study uses organic geochemistry to answer key questions about the settlement: how many construction and occupation phases occurred? What activities took place and how did they vary over time?

We reconstruct environmental conditions during village development using lipid biomarkers, organic molecular fossils that can be traced back to known biological precursors, and carbon isotopes from a sediment core recovered from the centre of the wetland. These results are compared with other regional climatic reconstructions to explore the role prevailing environmental conditions had on the start of the roundhouse construction and the demise of the village. Human-environment interactions within the wetland are assessed using biogenic silica concentrations, a measure of the abundance of the siliceous primary producers within the ecosystem, which reveal overall changes in aquatic productivity. The extent to which these changes can be attributed to the addition of nutrients from human and animal waste and changes in land use practices is currently being investigated by quantifying sterols, a group of biomarkers that are characteristic of faecal matter input.

In addition, a suite of lipids biomarkers taken from a sediment core from within the roundhouse provides insight into Iron Age activities by using pyrolytic polycyclic aromatic hydrocarbons to reveal fire regimes, n-alkanes to suggest changes in the surrounding vegetative landscape and cropping practices, and faecal sterols and bile acids to indicate the presence of animals within the roundhouses. Changes in the intensities of these activities and the amount of human faecal input reveal how the wetland village dynamics and uses altered over time. Combining these organic geochemical analyses with archaeological investigations provides a more holistic site interpretation and, when compared with other Celtic Iron Age sites, helps to build a clearer picture of societal functioning and change over this time period.

TH5-16 Abstract 11
Lake sediment DNA to trace past landscape and agricultural activities: the importance of taphonomy

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Keywords: Agriculture, lake sediment DNA, taphonomy

Presentation Preference - Oral

During the last decade, an increasing number of studies were interested in the use of lake sediment DNA to trace past landscape changes (plant DNA), agricultural activities (plant, mammal and bacteria DNA) as well as the human presence (human-specific bacteria DNA). However, all sedimentologists know, the sedimentation in a lake can vary temporally and spatially depending of the variations of processes at the origin of the sediment formation. Moreover, depending on the 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/to 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 effect the detection probability of the animals. All the factors affecting the aDNA record in lake sediments can change over time and can thus significantly affect the reconstructions of plant cover and livestock farming/pasturing histories.
**TH5-17 Abstract 01**

Population Genomics of Bronze Age Eurasia

Author: Assoc. Prof. Sikora, Martin, University of Copenhagen, Copenhagen, Denmark (Presenting author)

Keywords: Ancient DNA, Genetics, Migrations

Presentation Preference: Oral

The Bronze Age of Eurasia (around 3500-1000 BC) was a period of major cultural changes. However, it has been debated for decades if the many cultural changes that occurred during this period resulted from the circulation of ideas or to what 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.

**TH5-17 Abstract 02**

What ancient DNA can tell us about the origin and spread of Indo-European languages

Author: Dr. Haak, Wolfgang, Max Planck Institute for the Science of Human History, Jena, Germany (Presenting author)

Keywords: ancient DNA, Indo-European, prehistory

Presentation Preference: Oral

Ancient DNA studies on Mesolithic, Neolithic and Bronze Age individuals from Western Eurasia have recently thrown fresh light on migrations in Europe’s prehistory. The Early Neolithic period in Europe (~8,000-7,000 years ago) was characterized by closely related groups of early farmers, which were different from indigenous hunter-gatherers, while Russia was inhabited by a distinctive population of eastern hunter-gatherers with affinity to Palaeo-Eurasian 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 traded ~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 Mesolithic-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 current debate over the defining field 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.

**TH5-17 Abstract 03**

The story told by Mireasa (Constanta) Bronze Age barrow – interdisciplinary approach

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Co-author(s): - Radu, Claudia, Babes Bolyai University/ Interdisciplinary Research Institute on Bio-Nano-Sci, Cluj-Napoca, Romania

Presentation Preference: Oral

There is a current tendency towards an interdisciplinary approach when testing various hypotheses regarding historical events that contributed to the shaping of modern European populations, especially when considering their genetics. The Bronze Age is a historical time frame characterized by major population movements accompanied by social and cultural changes that influenced present-day populations, but it remains unclear to what extent. Few inferences can be made using traditional sources such as archaeological record or written sources. While this kind of evidence is often ambiguous, in recent years it has been supplemented by genetic data from ancient populations or contemporary genetic patterns, in order to estimate the demographic impact of these historic changes.

This study aims to integrate data concerning the genetic diversity of Bronze Age skeletal remains associated to the Mireasa (Constana) barrow as illustrated by mitochondrial hypervariable regions analysis, physical anthropology of the skeletal remains and stable isotopes analysis.

In this manner, a more comprehensive image regarding the cultural and social status of Bronze Age individuals from the southeastern part of Romania, a geographic region that is scarcely represented by genetic data in scientific literature, can be gleaned. Integrating present genetic results for representatives of this population with their contemporaries from other geographic locations may reveal genetic links associated to migratory events. First insights on burial ritual and funerary inventory of these individuals indicate that they are most likely associated with Yamnaya culture, while the radiocarbon analyses of one individual ‘centrally located’ in the tumulus show that it dates to 2620-2470 BC. The molecular data at date reveal the presence of at least two distinct maternally lineages in this population, in most cases rare haplotypes for the modern day European population.

These results are part of an ongoing project and a future point of concern is to assess the genetic relationship between this Bronze Age population and one dated to the pre-modern period discovered in the same geographic area.

This study was supported by funding from the project Genetic Evolution: New Evidences for the Study of Interconnected Structures (GENESIS). A Biomolecular Journey around the Carpathians from Ancient to Medieval Times. (CNCSIS-UEFISCDI_PHI_PCCA_1153_2011).

**TH5-17 Abstract 04**

Scandinavian Bronze Age rituals, and their Indo-European background

Author: Prof. Anders, Kaliff, Uppsala University, Uppsala, Sweden (Presenting author)

Keywords: Burial ritual, Cremation, Cosmology, Indo-European, Religion, Ritual, Sacrifice

Presentation Preference: Oral

In my research I try to interpret remains of ancient Scandinavian ritual, against a larger Indo-European background. Like the Indo-European languages, is also Indo-European religion an old concept, first constructed in the 1800s, when the comparative study of religion emerged as a method. It seemed to be basic features that recurred in the religions practiced by different peoples who spoke Indo-European languages, and that parallel to language, important elements of religious beliefs, myths and rituals could also be preserved over time. In the last few years, there has been a very rapid development in the field of ancient DNA that has revolutionized the question of Indo-European migration in prehistory. The question is no longer whether there is a connection between early Indo-European peoples, but how complex the relationships are and how they occurred. In 2014 and 2015 came finally the first really convincing DNA studies regarding the ancient Indo-European, results that fully support the ideas of Indo-European spread by migration. Far hundred percent proof that this migration really brought languages, is missing still, of course, but it could be assumed with almost certainty. According to the hypothesis I try to test irony research, essential features of mythology and ritual was also spread in this context, although changes of these obviously have taken place over time, in the same way as with the language.

The homology of the creation myths is one such basic cosmological idea. The concept of homology here refers to the belief that one entity is created using the matter in another entity. They are alltogether, that is, alternative guises of each other. As
regards both fire-sacrifice, and also cremation, the link to homology is evident. One significant example is the Vedic fire-rituals (including cremation of the dead), that are performed as repetition of the creation and has a deep cosmological significance. This cosmology— with parallels in several old Indo-European religions, including for instance the Old Persian (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 of the same material substance and can thereby be transformed into each other. In the same way, bones, the hard part inside the soft flesh, are equated with the stones in the earth and with rocks and mountains, while hair is associated with plants. Life consists of a limited number of elements from which everything is composed.

My paper will discuss this with focus on finds from some recently excavated ritual places in eastern Middle 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.

TH5-17 Abstract 05
Can scholars envisage a Baltic Origin of Homer’s Epic Tales?

Author - Prof. Bandeli, Giuliana, Universitás 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 were where Homeric places (Troy, Ithaca, Faro) along with Ulysses’ wanderings can still be identified today. Moreover, this archaic Achaean civilization extended on all the Baltic coasts, such as, for instance, along the Swedish coasts, where today’s Bay of Bothnia is the ancient Aulis, where the Achaeans fleet, gathered before sailing for Troy. As regards the Baltic Republics (Estonia, Latvia, Lithuania) there are many convergences with Greek mythology. The blond Achaeans who founded the Mycenean civilization in the Aegean in the 16th century B.C. brought these tales from Scandinavia to Greece at the end of the “post-glacial climatic optimum”. They then rebuilt their original world – 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. 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 feats and events happened in the lost Nordic homeland of their Achaean ancestors, before they moved towards the South of Europe. This new perspective conforms to the most recent views of archaeology: the “radiocarbon revolution”, based upon radiocarbon dating, adjusted with dendrochronology, has backdated of many centuries the rise and development of the European Bronze Age and, on the other hand, a very ancient city, dating back to the third millennium BC, was recently found by Swedish archaeologists in the site of Bästam, near Hernosand.

TH5-17 Abstract 06
The Settlement System of Pit-Grave Culture of Central Ukraine

Author - Svyapol, Mykhaylo, Chernivtsi Archaeological Museum, Chernivtsi, Ukraine (Presenting author)
Keywords: Settlement, Archaeology, Central 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 (Desiatyny). It belongs to the most widespread type: 1) the settlements on small (0.5-1ha) sites or (peninsula) in wide floodplains of the Dnieper River and its tributaries. The Desiatyny type settlement has a relatively thin (0.4-0.7m) and a rich archaeological layer (up to 100 finds per 1m2). Small (0.1-0.3ha) and poor in relics (1-10 finds per 1m2), temporary sites have been found in 2) floodplain sites/peninsulas (often near basic settlements) and under the conditions of high topography: 2b) at the tops of watersheds but next to a water source; 2c) on the high bank terrace of small rivers of the 2nd and 3rd order; 2d) on the low promontories of small rivers. The last subtype is more known in a number of other territorial variants of Pit-Grave culture, though the watershed subtype is a new one.

The data deriving from the study of these settlement relics suggests that the Pit-Grave population of the Middle Dnieper Area practiced transhumance, insignificantly complementing their diet with the help of fishing, hunting and food gathering. The vast majority of the population lived in basic settlements, located on the floodplain sites in collectives of 50 to 100 persons (small large patriarchal families), which could unite into a clan together with the inhabitants of nearby settlements. During a warm period, the fully mature men departed with the herds to the temporary sites (some 5-10 persons per site) within the radius of several kilometre, while women, children and old people remained in the basic settlements.
smaller innovations or gradual local changes played the main role in the cultural transformation of a very wide region (Barkoff & Winter 1999, 175). However after 3000 BC a new type of sites and artefacts appeared in the Baltic Region. On the basis of these radical changes in material culture one can claim that almost all aspects of human life, social, ideological and economic has changed radically. After a recent studies of ancient DNA (Allentoft et al. 2015; Haak et al. 2015) a new important data were added to old debates of linguists and archaeologists.

The aim of the paper is to compare archaeological data of Corded Ware and post-Corded Ware people from the East Baltic Region to the data of Pontic-Caspian steppes, and to try to find traces of cultural influences. A new DNA discoveries will be used as well.

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**TH5-17 Abstract 10**

**Visitors from the Steppes. The Scandinavian perspective**

**Author:** Prof. Randborg, Klæs, University of Copenhagen, Copenhagen, Denmark (Presenting author)

**Keywords:** Neolithic, Scandinavia, Stepe contacts

**Presentation Preference:** Oral

The archaeological interest in the Steppes has deep roots, including hypotheses about an eastern origin of the Corded Ware Culture, supposed migrations of the same, and even the introduction of the Indo-European languages, as suggested by G. Childs in the 1920s and later elaborated by M. Gimbuel (Gimbutas, among many others). Recent ancient genome studies (DNA) have added new dimensions to the old debate.

By suggesting that the Indo-European languages in Europe were introduced from the East, at the latest by 2500 BC, a number of concomitant issues need to be considered concerning cultural origins and processes. A particular problem is the rise of Indo-European languages in Western and Northern Europe, as well as the status of the Indo-European languages in the Mediterranean.

C. Renfrew’s viewpoint of the 1980s was that the first Indo-European languages arrived with and developed in Europe among the first people carrying Neolithic farming and rearing of domesticated animals (Renfrew 1987). This idea has a ring of simplicity about it when correlated with the basics of archaeology: Neolithic expansion from the Near East and Anatolia to southeast Europe extended to Central Europe and later on to the North; with a parallel Neolithic expansion from Anatolia to the Mediterranean and on to Western Europe.

The paper examines the archaeological elements of possible Stepe origins in Scandinavian Neolithic and how these correlate with the aDNA findings.

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**TH5-17 Abstract 11**

**The introduction of Indo-European in the later South Scandinavian Neolithic**

**Author:** Prof. Hjörvar, Rune, University of Copenhagen, Copenhagen, Denmark (Presenting author)

**Co-author(s):** Kromoen, 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, Italic, Slavic, Albanian, Armenian, and Greek. These formed the seeds from which 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 material changes in 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 2800 B.C.E early Corded Ware (Single Grave) societies appeared on the Jutland Peninsula introducing among other things new burial customs, new pottery shapes, new amber ornaments, and new types of stone battle-axes.

The third millennium B.C.E was, no doubt, a period of great material and cultural changes and language must not be ignored when considering these. Instead, language must be viewed and treated as a deeply integrated part and facilitator of the transmission of new ideas, cultural processes and substance economic and material changes. This paper draws on evidence of change in both material culture and in language that took place in the third millennium B.C.E and combines these evidences into a unified hypothesis on when and how Indo-European language was introduced into northern Europe and southern Scandinavia. After being introduced together with Corded Ware features in central and western Jutland it seems that the implementation of Indo-European happened gradually via long term cultural transformation processes.

However, in order to understand the cultural and linguistic processes that allowed the introduction of an entirely new language family it is important also to consider the long gone predecessor of Indo-European. This extinct language we refer to as “Proto-Neolithic”. Did this unknown language for human race 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?

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**TH5-17 Abstract 12**

**Linguistics and archaeology: A reassessment of the Indo-European homeland problem**

**Author:** Dr. Olander, Thomas, University of Copenhagen, Copenhagen, Denmark (Presenting author)

**Keywords:** Indo-European homeland, Indo-European languages, Linguistics

**Presentation Preference:** Oral

When searching for the so-called Indo-European homeland – the place from which the Indo-European languages spread at some point in prehistory – there is a discrepancy between the opinions of archaeologists and historical linguists. Different methodological approaches in the two fields lead to preferences for different scenarios.

Popular among archaeologists is the “Anatolian hypothesis”, which locates the Indo-European homeland in Anatolia around 6,500 BC and sees agriculture as the main factor in the spread of the Indo-European languages; this hypothesis, however, finds very limited support among historical linguists. A competing view, the “steppe hypothesis”, puts the homeland in the Pontic–Caspian steppes around 4,000 BC; this is the scenario preferred by many historical linguists, and also by a few prominent archaeologists. While accounting more convincingly for the linguistic evidence, the steppe hypothesis has been criticised for not providing a plausible model for the success of the Indo-European languages. Here the Anatolian hypothesis has an advantage as it correlates with the spread of agriculture.

Research in ancient genetics has now shown that there was indeed an indisputable migration from the steppe within a time frame that matches that of the steppe hypothesis. The new results have a great potential impact on the discussion of the Indo-European homeland problem and may eventually bridge the gap between archaeology and historical linguistics. This paper will reexamine the linguistic evidence on the time and location of the Indo-European languages, focusing on the methodological questions that have frequently given rise to misunderstandings between historical linguists and archaeologists.

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**TH5-17 Abstract 13**

**The canonical Indo-European model and its underlying assumptions**

**Author:** Prof. Demoule, Jean-Paul, University of Paris 1, Paris, France (Presenting author)

**Keywords:** genetics, historiography, Indo-European

**Presentation Preference:** Oral

Throughout the 19th century, resemblances and correspondences between Indo-European languages formed the foundation of modern linguistics. At the same time, these resemblances and correspondences were explained, from the start, by the postulated existence of an original people (Urvolk) who spoke an original language (Proto-Indo-European). 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 14  
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) - Mitu, Florica, Alexandru Ioan Cuza University of Iasi, Iasi, Romania  
Co-author(s) - Gorgan, Drago Lucian, Alexandru Ioan Cuza University of Iasi, Iasi, Romania  
Keywords: aDNA, Eastern Romania, Late Bronze Age  
Presentation Preference - Poster

The aim of this study is to analyze the ancient DNA and to identify the haplogroup, presenting also the first results obtained on samples extracted from a Late Bronze Age funerary context discovered in Eastern Romania and to identify an efficient and reliable protocol for aDNA extraction. To test whether the protocol is efficient and capable of yielding good quality DNA, extraction was first performed by using the phenol:chloroform protocol and DNA IQ protocols. The funerary context from Tarnia, Bacau county, was discovered in 1972 and consists in a pit in which was discovered a human skeleton in a left supine position. The left hand was flexed and sustain the skull while the right hand was flexed and slightly lodged on the pelvis and the legs were strongly bent on the left side. The osteological remains were in a poor state of preservation. The burial contains two vessels as grave goods which were attributed based on their typological characteristics to the Noua culture (Late Bronze Age).

The sequences were subjected to Nucleotide BLAST (Basic Local Alignment Search Tool, Altschul et al., 1990) to identify the similarities with the previous sequences from data base and haplogroup assignation. The T72 sample shown an identity of 97% with HV1 sequences from a previous study conducted by Lippold et al., 2014. According to Eupedia database, Haplogroup T is composed of two main branches T1 and T2 and the both of them have very different distributions, which are diametrically opposed in most regions. Furthermore, the T72 sequence was aligned with haplogroup T sequences from NCBI and used to construct a ML tree, in order to identify the haplogroup assignation.

TH5-17 Abstract 15  
Circadian rhythms, moods, and Neanderthals: testing a biological explanation for behaviour

Author - Pazan, Kyra, Ann Arbor, United States of America (Presenting author)  
Keywords: energetics, genetics, Neanderthals  
Presentation Preference - Poster

Many archaeological studies of Neanderthal mobility and behavioural complexity have begun to draw on biological explanations for behavioural differences from Homo sapiens. If Neanderthals demanded higher energetic requirements than H. sapiens, then it follows that behaviours enabling Neanderthals to maximize energy intake would be selected for. Circadian rhythms and moods are closely linked to energy intake. This study investigates the phylogeographic distribution of alleles linked to regulation of circadian rhythms and moods in twenty-one modern European, Asian, and African populations in order to test the hypothesis that these alleles originated in Neanderthal populations in Upper Pleistocene Europe. It is hypothesized that presence of two alleles, rs10994336 and rs1006737, may have conferred an adaptive advantage on populations living in northern temperate zones during the Pleistocene. The presence of these alleles is linked to both manic and depressive mood states, enabling increased productivity in the summer and conservation of energy during the winter. If these alleles arose in Neanderthal populations, they would be present in higher frequencies in African populations. It was discovered that latter susceptibility allele is present in higher frequencies in African populations and the former is present in higher frequencies in Eurasian populations. This suggests that these alleles were not selected for solely in Neanderthal populations. The results of this study are significant because they caution against solely biological explanations for differences in the archaeological record.
Archaeology is a discipline without chronological, methodological, political or territorial borders. Yet current territorial divisions and traditional and local ideologies often bind and constrain the discipline in its study of the wider social processes of the past, thereby limiting the development of important, if broad, narratives. There are practical issues also. Lack of sufficiently detailed archaeological datasets, or the inadequate synthesis and integration of the data sets generated by multiple sources hampers interpretation. It presents additional challenges for researchers that seek to build broad regional or, indeed, global narratives. This theme invites contributions that deal with a wide range of phenomena on a regional or global scale, such as technological diffusion, cultural interaction, distribution and spread of plant and animal species, cultural identity, human and cultural mobility and social complexity. In particular, contributions that identify and examine wider social processes through the prism of local datasets are welcomed.

TH6-01  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 metalurgy, 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 artefacts if you do not know how.
TH6-01 Abstract 02
What’s moving? Amber in Mycenaeans World

Author: Prof. Czebreszuk, 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” and manufacturing of amber in the Mycenaean world. 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 has been found. In this paper I will address the reasons for this surprising state of research.

TH6-01 Abstract 03
The EBA Nodal Point on the Amber Road. The Settlement Agglomeration in Mikulovice, Eastern Bohemia

Author: Dr. Ernè, Michal, Institute of Archaeology, Prague, Prague, Czech Republic (Presenting author)

Co-author(s): Langov, Michaela, 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 Mikulovice (eastern Bohemia) at which 30% of the graves contain imported “exotics” such as Baltic amber in hundreds of pieces, sea shells, gold, bronze, is positioned directly on the important long-distance route, the so-called “Amber Road”. Extraordinary in the context of the EBA period is a single female grave, which contained more than 420 amber beads, seashells and gold and bronze jewelry. Without doubt, this site offers an opportunity for a comprehensive study of the significant settlement agglomeration along a prominent long-distance route and gives us a 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. Søllev, 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 some 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. Anderssen Strand, Eva, BAKO institute, København, Denmark (Presenting author)

Co-author(s): Manneving, Ulla, Nationalmuseum of Denmark, Copenhagen, Denmark

Co-author(s): Czerny, Joanne, McDonald Institute for Archaeological Research, University of Cambridge, United Kingdom

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 Scandinavia Bronze Age textiles is not local, coming from outside present day Denmark (e.g. Fri et al. 2015). It is likely that already in this period wool was being exchanged in Northern Europe and trade in textiles and wool is well known in the Eastern Mediterranean in much earlier periods (e.g. Michel and Noch 2017). However, the demand for a new raw material only arises to meet a need and desire in society. Use of a new textile raw material would, furthermore, require new artisanal knowledge. In this paper we will, from a conceptual perspective, discuss the implications of this with regard to textile fibres and cloth cultures in European societies.

TH6-01 Abstract 06
What’s new? The first bronze smiths in southern Scandinavia

Author: Prof. Olausson, Deborah, Department of Archaeology and Ancient History, Lund, Sweden (Presenting author)

Keywords: artisanal tradition, bronze casting, Late Neolithic

Presentation Preference: Oral

The study of technological innovation is often abstract, tending to concentrate on large-scale changes in material culture. However, non-industrial material culture consists of objects which were crafted by individual artisans who worked within an artisanal tradition. According to Helé Vandkilde, bronze casting technology was introduced to Denmark during the early Late Neolithic. Whereas flintknapping had been an integral part of the technological knowledge here since humans first migrated to the Scandinavian peninsula, bronze casting know-how has no apparent domestic predecessors; it is a novel technology for which local artisanal traditions were lacking. In this paper I propose to use the artisans’ perspective to explore how the metal-casting tradition took hold and spread in southern Scandinavia.

TH6-01 Abstract 07
Understanding Bronze Age Life- from an Artisanal Perspective

Author: PhD student Botwid, Katarina, Lund University, Lund, Sweden (Presenting author)

Keywords: artisanal perspective, tacit knowledge, expertise, ceramics, art material, artisanship, skill, moving craft knowledge

Presentation Preference: Oral

There are traces of communication in ancient artefacts and craft materials. Often archaeologists are interpreting this as results from trading or import. The question for this paper is to explore and understand how the ancient artisans reacted and used new ways of working and new ways of thinking in connection to “moving artisans and craft knowledge”. In the Prysgården area in the South East of Sweden bear traces of distant artisanal communications and could be described as a node for new expressions and techniques in the Late Bronze Age. The question of craftspeople and their role in prehistory has been discussed in many different ways and from different theoretical perspectives. In my thesis The Artisanal perspective—an archaeology in practice (2016) I have described how artisans can be the reason for moving material and or techniques around large geographical distances. Learning and sharing knowledge develops new links between people. These circumstances might be the departure for ancient artisans to leave the known area and try new paths.

I use and widen artisanal knowledge to interpret artefacts based on my own tacit knowledge as an educated professional ceramicist and archaeologist. In other crafts I collaborate with skilled artisans as expertise to extract valuable knowledge that gives a good base for archaeological synthesis concerning crafting issues.
The interplay between technology and geography in the development of trade networks

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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 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

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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, handtools for vessels, sickles, ornaments and so on). E. Chernykh distinguished in this area a West-Asian metallurgical province connected with the Eurasian Steppe. It is connected with a contact between the two groups of population in the southern Urals: Srubnaya and Andronovskaya (Alakulskaya) cultures. In Bashkir Urals, in the area between the rivers Dema and Urshak, Kazburunovsky archaeological micro-district belonging to the late Bronze Age is distinguished. There is a group of 5 settlements and 4 barrow burials here. In the process of investigation the complex of sites in this area a West-Asian metallurgical province connected with the Eurasian Steppe. It is connected with a contact between the two groups of population in the southern Urals: Srubnaya and Andronovskaya (Alakulskaya) cultures. In Bashkir Urals, in the area between the rivers Dema and Urshak, Kazburunovsky archaeological micro-district belonging to the late Bronze Age is distinguished. There is a group of 5 settlements and 4 barrow burials here. In the process of investigation the complex of sites in this area a West-Asian metallurgical province connected with the Eurasian Steppe. It is connected with a contact between the two groups of population in the southern Urals: Srubnaya and Andronovskaya (Alakulskaya) cultures. In Bashkir Urals, in the area between the rivers Dema and Urshak, Kazburunovsky archaeological micro-district belonging to the late Bronze Age is distinguished. There is a group of 5 settlements and 4 barrow burials here. In the process of investigation the complex of sites in this area a West-Asian metallurgical province connected with the Eurasian Steppe. It is connected with a contact between the two groups of population in the southern Urals: Srubnaya and Andronovskaya (Alakulskaya) cultures. In Bashkir Urals, in the area between the rivers Dema and Urshak, Kazburunovsky archaeological micro-district belonging to the late Bronze Age is distinguished. There is a group of 5 settlements and 4 barrow burials here. In the process of investigation the complex of sites in this area a West-Asian metallurgical province connected with the Eurasian Steppe. It is connected with a contact between the two groups of population in the southern Urals: Srubnaya and Andronovskaya (Alakulskaya) cultures. In Bashkir Urals, in the area between the rivers Dema and Urshak, Kazburunovsky archaeological micro-district belonging to the late Bronze Age is distinguished. There is a group of 5 settlements and 4 barrow burials here. In the process of investigation the complex of sites in this area a West-Asian metallurgical province connected with the Eurasian Steppe. It is connected with a contact between the two groups of population in the southern Urals: Srubnaya and Andronovskaya (Alakulskaya) cultures. In Bashkir Urals, in the area between the rivers Dema and Urshak, Kazburunovsky archaeological micro-district belonging to the late Bronze Age is distinguished. There is a group of 5 settlements and 4 barrow burials here. In the process of investigation the complex of sites in this area a West-Asian metallurgical province connected with the Eurasian Steppe. It is connected with a contact between the two groups of population in the southern Urals: Srubnaya and Andronovskaya (Alakulskaya) cultures. In Bashkir Urals, in the area between the rivers Dema and Urshak, Kazburunovsky archaeological micro-district belonging to the late Bronze Age is distinguished. There is a group of 5 settlements and 4 barrow burials here. In the process of investigation the complex of sites in this area a West-Asian metallurgical province connected with the Eurasian Steppe. It is connected with a contact between the two groups of population in the southern Urals: Srubnaya and Andronovskaya (Alakulskaya) cultures. In Bashkir Urals, in the area between the rivers Dema and Urshak, Kazburunovsky archaeological micro-district belonging to the late Bronze Age is distinguished. There is a group of 5 settlements and 4 barrow burials here. In the process of investigation the complex of sites in this area a West-Asian metallurgical province connected with the Eurasian Steppe. It is connected with a contact between the two groups of population in the southern Urals: Srubnaya and Andronovskaya (Alakulskaya) cultures. In Bashkir Urals, in the area between
TH6-03 Abstract 01

Early farming and the transmission of ceramic traditions in the western Balkans

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Keywords: Balkans, ceramic, transmission

The ERC EUFARM 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 corresponded to the Starčevo-Körös-Criș complex across the Balkans from 6500 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 EUFARM 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.

TH6-03 Abstract 02

The Neolithic Volga-Kama pottery as a source of reconstruction of cultural interactions

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Keywords: pottery, technological analysis, Volga

This research focuses on the Volga-Kama area, where the process of domestication of crops, the spread of farming and the occupation of large areas with agriculturalists occurred. The focus is on the Volga-Kama pottery and 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, Vasilev, 2013). Flat-bottomed pricked pottery is present in the Middle Povolzhye in the Early Neolithic period (5500 cal BC). It is all made of silty clay when still present in the Prikamye region.

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?

TH6-03 Abstract 03

At the border line? The Neolithic and Copper Age pottery of Alto Ribatejo, Portugal

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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 in 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 behaviour can be generated through endogenous processes (or phylogeny) reresulting in innovation(s), or through exogenous processes (or ethogenesis), 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.
Keywords: Neolithic, pottery, variability
Presentation Preference - Oral

The Nabão and Zêre are two nearby rivers in the Alto Ribatejo region, in the hinterland of Central Portugal. The Nabão is a tributary to the Tagus River, not far from their meeting point where they enter into the Tagus River. Despite their proximity, they are crossing geologically different landscapes: while the Nabão is cutting through limestone hills, the Zêre 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 Nabão are considered as the easternmost 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 Zêre valley are associated with the archaeological amalgam of Alentejo and the Iberian interior, marked by the Bouque 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 Nabão and Anta I de Val da Laje from Zêre. 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 potterycaracterisation, 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 study in the proportion of different ceramic styles is particularly noteworthy. The perhaps most intriguing variation is when contemporary but spatially clearly separated pottery styles are present on the same settlement, that means amalgamation cannot be detected at household level. Significant differences are obvious even if adjacent, contemporary sites are contrasted. The observations on pottery were also reinforced by robust formal modelling of absolute chronological dates in most of the cases. As a consequence, we are facing extremely colourful microregional patterns. Attention must be payed to this mosaic nature of the contact zone and to the stylistic variability within the entire settlement system.

The various pottery styles that existed partially or wholly coeval in the 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.

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TH6-A02 Abstract 04
Mixed assemblages and social relations in the Neolithic transitional period of the Central Balkans
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Keywords: pottery, Starčevo, Vinča, technological tradition, hybrids
Presentation Preference - Oral

The transitional period from the Early to the Late Neolithic of the Central Balkans is characterized by the presence of mixed ceramic assemblages on several archaeological sites. Mixed assemblages (not only pottery, but also so-called cult objects - altars and figurines), consist of the specimens typical both to the Starčevo and Vinča technological traditions. However, another very important features occur in these assemblages: hybrids and the presence of carelessly, finished mixed finishes.

The paper focuses on social aspects of these phenomena: do they suggest mixing of people with different group identities? Do they signifies the existence of relations between the teachers and apprentices in the craft? Does the variability of ornaments techniques and design motifs imply lack of social pressure in learning framework? And finally, do the roughly finished products suggest the presence of inexperienced artisans or newcomers unaware of local traditions?

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TH6-A05 Abstract 05
Transforming traditions behind the gloom: 6th millennium BC pottery styles of Transdanubia
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Keywords: 6th millennium BC, pottery styles, Transdanubia
Presentation Preference - Oral

Southern Transdanubia in western Hungary is a region that serves as a transitory area between the Balkans and Central Europe during the 6th millennium BC. Current scientific analyses of the research team focus on four broadly contemporaneous sites in three different microregions. Balatonászseg–Kis–erdei–lászló lies on the southern shore of Lake Balaton, while Tolná–Mózs is located at a distance of 80 km to the southeast closed to the right bank of the Danube. Szederkény–Kukorica–dág and Versend–Gülenca has been discovered 50 km further to the south, located only a few km from each other. The evidence of original buildings are similar, they represent the timber-framed architecture of the Linearbandkeramik culture. The ceramic materials, however, show considerable differences.

The pottery from Balatonászseg can be described as an assemblage that reflects the formerly recorded Transdanubian LBK characteristics. There are many more detectable Starčevo and Vinča traits along LBK elements present at Tolná–Mózs and Versend–Gülenca. In contrast, the vast majority of the pottery material from Szederkény can be hardly distinguished from the early Vinča ceramic style, but flãtlite-style pottery – probably the earliest manifestation of the Sopot culture – is also present in a separate part of the settlement.

[...]
TH6-03 Abstract 08
Do ut des: pottery "imports" and imitations in Romanian Neolithic

Author: Dr. Naumov, Goci, Museum of Macedonia, Skopje, Macedonia (Presenting author)
Keywords: Balkans, house models, pottery

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 ambiguous than 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, burials, and human remains. Since the first definition of Neolithic, cultures some regions were regarded as separated and isolated areas and mainly considered within modern political borders. This was a significant step towards the first definition of cultural features of these regions and as such contributed in the identification of sites into cultural groups. Hence, the reconsideration of published material, artefacts from museum stores, documentation and new excavations indicated that some geographically divided and different regions were barely 'culturally' diverse. Thus, pottery regarded as the main feature of one culture appears in another which was classified as belonging to a different cultural group.

The case-study of the Neolithic pottery in Pelagonia and its production within the agricultural communities of the Skopje valley, Lake Ohrid basin, Ovča-Pole and Potoc, will be presented. Late Neolithic Vinča pottery will also be considered, as some of the temper types and design features appear at earlier tell sites in Pelagonia. In addition, the anthropomorphic house models from this area will be discussed. Originally, these were attributed by archaeologists to different cultures due to their typological variations in these regions. Therefore this paper will mainly consider pottery design and human representations in order to emphasise the common Neolithic features of the isolated regions and the modes of networks which integrated shared identities of distant societies. The issue of culture will also be discussed as it often invokes a contemporary notion of communities that inhabited particular geographical areas. Their intensive communication and common material culture go beyond the proposed geographical frames.

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.

TH6-03 Abstract 09
Hybrid Societies: the vagueness of Neolithic 'cultures' in the Balkans

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Keywords: Balkans, house models, pottery

The uneven distribution and reworking of traits attest the significance of the role played by local socio-economic conditions and cultural practices in their dissemination, even if available evidence rarely allows us to reconstruct the contexts of production and use of the Levantine Halaf- and Ubaid-related ceramics in detail. Local production, however, was deposited locally in most cases, and, since the manufacture of such pottery presupposes the use of specialised technological components, some of the Levantine autochthonous traditions, its spread surely involved technological transfers. Interregional contacts, thus, appear to have structured potting activities within the Levantine communities, contributing to the establishment of extended communities of practice.

In the 4th millennium cal. BC the eastern Baltic region experienced various striking developments that occurred more or less simultaneously and are likely to be inter-related. Thus, a wide exchange network emerged at this time, involving a coast-to-inland flow of Baltic amber, complemented by a transfer of lithic materials. At the same time, the indigenous tradition of wheeland organic-tempered ceramics, representing what is known as the ‘Nava Culture’, encountered the starkly contrasting Comb Ceramic tradition of rock-tempered, densely ornamented pottery – evidently an intrusive phenomenon that arrived from neighbouring areas to the north.

‘Hybridisation’ is a concept frequently employed to characterise the ceramic assemblages of this time, exhibiting mixed-temper fabrics along with decorative elements and designs that seemingly imitate Comb-Ceramic ornamentation but at the same time depart from its strict canons. Adding to the complexity, there is new evidence that pottery should also be added to the list of items circulating within the long-distance exchange network. Primarily utilising assemblages from present-day Latvia, this paper seeks to look behind the material and unravel what the encountered ceramic variety means in terms of pottery-making and pottery use and to what extent it transcends or integrates to local ceramic traditions.

TH6-03 Abstract 10
Modelling interaction at the peripheries: LN/EC Levant and the Halaf/Ubaid interaction spheres

Author: Gabrieli, Eva, Milano, Italy (Presenting author)
Keywords: communities of practice, interaction spheres, technological transfer

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 ethnographic record we can assume the significance of "foreign" pottery in areas with different traditions as a product of exchange, exogamy or imitation. The separation between "imports" and imitations is usually very hard to identify with the naked eye, in this case archaeometry could be a useful tool to answer the questions.

TH6-03 Abstract 11
The Comb-Nava interface in the E. Baltic: pottery form and function in the dynamic 4th mill. BC

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Keywords: eastern Baltic, hybridisation, pottery

The archaeological site of Išķi (Gradiste Išķi), situated in the south-central Hungarian plain, in the Serbian Banat region, had been occupied for over 5000 years, from Europe’s first Neolithic farmers to the Late Bronze Age period. Its scale and character have made it to be a site of great cultural importance and national heritage. The on-goingarchaeological research (BORDERLAND: ARISE project) explores three chronological key phases of its prehistory, consequently yielding large amounts of ceramic materials. One of the main focuses of the project is to investigate social boundaries between Neolithic communities characterised by ‘Tisa’ and ‘Vinča’ style pottery.

The expansion of Tisa-material culture from the core area of its development in the middle portion of River Tisa began in the period when the Vinča phenomenon was already fully developed in the northern Banat. On several sites in the Serbian Banat the evidence of mixed assemblages and the presence of hybrid vessels, exhibiting typical style of both communities, was recorded.

TH6-03 Abstract 12
A Technological Study of Pottery from the Archaeological Site Gradiste-Išķi in Serbian Banat

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Keywords: Neolithic, pottery technology, Tisa, Vinča communities

The archaeological site of Išķi (Gradiste Išķi), situated in the south-central Hungarian plain, in the Serbian Banat region, had been occupied for over 5000 years, from Europe’s first Neolithic farmers to the Late Bronze Age period. Its scale and character have made it to be a site of great cultural importance and national heritage. The on-goingarchaeological research (BORDERLAND: ARISE project) explores three chronological key phases of its prehistory, consequently yielding large amounts of ceramic materials. One of the main focuses of the project is to investigate social boundaries between Neolithic communities characterised by ‘Tisa’ and ‘Vinča’ style pottery.

The expansion of Tisa-material culture from the core area of its development in the middle portion of River Tisa began in the period when the Vinča phenomenon was already fully developed in the northern Banat. On several sites in the Serbian Banat the evidence of mixed assemblages and the presence of hybrid vessels, exhibiting typical style of both communities, was recorded.
Very interestingly, the results of the previous archaeological research conducted on Iłjd revealed that materials characterised by both “Iłjd” and “Vinča” styles could be found in the same contexts, for example in the house excavated in 1954 in Gradilice Iłjd. Therefore, Iłjd 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 as well as from pottery technology and archaeometry. Through different types of analyses (macroscopic-technological examination, thin section petrography, portable X-ray fluorescence and FTR 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 social networks or could reflect different aspects of productions. The aim is to interpret the existing mixed inventory and understand if these different styles are reflecting the co-habitation of different social groups on Iłjd, or if they are the expression of exchange of ideas and communication among communities characterised by different material culture.

TH6-03 Abstract 14

Technology of Neolithic-Enolithic ceramics in the territory of Neva-Ladoga basin (NW Russia)

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Keywords: Neolithic, Enolithic, ceramics, Russia, Ladoga

Presentation Preference - Poster

There are a lot of settlements in the North-West Russia with Corded Ware Cultures (CWC) materials. They appear in the pile-dwelling settlements also. On the ceramic materials we could trace mix of different archaeological cultures: local and indigenous. First appearance of the CWC was observed in the middle of the III mil. BC on the pile-dwelling settlement Ust-Ily (Palov region). I want to describe the settlement – layer a settlement Serteya II. This is settlement on the mineral bank near the river. Ceramics introduce a different traditions: local, Usvatskaja, and indigenous, CWC. We could trace them in technology of making pottery (the way of using vessels, admixture in the molding dough), in pottery forms and in ornamentation. For example, admixture of gruss was never used in Usvatskaja culture, but on the vessels with cord ornamentation this is a main additive. On the other hand, technique of "blade and anvil" was wide spread in Usvatskaja culture, but in the CWC materials on the settlement this technique was found only a few times. Cord ornamentation was never used in the North-West Russia until the end of Neolithic. This tradition came with CWC inhabitants in the end of III mil. BC. More interesting, that in couple vessels we see the mix of different traditions: ceramic was formed by using slabs, ornamentation represents a horizontal lines of 2-twisted cord and as admixture in the molding dough was used gruss. Possible, that newcomers (CWC inhabitants) were mixed with local inhabitants and we trace now some new archaeological tradition, new archaeological culture.

TH6-03 Abstract 15

Making pottery on the Neolithic settlements in the north of the Sozh river basin (Eastern Belarus)

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Keywords: technology, Neolithic pottery, Upper Dnieper culture

Presentation Preference - Poster

This study is based on the ceramic material from the main Neolithic sites of the in the north of the Belarusan Pasczoha (Eastern Belarus) - Hornaj, Rudnia 1 and Stary Dziedzin 4. In the course of excavations multi-period materials were obtained, but Neolithic finds dominate.

The Hornaj 3 settlement is situated on the first terrace of the left bank of the Sozh River. The site was discovered by V. Tkachkov in 1974. In 1975 A. Kalechyts excavated here an area of 140 m². The presented poster discusses the results of the study of 1612 Neolithic potsherds from more than 100 vessels. The Rudnia 1 settlement is situated on the first terrace of the left bank of the Sozh River (Eastern Balarus). The site was discovered by V. Kopylen 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 Dziedzin 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 2008, 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 material is divided 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 Belarusan Pasczoha region during the Neolithic period.

Group 1 is represented by slightly shaped vessels with inverted upper part and slightly bent rim. These 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, narrowed upper part and everted rim. These vessels have complex zonal ornamentation; elements of decoration are varied. This group represents the last phase of the Upper Dnieper culture. In addition the pottery with features of the Pš-Cimb Ware culture and the Middle Dnieper culture is also found at the sites.

The present focuses on the investigation of decorative aspects of pottery. The presentation indicates 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.
TH6-03 Abstract 17
Sub-Neolithic pottery from the territory of Belarusian Pabužža

Author - Takzho, Aleh, Institute of History NAS of Belarus, Minsk, Belarus (Presenting author)
Keywords: technology, Neolithic pottery, the Prypiat-Neman culture
Presentation Preference - Poster

Investigations of the last decade significantly increased the resource base for the study of the Neolithic of Belarusian Pabužža (Belarusian part of the Bug River basin). During recent excavations Sub-Neolithic pottery was found at 19 sites in the region. For the first time pottery of the Dubičiai type was discovered in the region. This fact gives the possibility of defining more exactly the area of the Prypiat-Neman culture. Some finds attributed to the Sokołów 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 Lysaja 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 Lysaja 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.

Keywords: Neolithic pottery, Dobry Bor type, Neman culture, Lysaja Hara type

TH6-03 Abstract 18
Crkvišće-Bukovlje: Identifying Copper Age pottery from disturbed stratigraphy

Author - MA Čataj, Lea, Croatian Conservation Institute, Zagreb, Croatia (Presenting author)
Co-author(s) - Posilić, Hrvoje, Croatian Geological Survey, Zagreb, Croatia
Keywords: Copper Age, Croatia, Lasinja culture
Presentation Preference - Poster

The site Crkvišće-Bukovlje in central Croatia has been systematically excavated since 2012. Primarily it was recognised as a Late Antique site dating to the 5th and 6th centuries AD. During the archaeological excavations prehistoric layers from the Iron and Copper Age were also found. Due to the erosion and later occupancy of the site, the oldest Copper Age layers were severely disturbed. Hence, the affiliation of pottery finds is based on their ornamentation, shape and technology. Although most of the finds could be ascribed to the Lasinja culture, there are some pieces that show traits of the Retz-Gajary culture. The appearance of pottery belonging to these two cultures is known from several sites in Croatia, Slovenia and Austria. Sometimes they are found together in the same layers and sometimes Lasinja culture pottery is found in layers beneath the ones with pottery ascribed to the Retz-Gajary culture. New radiocarbon dated assemblages have brought some new insights regarding some of the ornamentation that was previously connected to the late phase of Lasinja culture, supposedly influenced by Retz-Gajary culture.

The question raised is whether we can suppose the presence of Retz-Gajary culture or its influence at the site Crkvišće- Bukovlje based on several ornaments that are usually ascribed to Retz-Gajary culture or are we dealing with Lasinja culture pottery and these ornaments appear regardless of Retz-Gajary culture? Clay pastes of Lasinja culture pottery and pottery with Retz-Gajary traits will also be analysed in order to see if there are any differences between them.

Keywords: Copper Age, technology, Lasinja culture

TH6-03 Abstract 19
Neolithic pottery from Ljubic cave (Istria, Croatia)

Author - Percan, Tihomir, Croatian Conservation Institute, Svetvincenat, Croatia (Presenting author)
Keywords: analysis, decoration, Neolithic pottery
Presentation Preference - Poster

Due to its exceptional geographical position on the crossroads of ancient paths, the Istrian peninsula was an important link between east, west, north and south ever since prehistoric times. The Ljubčeva cave is situated in southern Istria (Croatia) near the village of Marčana and only 15 kilometers east of Pula, the peninsula's largest city. Since 2008 to 2011 archaeological excavations were carried out in cooperation between the Musee d'Anthropologie prehistorique de Monaco (Principality of Monaco) and the Croatian Conservation Institute (Croatia). Recorded findings, particularly ones from the Neolithic period, implied that the cave was intensively in use during this period. A large number of pottery fragments were nicely decorated with different motives and ornaments characteristic of the cultural phenomena from Early (Impressed culture), Middle (Danilo culture) and Late (Hvar culture) Neolithic therefore making it the period of the most intense usage of the cave. With this poster we will put the focus on the Middle Neolithic (Danilo culture) pottery and its ornaments (S shaped decoration, different spiral motifs, incrustation). Furthermore, laboratory analyses of pottery and ornaments show the significance of this multidisciplinary approach to archaeology and pottery. With these kinds of experiments, interesting results were collected. This work would not be possible without good cooperation between archaeologists and the laboratory where the analyses were held (Metris, Pula, Croatia). We also emphasise the significance of the modern technological and methods to improve and advance knowledge connected to technology and production of pottery during the archaeological periods.

Keywords: Neolithic pottery, the Middle Neolithic, Danilo culture, methodology

TH6-03 Abstract 20
Vessels with diverse lives: examples of decorated pottery with a change of function

Author - Sebek, Kata, Institute of Archaeological Sciences of the Eötvös Loránd University, Budapest, Hungary (Presenting author)
Keywords: ceramics, cultural interaction, Late Neolithic
Presentation Preference - Poster

Sometimes typology is a last resort for the archaeologist: where the concept of (material) culture seems to fail, one frequently hopes that artifacts that look the same invariably act and react according to similar regularities, and thus may be used as a single unit, a reliable building block for interpretations. Through a couple of examples from sites with culturally mixed situations in the Late Neolithic of the Carpathian Basin I would like to show how misleading this might be, how different similar-looking vessels from diverse potteries and for users in different situations could have been. The examples from the settlements of Poljči-Gajszhalom and Pusztataskony-Ledence show how the background concept and/or social function of certain vessel types might be understood, and how a change of these cognitive elements in the case of occasional examples, when affecting appearance or the circumstances of deposition/disposal, might be detected.

Keywords: Neolithic pottery, decorated vessels, Late Neolithic
Migrowth 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 serious 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 rank.

The session takes its starting point in results from the ongoing Danish-Swedish research council project Urban Diaspora, that focus on Scottish, German and Dutch diaspora communities in Scandinavian cities. Urban Diaspora is based on the materiality of consumption reflected primarily in ceramics, 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: - Ó Rónan, 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 tradition of internal migrant communities. In fact, the main strands of the nationalist mythos formulated during the flux of National Romanticism were constructed in the context of - and often in contradiction to - the outcomes of these episodes of migratory activity. While recent events will occasionally be made to sixteen/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 settlement evidence, documentary sources, the toponymic 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 ossification, 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 permutative 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: - Ó Rónan, Christina, Arkeologiska SHMM, Töölö, Sweden (Presenting author)

Keywords: Diaspora, Migration, Urbanity

Presentation Preference: Oral

As widely known, the city of Bergen on the westcoast 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 to a quarter of the towns overall population. There is a large collection of archaeological material that can be connected with these Hanseatic population, as the site of the Hanseatickontor 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 life 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 wealth or 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: - Ø Rød, Linaa, Jette, Mosegaard Museum, Odder, Denmark (Presenting author)

Keywords: Diaspora, Migration, Urbanity

Presentation Preference: Oral

The Early Modern period (c. 1450-1660) 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, politic and religious refugees had their own agendas and aims, each of them influencing the interaction within the communities and between the communities and the local inhabitants. And they were met with different responses ranging from official welcomes to conflict and resistance. The urban Diaspora project is an ongoing cross-disciplinary and cross-national research project on immigration into medieval and early modern Scandinavia. In the course of the project our participants has uncovered traces of migration based in archaeology, history and science. All the projects in its final phase The aim of this paper is to present the research framework and some results of the project, concentrating on the agendas of the many immigrant groups, that settled here, and the official and unofficial responses of hostland to the pressure of the immigrants. The Urban Diaspora is funded by the Danish Council for Independent research/Humanities.

TH6-04 Abstract 04

Migration in Early Modern Scandinavian towns. The Nya Länsö case

Author: - Ø Rød, Christina, Arkeologiska SHMM, Töölö, Sweden (Presenting author)

Keywords: Early Modern, Migration, Scandinavian

Presentation Preference: Oral

The town Nya Länsö 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.
Archaeology without borders

TH6-04 Abstract 05

The City of New Lōdōse in the Historical record

Author - Phil Larson, Daniel, University of Gothenburg, Göteborg, Sweden (Presenting author)

Keywords: Early Modern, Immigration, New Lōdōse

Presentation Preference - Oral

The city of New Lōdōse was established in 1473 as a gateway for trade between Sweden and Western Europe. About 150 years later, in the early 1620s, the city lost its privileges, and the citizens were forced to move closer to the sea, so what is now modern-day Gothenburg. In the research project Urban Diaspora - Diaspora communities and materiality in early modern urban centers, New Lōdōse 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 Lōdōse, no written document has been found that makes it possible to identify owners of excavated plots or to study individual families thoroughly (e.g. marriage strategies, networks, and materiality). On the other hand, the discovery of a number of tax roll lists from 1599-1610 has made it possible to analyze the town in other ways. The compilation of individual data from these lists not only shows a city with a number of inhabitants of Dutch and German origin and significant socioeconomic differences, but also provides a more precise idea about the city districts, their size, population, and economic capacity, and the occupational status of their inhabitants.

TH6-04 Abstract 06

Archaeological excavations of Dutch settlements from the 16th-17th century in Elsinore, Denmark

Author - MA Appel, Liv, Museum Nordjylland, Høstholm, Denmark (Presenting author)

Keywords: Diaspora communities, Historical archaeology, Migration

Presentation Preference - Oral

The magnificent borough of Elsinore, situated on the narrow Sound between Denmark and Sweden, is of special interest concerning the archaeology of the wealthy Dutch immigrants in the 16th-17th century. Since 1429 every ship passing through the Sound had to moor at Elsinore roads in order to pay the Sound toll taxes, and the Danish and foreign merchants made good money trading with the foreign ships. The increased Dutch immigrations following the wars in the Netherlands in 1587, coincided with a period of trade expansion and progress for the town as the king Frederik II rebuilt the castle of Kronborg. Many well-established Dutch merchants settled at the sandy area situated between the town of Elsinore and Kronborg Castle. This new town quarter, earlier known as Sanden, i.e. the Sands, got an abrupt end due to the Swedish attack in 1658.

Recent archaeological investigations in connection with extensive construction work in this area, which were until recently hidden under the former shipyard area, have revealed remnants of buildings, culture layers, latrines and wells connected to the rich 16th-17th century settlements. The fauna and the botanical remains are, so far as the archaeological 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 Sønder, University of Copenhagen, Copenhagen OE, Denmark (Presenting author)

Keywords: Animals, Diaspora, Entangled Migration, Zooarchaeology

Presentation Preference - Oral

Analyses of archaeological animal bone assemblages sometimes provide evidence of successions and/or coexistence of different cultures. Thus, the species present and their relative frequencies at the site Sågården under Sandet, i.e. the Sands, got an abrupt end due to the Swedish attack in 1658.

Recent archaeological investigations in connection with extensive construction work in this area, which were until recently hidden under the former shipyard area, have revealed remnants of buildings, culture layers, latrines and wells connected to the rich 16th-17th century settlements. The fauna and the botanical remains are, so far as the archaeological finds, that the Dutch merchants in Elsinore dined on the finest quality food and on imported tableware in faience and ceramics.

TH6-04 Abstract 08

Tracing ethnicity in food consumption - the case of Nya Lōdōse

Author - Malin, Emma, Bohusläns Museum, Gothenburg, Sweden (Presenting author)

Keywords: consumption, ethnicity, fish bones

Presentation Preference - Oral

The present paper deals with the question to what extent ethnic identity can be traced in the archaeozoological remains of food consumption. Within the research project Urban Diaspora - Diaspora communities and materiality in early modern urban centers it was asked whether it was possible to distinguish differences in consumption between plots in the town of Nya Lōdōse (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 1633 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(s). 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, only to mention a few possibilities?

TH6-04 Abstract 09

Foreign beer and gruel traditions in late medieval town Nya Lōdōse, Sweden

Author - PhD Heimdal, Jens, National Historical Museums, Høstholm, Denmark (Presenting author)

Keywords: archaeobotany, beer, immigrant

Presentation Preference - Oral

Food and beer traditions foreign to the local Swedish west coast have been traced by specific plant material in the late medieval town Nya Lōdōse, and may linked the local burgers of German or Dutch origin. Traces of hop beer brewing from the late 13th century is an anomaly in an area strongly dominated by sweet gale beers as late as mid15th century. Likewise, the use of millet stands out as foreign in relation to local tradition. It represent a imported foodstuff not attractive on the local market. For New Lōdōse no written document has been found that makes it possible to identify owners of excavated plots or to study individual families thoroughly (e.g. marriage strategies, networks, and materiality). On the other hand, the discovery of a number of tax roll lists from 1599-1610 has made it possible to analyze the town in other ways. The compilation of individual data from these lists not only shows a city with a number of inhabitants of Dutch and German origin and significant socioeconomic differences, but also provides a more precise idea about the city districts, their size, population, and economic capacity, and the occupational status of their inhabitants.

TH6-04 Abstract 10

Plant finds and migration in early modern (15th to 17th century) Aalborg

Author - MA Jensen, Peter Mose, Moesgaard Museum, Hojbjerg, Denmark (Presenting author)

Keywords: Court Culture, Ethnicity, Post-medieval Archaeology, Renaissance, Stove Tiles, Immigration

Presentation Preference - Oral

The Danish town of Aalborg from northern Jutland is known historically to have contained a number of immigrants in early modern times, mainly coming from the Netherlands. The perspective of the presentation will be to discuss the possibilities of observing signs of migration in analyzed plant material from the town. The basis for the discussion is a number of recent archaeobotanical analyses dating from around 1400 A.D. until the late 17th century from Aalborg. The analyzed samples represent diverse archaeological contexts, ranging from 16th century garden soils or dung layers coming from a monastery and a later hospital area to different latrine samples. One latrine sample of particular note comes from a late 17th century latrine connected to the bishop's house in the central part of the city.

TH6-04 Abstract 11

Freezing Danes and Strangers - The Stove Tove Heating in "Danish" and "Strangers" Households

Author - Assoc. Prof. Dr Atzbach, Ranier, School for Culture and Society, Høstholm, Denmark (Presenting author)

Keywords: Court Culture, Ethnicity, Post-medieval Archaeology, Renaissance, Stove Tiles, Immigration

Presentation Preference - Oral

The present paper deals with the question to what extent ethnic identity can be traced in the archaeozoological remains of food consumption. Within the research project Urban Diaspora - Diaspora communities and materiality in early modern urban centers it was asked whether it was possible to distinguish differences in consumption between plots in the town of Nya Lōdōse (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 1633 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(s). 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, 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 Elsinore during the renaissance. The focus will be put on stave 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 Živjek, Jakob, Danish Centre for Urban History, Aarhus, Denmark (Presenting author)

Keywords: Early modern, Materiality, Migration

Presentation Preference - Oral

House and home form the most important cultural element of human daily life. How we live and how we furnish our homes define who we are and how we would like the outer world to see us. Things were no different in the Danish market town Aalborg in the seventeenth century. By use of the probate records this paper aims to investigate the differences and similarities of the material culture in the houses and homes of both immigrant and Danish merchant families in Aalborg. It will be discussed if the immigrant families came with their own material culture and in doing so contributed to the making of a cultural identity.

TH6-04 Abstract 13

A newcomer’s burial: anthropomorphic graves in medieval Transylvania (12-13th c.)

Author - Dr. István, Daniela Veronica, Braşov, Romania (Presenting author)

Keywords: anthropomorphic graves, medieval colonization, Transylvania

Presentation Preference - Poster

From the mid-12th century, guests from Central Europe, generally known as Teutonic, Flandrian, 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 rivalled 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 meagre 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 geographic boundaries, problems are only exacerbated when also faced with a boundary dividing one chronological period from another.

Drawing primarily upon examples from Iron Age Britain, from both sides of the Anglo-Scottish border, from the North to the South, and across the period of Roman contact and conquest, this paper will explore how the development of precise independent chronologies enables archaeologists to negotiate the potential perils in these liminal locations, allowing us to better model and understand social change across space and through time.

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**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 for 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 context 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, contextualized and transformed to reflect local forms and traditions in the mortuary and settlement 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 Dolenjška group.

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**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 Sapinzena 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-Luco/Platten culture are found widely, showing intense supra-regional communication. At the same time, Leonardi proposed (2011) that the Pre-Alps hillfort settlements were characterized by power concentration deriving from the control of boundaries. Since this phase, albeit with diverging settlement patterns, the two areas represent the Western and North-Western borders of the 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 Ethnican finds - a bronze double axe and a 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-Sanzano culture). Leonardi (2011) 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-Carnonenses intrusion that lead 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 V-VI century BC and interpreted by Bondini (2005) as mercenaries controlling the compulsory trade axis in the Pre-Alps belt. During the IV century BC the central place of Gazzo Veronese shows a contraction and a shift in the location of the inhabited area although problematic is still the definition of its existence 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.

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**TH6-05 Abstract 05**

**Iron Age Burial Customs and Cultural Dynamics Between Eastern Alps and Southern Pannonia**

- Author: Prof. Petrašić, Hrvje, University of Zagreb, Faculty of Humanities and Social Sciences, Zagreb, Croatia (Presenting author)
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- 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 Umfurlace Culture – the Hallstatt Culture – the La Tène Culture. In addition, the identity of individual communities has been based mostly on the typology of the material culture, and the identity change has been perceived as a direct reflection of the physical change in the population.

Although it 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 is that traditional hierarchical approach to different forms of social identity is justifiable and is there actually any model which could be universally applied.

The results of research of the large necropolis of Kapeška 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 Umfurlace Culture, containing distinctive incineration burials in pits; the second is a Hallstatt graveyard with monumental tumuli enclosing multiple radially-set skeletal graves; and the third is a La Tène-period graveyard, which once again consists of flat incineration graves in pits. However, at this site, all three burial phases are present in the same location, and they reflect certain spatial 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 area 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.

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**TH6-05 Abstract 06**

**ArkeoGIS: a multilingual free online tool to transcend borders**

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- 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, with access on a Europe-wide scale. Its efficiency for trans-border archaeological and paleo-environmental studies has convinced us to move from version 3 to 4: the latter will offer the possibility to add new languages and chronological systems from summer 2016 onwards. The presentation will also focus on several new redundant, trans-border problems and explain the solutions that have been chosen by the team of archæologists, geographers involved in the project, and the ways in which the tool can be useful for any future cross-border project.

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TH6-05 Abstract 07
Crossing the borders of the La Tène "world"

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Co-author(s) - Dr. Helle Moesgaard, National Museum of Denmark, Roskilde, Denmark
Keywords: La Tène, borders, Baltic
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 in the 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?

Recent findings show that the most (peaceful) coexistence of the main cultural groups involved in the transalpine and the transDanube 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 real break seems to come with the later Germanic occupation, when many of the regions around the central European area (Saxony, 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

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Co-author(s) - Dr. David de la Torre, University of Salamanca, Spain
Keywords: Iron Age, Migration, Material exchange
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 of 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 “Koine” 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 Alexia, 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 in the observation of an apparent analogy, while Iron Age patterns of mobility appear year after year more complex 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 have easily 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 vertices of a network whose complexity and range varied from one time to another and from one person to another, but always combined different geographical and cultural areas through interpersonal bonds built through many generations. In this context, the construction of alterity obeyed rules much more complex than those based solely on ethnicity, embracing kin rivalry, deviation to the consensual social norms, etc. In other word, the detestation of the other was a multiscalar 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 - Dr. Potrebicová, Hrhov, University of Zagreb, Faculty of Humanities and Social Sciences, Zagreb, Croatia (Presenting author)
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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 perceptual and political-economic structures of local communities reflected on the level of burial customs as well as settlement organisation. During the Early Iron Age, northern Bosnia was dominated by the Donja Dolina – Sanski Most cultural group. Chronologically, the necropolises 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 burials. The material discovered in graves within the necropolis displays similarities to the neighbouring Iron Age groups in the Balkan hinterland, 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 Széntörinc in Hungary, and the graves in Vinkovci, Vučedol, Đal and Belići 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 Latenization of this 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, textiles

Presentation Preference - Oral

Textiles represent a product the design and use of which are subject to cultural patterning and as such they can be used to establish the identity of an individual or a group with respect to other individuals or groups. Worn or displayed in an emblematic way, textiles can denote variations in age, sex, rank, status or group affiliation, thereby creating and reinforcing 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 borders in later prehistoric Europe by using the generally conservative and ubiquitous textile technique to delineate wider cultural and technological spheres of influence.

TH6-05 Abstract 12

Digital approaches to the presentation and analysis of Iron Age art

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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 figural repousse decoration applied to sheet bronze objects, such as the eponymous situlae, as well as bell-buckets, helmets and occasional other objects. However, both figural and geometric decoration is also applied to a range of other objects and materials, which are equally important in explorations of the social meaning of Iron Age art in the region. This paper presents a series of case studies based on the digitisation and visualisation of decorated Iron Age objects held in museum collections in Slovenia and Croatia. The aim is to illustrate the potential of specific methods in both the analytical and presentation applications of 3D imaging. The work is a collaboration between ENTRANS, the Fragmented Heritage Project and Bradford Visualisation at the University of Bradford and University College Cork.

TH6-05 Abstract 13

The cremated dead: investigating cremated remains from the Late Bronze Age/Early Iron Age transition

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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 Late Bronze Age and Early Iron Age cultural exchanges 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

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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 and around organic material in Slovenia and Croatia. The principal aims are to explore aspects of diet and the provenance of resources by comparing the results of residue analysis with contextual data, such as faunal and floral remains. Differences between settlement and funerary sites are considered, by identifying how the vessels were used and the specific residues present. 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 multidector computerised tomography and micro-excavations

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Keywords: cremation burials, micro-excavations, multidetector computed tomography

Presentation Preference - Oral

The urn is the ultimate ‘burial place’ of the cremated remains of an individual. But it is much more than that. The type of vessel, preparation of the contents, possible additional grave goods etc. has by far not only functional but foremost symbolical meanings and values and holds information about the time of the deposition, ‘cultural’ milieu, status of the deceased and much more.

The study of a cremation burial is not a straightforward and self-evident process. We have to bear in mind that we are dealing with traces of events and/or processes, the understanding of which is only partial. On the other hand we have to admit, that it is only the information that we can trace, observe and make documentation of, which we later analyse, study and eventually interpret. Therefore the research of an urn starts already with the preparation for the excavation of its grave. In our case studies that means the analysis of the sites and their surroundings. That includes idar scanning and the analysis of its broader landscape, followed by ground truthing campaigns and geophysical prospections. That means that we have a fairly good idea of the topographical settings and the broader cultural landscape of the sites. It is also the time of excavations of the graveyard 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 indivisibly 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-
TH6-05 Abstract 16
Open-minded access to Late Bronze Age societies in southern Carpathian Basin

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Keywords: communities, Late Bronze Age, mortuary practice

TH6-05 Abstract 17
When traditions of pottery making reveal boundaries: a case study from the Upper Rhine Valley

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Keywords: ceramic technology, Late Bronze Age, social network

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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.
Archives in public institutions and private collections contain an ever-increasing amount of untapped information on archaeological finds and findspots. Geopolitical developments in Central and East Europe as a result of the two World Wars had an enormous effect on archival holdings, often resulting in their complete destruction. However, following the fall of the “Iron Curtain”, material in archives in various European states are now once again becoming accessible. Often they contain foreign language, that is German, 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 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 epochs, regions and periods.

TH6-06 Abstract 01
KAFU - A network for archive studies
Author: Dr. Neumayer, Heino, Museum für Vor- und Frühgeschichte, Berlin, Germany (Presenting author)
Keywords: Archive Archeology, International, KAFU
Presentation Preference - Oral

The situation after the fall of the iron curtain also allowed a research to the remain of the collections from former East Germany and the eastern Baltic region which had been partly destroyed or scattered as a result of the 2nd World War. To achieve this in 2001 the “Kommission zur Erforschung von Sammlungen Archäologischer Funde und Unterlagen aus dem noröstlichen 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.

The “Kommission” of the Romano-Germanic Commission (RGK) include large parts of the archive and the collections of the Reichs-Limeskommission (RLK). The RLK explored the Limes mainly from 1892 to 1902 between the Rhine and the Danube. The scientific results were edited by E. Fabricius in the series “Der Obergermanisch-Raetische Limes des Romerreiches” (ORL) from 1894 to 1937. Research results up in the 1930s are included therein, after the actual workings of RLK. With the final dissolution of the RLK in 1939 the archives came to the RGK. It includes a stock of real administrative records, which was 1991 archived. By far the greater parts are collection items of reports, diaries, correspondence, maps, plans and photos between 1888 and 1939. The stock is supplemented by the card file for the Fundindex of ORL, reports in words and pictures about Limes inspections in the 1950s and 1960s and others.

2005 the Upper German-Raetian Limes became UNESCO World Heritage. Since then there is an increased interest in historical documents about this monument. The total inventory of the archives was already recorded in 2004, funded by the State of Baden-Wurttemberg. The documents for the Bavarian Limes section were registered and digitized 2009/2010 with special funds from the Free State.

The Deutsche Limeskommission (DLK) promotes workshops of old excavations and research on the Limes by doctoral scholarships for some years now. Thus, the Limes archive now serves as an information and data source for master and doctoral theses, for historical, cultural, historical documents about this monument, for different types of visitor information and advice on World Heritage and for exhibitions in museums. Moreover, new questions arise by connecting the results of modern prospecting methods with the early field observations. Two research excavations at the Raetian wall were devoted to these issues in 2015.

TH6-06 Abstract 04
Scientific Archive of IHMC RAS: pages of European archaeology
Author: PhD Medvedeva, Maria, Institute for the History of Material Culture, Russian Academy of Sciences, St.-Petersburg, Russian Federation (Presenting author)
Keywords: documents, photographs, Institute for the History of Material Culture, Scientific Archive, archaeology
Presentation Preference - Oral

The Scientific Archive of the Institute for the History of Material Culture, Russian Academy of Sciences (IHMC RAS), keeps invaluable documentary archaeological Collections. Its history started from 1859, when the Imperial Archaeological Commission (IAC) was established by Russian Emperor Alexander II. By the early 20th century IAC became coordination and control centre in archaeological and restoration studies of Russian Empire. IAC has accumulated unique archives of records and
The aftermath of Italy Unification, in fact, the landscape was heavily twisted, and a regular urban pattern completely erased the face of the nineteenth-century city. In renowned 1748 Nolli map; this context changed sharply in a few years, when, in 1871, the city of Rome became the Capital of the new united Italian nation, and a major building expansion completely transformed the city. Keeping itself almost intact for centuries, as is shown in the historical cartography, from the XVI century bird's-eye views to the up in a vast area occupied by gardens and orchards and then by the aristocratic villas built in the XVII century. The landscape of organizations and in private collections of scholars. Archival heritage of IAC, Russian Archaeological Society, Moscow Archaeological Society and personal collections of A.A. Sptsin, 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.

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 century bird's-eye views to the renowned 1748 Nolli; this context changed sharply in a few years, when, in 1871, the city of Rome became the Capital of the new united Italian nation, and a major building expansion completely transformed the face of the nineteenth-century city. In the aftermath of 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 planing 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 ancient Esquiline.

Archaeological findings are 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.

The National Museum in Poznań, Gotłuchów branch, two ancient jars of clearly oriental origin can be found. Neither the provenance, nor the chronology of the artefacts is clear. This paper is willing to show that through archival, 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 Dzierlańska, née Czarnowska, the buyer, and Alfred Louis Delattre, a French missionary and archaeologist working in Caragia, are revealing the context of acquisition of the artefacts. The archival holdings are clearly showing that the oriental art collection in Gotłuchów was much bigger than previously thought. What is more, the information given by A. L. Delattre can be useful in determining the place where the jars were discovered. The vessels were also subject of recent archaeometric studies (X-Ray Fluorescence spectrometry and petrographic analysis) in order to get the basic information about their technology and place of production. Having in mind this data, we are able to reconstruct the biography of the jars from their "birth", through their deposition in a tomb in Caragia, ending in the art collection in Gotłuchów where they have been exposed as unrecognised 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 Dzierlańska.

The Esquiline (Rome). Urban transformation and ancient topography between lost archives and WebGIS

Author - Boič, Valeria, archaeological consultant, Roma, Italy (Presenting author)
Keywords: ancient topography, Open access archive documents
Presentation Preference - Oral

This paper is aimed at retracing the steps of the reorganisation of the ancient topography and of the archaeological potential of an area of Rome's historic centre, which was the subject of a doctoral thesis in Methodology of the archaeological research, disputed in February 2016 in the University of Sassari.

The case-study area is the Esquiline District, located at the south-eastern borders of Rome's inner centre; in the Middle Ages, and until the last decades of the XIX century, the Esquiline was a suburban area, where only a few religious complexes rose up in a 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 century bird's-eye views to the renowned 1748 Nolli; this context changed sharply in a few years, when, in 1871, the city of Rome became the Capital of the new united Italian nation, and a major building expansion completely transformed the face of the nineteenth-century city. In the aftermath of 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 ancient Esquiline.

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The Prussia-Museum in Königsberg/Ostpreußen.

New archaeological research on an old archive

Author - Dr. Eltzebruch, Heidemarie, 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 18th centuries onwards. The fund included findings from excavations as well as documentary record covering the entire region of the former province of East Prussia. After the war, almost all collections were regarded as being lost but big parts have been rediscovered unexpectedly after the turn 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 Mainz, Germany" realizes a huge project on the reconstruction of the archive materials from the Prussia collections, conducted by the Centre for Baltic and Scandinavian Archaeology in Schloßwegen and the Museum of Prehistory and Early History in Berlin. The project aims at supporting contemporary archaeological research by making the old data available once again. The paper introduces the goals of the project and describes the specific needs, selected methods and first results of this process: How and to what extent can we reconstruct the "archaeological landscape" in former East Prussia before 1945 and thus create a basis for modern investigations and research in this part of Europe?
The findings of the Przeworsk and Wielbark cultures in the archives of Herbert Jankuhn

Author - Dr. Cieśliński, Adam, University of Warsaw / Institut of Archaeology, Warsaw University (Presenting author)
Keywords: Eastern Prussia, Herbert Jankuhn, Przeworsk and Wielbark cultures
Presentation Preference: Oral

The famous German archaeologist Herbert Jankuhn dealt at the beginning of his career with the south-eastern Baltic littoral in the Roman period. During his PhD work he created a huge card index containing drawings and descriptions of finds from the former Eastern Prussia. 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 Przeworsk and Wielbark cultures in the area east of the lower Vistula.
Rooted in the past: A new chronological classification for the early medieval Tyne-Forth cemeteries

Author: O’Dowd, Celia, Greenwich, United Kingdom (Presenting author)
Keywords: computer program, funerary practices, typology based chronology
Presentation Preference: Oral

Research surrounding typology based chronology in the early medieval period usually focuses on grave goods coinciding with specific funerary practices of Germanic populations. In the North of Great Britain, grave goods are not a part of funerary tradition. As a consequence, typology cannot be applied here, resulting in a lack of precision for the dating of cemeteries. Radiocarbon dating is also lacking, thus cemeteries are widely attributed to the 5-8th centuries. This paper explores the quality of early medieval funerary data in the Tyne-Forth region (Northeast England-Southeast Scotland), obtained from late 18th and early 20th century excavation; and attempt to find a systematic approach to analyse the data. Since the beginning of the late 20th century, research has attempted to highlight the diversity in mortuary practices within the graves and cemeteries of North-western Europe, with cemetery location being the latest criteria to receive consideration. Following this paper, this project seeks to challenge the idea of unrefined classifications for cemeteries that lack grave goods, and present a new attempt at chronological classification for the cemeteries of the Tyne-Forth region. It proposes the combination of 46 descriptive criteria and the use of the computer program Amelai II, to compensate for missing grave good data through multiple imputations, creating a new typology based chronology of cemetery sites for this region.

Excavating an Archive - The Irish Viking Graves Project

Author: Dr. Voss, Hans-Ulrich, Deutsches Archäologisches Institut, Frankfurt am Main, Germany (Presenting author)
Keywords: cemetery, Late Roman Iron Age, unpublished maps
Presentation Preference: Poster

The extensive working papers of Friedrich Lisch (1801-1883) on the late Roman Iron Age inhumation graves from Häven, Ludwigslust-Parchim District in western Mecklenburg, which are archived in Wiligrad Castle north of Schwinem, provide a very interesting insight into the lively scientific exchange between Lisch and leading Scandinavian archaeologists such as Conrad Engelhardt, Christian Friedrich Herbst, Hans Hildebrand, Jens Jacob Aarnussen 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 are of the type 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 Häven was infact a staging post between these two centres.

The gift of director of Königsberg’s Museum Bezenberger

Author: Dr. Khomiakova, Olga, IA RAS, Moscow, Russian Federation (Presenting author)
Keywords: collection, archive data, Prussian Cultural Heritage Foundation Archive, State Historical Museum
Presentation Preference: Poster

In holdings of State Historical Museum in Moscow an old plate with archaeological finds resides. It defined as «Archaeological collection from Etruscan graves of Italy, from different places of Germany and East Prussia» (Accession number 97174, List 1133/XXVIII), and consist of 27 items (a strands of beads and stand-alone beads). According to register and information at the plate, the collection came to the Museum not as the result of II World War, but before 1918. The right side of the plate contains two strings of beads from Livland and «Etruscan graves». Most interesting is names of «places of finds» from the left side: Russeun, Stobingen, Lützen, Trausitten, Kalberg beside Rantau, Waren, Poblen, Greblien, Daumen, Eschenort, that are correlate to the names of graveyards from East Prussia, that were excavated in second half and the end of 19th century. Fnds from these graveyards kept in Prussia-Museum in Königsberg. Miserable, but curious data in register reads «gift of director of Königsberg’s Museum Bezenberger» from «non inventory fund». A search of information about
Archival Archaeology: experience of mapping and survey in SW Courland

Author: Dr. hist. Virsa, Ingrīda Liga, Latvian National Museum of History, Riga, Latvia (Presenting author)

Keywords: Archival Archaeology, systematic mapping, identification and research, SW Courland

Presentation Preference - Poster

The National History Museum of Latvia, Archaeological Department stores information about archaeological monuments and artefacts found across the territory of Latvia. The data chronologically covers a period from the end of 19th century to the present day. The largest amount of data originates from the interwar period, and it forms the basis for the documentation. During the work on the project Study of population and ethnic composition changes in southwestern Courland 1st millennium AD, systematic mapping, identification and research of SW Courland archaeological monuments and find locations is carried out.

The work is based in the study of archives (National History Museum of Latvia archive contains information on approximately 200 archaeological monuments and locations of finds in SW Courland). During the course of the research, unexpected problems were encountered. Although the documentation of archaeological sites during the interwar period was generally precise, today part of the potential sites can't be 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

Presentation Preference - Poster

The issue of fragmentation and disunity of archival 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). Archaeological information about the territory of the Bashkir Urals began to be collected in 1834, on the basis of the Regional Statistic 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). The work on the project Study of population and ethnic composition changes in southwestern Courland 1st millennium AD, led to the exchange of archaeological information with the European scientific elite. In the fund by E.H. Minns (Cambridge University Library: Manuscripts) a fragment of correspondence between A.Pashkova, the owner of Voskresensky plants (05.09.1913), and E.H. Minns was discovered. Another significant impact on the preservation of archival archaeological sources was the period of the late 1930s - the period of repressions, during which not only the field diaries were destroyed, but also the correspondence of repressed archaeologists. It is wrong to claim that archaeologists in the USSR completely stopped communicating with foreign colleagues and were not interested in foreign publications and foreign archival funds. But this scientific communication was of "shaded" and secret character. It is impossible to restore the disturbed dialogue of Russian and West-European archaeologists without the employees of archives and funds of European countries. Thus, the restoration of the lost archived information is possible only through international cooperation.
TH6-07
FORUM MEDIEVAL ARCHAEOLOGY IN EUROPE AND LITHUANIA

Friday, 2 September 2016, 09:00-16:00
Faculty of Philology, Room 15

Author: Tys, Dries, Vrije Universiteit Brussel, Brussels, Belgium (Presenting author)
Co-author(s): Fost, Sally, University of Stirling, Stirling, United Kingdom
Co-author(s): Hansen, Gitte, University of Bergen, Bergen, Norway
Co-author(s): Predovinik, Katarina, University of Ljubljana, Ljubljana, Slovenia

Keywords: Europe, Lithuania, Medieval Archaeology
Presentation Preference: Committee / Working Party meeting

The Forum of MERCI (Medieval Europe Research Committee) is an annual meeting held at EAA to promote active archaeological research in the medieval period (AD400-1600) in every country in Europe. It is the intellectual successor to the series entitled Medieval Europe, which was inaugurated at York in 1992, and staged at Bruges in 1997, Basel in 2002 and Paris in 2007. A change of direction occurred in 2012 when new thinking suggested that medieval archaeology would develop more powerfully within the broader ambit of prehistoric and historic archaeology as a whole. Accordingly the representatives of the conference accepted an invitation from EAA to merge the two conferences. This duty occurred at Helsinki and has continued since then. The medieval agenda is promoted by MERCI, which views itself as in academic partnership with EAA. The purpose of the forum is to:

- highlight the performance of medieval archaeology in the host country
- highlight the medial 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 Predovinik.

Keynote Speakers:

- Lithuanian medieval archaeology, Prof. Kuncaviccius, Albinas (Vilnius University, Lithuania)
- Early medieval horse cemeteries of Prussia and Central Lithuania on a comparative scale, Dr. Shiroukhov, Roman (University of Warsaw, Poland)
- Cultural resilience and adaptation at the frontier: Klaipeda and Zarde pottery analysis, PhD student Ubis, Edvinas (Klaipeda University, Lithuania)
- Future archaeologies of the "Great Wilderness": Crusading, depopulation and colonisation in the frontiers of Lithuania, Dr. Pluskowski, Aleks (University of Reading, United Kingdom)

TH6-08
RESOURCE, CONDUCT, AGENT: WATER AND THE DEVELOPMENT OF THE HUMAN GEOGRAPHY OF CENTRAL ASIA

Thursday, 1 September 2016, 09:00-11:00
Faculty of Philology, Room A7

Author: Markolfsky, Steven, Universitat Pompeu Fabra, Barcelona, Spain (Presenting author)
Co-author(s): Holguin, Leah, University of Southampton, Southampton, United Kingdom

Keywords: Central Asia, hydrosocial dynamics, water
Presentation Preference: Regular session

Since the end of the Cold War, Central Asia has seen a burgeoning of research agendas, many addressing hydrosocial dynamics. The environmental and geographical challenges of the region, where vast desert regions and semi-arid steppe environments have been subjected to extensive agro-economic and pastoral pressures, have focused international attention on the fragile but essential balance between societies and water resources.

Somewhat lost in the drive to understand these relationships in the context of modern-day concerns such as climate change, sustainability and resource management is a grasp of the historical trajectories of these human/water relationships, not only with respect to the betterstressed river systems and delta environments, but also with respect to smaller or less accessible water resources such as pools, ephemeral lakes or aquifers. In Central Asia, a region characterized historically by movement, exchange and communication across vast desert regions, the indispensable role of such varied hydrological features becomes increasingly clear: not simply as static territories, but as natural agents in the facilitation of movement and interaction. Even today, the identification, exploitation and management of these varied resources remains central to understanding marginal subsistence strategies, and their co-evolutionary role in water landscapes of human geography.

This session aims to broaden our understanding of water as resource, conduit and agent in the development of societies and landscapes across Central Asia. We welcome papers that present new theoretical and methodological approaches to understanding hydro-social dynamics. These may include remote sensing, bio/geoarchaeology, simulation or models that emphasize the social aspect of hydrology, including ethnarchaeology or research that considers water as heritage in Central Asia. We feel that this creative approach to water research in Central Asia will be beneficial to regional researchers and to a wider audience seeking to broaden the scope of hydrosocial research in Central Asia more generally.

TH6-08 Abstract 01
The Hydrosocial Margin: Settlement, Socio-ecology and Sustainability in the Central Asian Desert-Deltas

Author: Dr. Markolfsky, 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 play 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 hydro-social 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:** Arciero, Roberto, Leiden University, Leiden, Netherlands (Presenting author)

**Keywords:** Central Asia archaeology, Remote Sensing, Water Management

**Presentation Preference:** Oral

Water resources have played an important role in the formation and development of all societies across millennia. Turkmenistan has been a desert territory since the end of the Bronze Age, and water availability has always been an issue. During the transition between the Bronze and Early Iron Age the Murghab alluvial fan was characterized by a complex phenomenon of urbanization, and was influenced by an important interaction between mobile pastoralists and farmers. Taking into account the high importance of water resources for the agricultural communities, and considering that pastoralist sites were close to the sedentary sites, little is known about the water management of micro-scale areas. Undoubtedly the disappearance of the largest sites at the end of the Middle Bronze Age (2400-1550 BCE) and the southwards shift of the barony of the settlements at the end of the Late Bronze Age (1550-1000 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 Togolok 1, Adj Kui 1 and the nomadic site area of Site 1211-1219 and Ovakyl. 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 Serakhis oasis (Turkmenistan)**

**Author:** MA Busekem, Nazarí, Institute of Archaeology, University of Warsaw, Warsaw, Poland (Presenting author)

**Keywords:** Iron Age, Serakhis oasis, Central Asia, Water management, landscape taphonomy

**Presentation Preference:** Oral

The Serakhis oasis, located in southern Turkmenistan near border with Iran and Afghanistan, is a subject of study of the Polish-Turkmen Archaeological Mission headed by prof. Barbara Kaim since 1995. Due to field surveys conducted here since 2007 above 170 sites of different periods were discovered, which enabled the study of oldest settlement pattern and the water management system in particular periods. The best recognized oldest settlement pattern currently is the Iron Age (Yaz culture).

Above 700 sites with the characteristic pottery of Yaz I-III periods (circa 1400-330 BC) have been discovered in Central Asia, north-oriented Xinjiang 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 Serakhis 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 Serakhis oasis. Here the topographic maps, high-resolution satellite imagery made in different periods of time and SPOT derived levies are used followed by deep analysis of landscape taphonomy of Serakhis oasis. The paper concentrates on the water management in the Yaz I-III 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:** Holguín, 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 lifeways and agriculture. The Mongolian Neolithic (3900-3000 B.C.E.) contradicts this dominant narrative, especially in the South Gobi Desert where there is evidence of sedentary communities who utilized oases, potteries, mortars, and pestles. Some researchers argue these were hunter-gatherers foraging in the area. At some point during the Bronze Age (3500-3000 B.C.E.), nomadic pastoralism was adopted as the dominant subsistence strategy and these sedentary communities were abandoned. This unexpected reversion may have been related to profound environmental changes occurring at this time and further examining this may help us to understand how human societies adapt to changing levels of uncertainty about resource availability. This will be examined through the changing Holocene landscape dynamics around the Ulaan Nuur paleo lake and paleo hydrological system located in the Gobi Desert of Ongovongovi 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:** Garazhian, Oman, 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 channels.

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 Taishihuark 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 Karashan Kharana (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 a picture of the types of fruits and grains available in markets along the Silk Road. Archaeobotanically tracing the path that plants followed on their long journey across Central Asia, provides us with a map laying out the early routes these foods took to ultimately reach our dinner plates today.
TH6-09 Abstract 01

Studies on remains of daily activities from the LBK Neolithic settlement

Author - Michał, Katarzyna, University of Gdańsk, Gdańsk, Poland (Presenting author)
Co-author(s) - Potyczny, 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, flints, 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 deposition process and the overlapping of various activity zones that can be problematic during analysis of the domestic artefacts recorded at the multi-phase settlements.

TH6-09 Abstract 02

Tell me who is living here... Some considerations on people living in Concise, a Swiss Neolithic site

Author - Post doctorale Chiquet, Patricia, Musée d’histoire naturelle, Geneva, Switzerland (Presenting author)
Co-author(s) - Burri-Wyser, Elena, Etat de Vaud, Sipal, Archéologie cantonale, Lausanne, Switzerland
Co-author(s) - Winiger, Ariane, Etat de Vaud, Sipal, Archéologie cantonale, Lausanne, Switzerland
Keywords: lake dwelling, Neolithic, session, tasks sharing
Presentation Preference - Oral

Studies of the Middle Neolithic lake dwelling of Concise (Switzerland) are expanding year by year, with more fine assumptions about the spatial structures of the villages, the identity of the actors of the material culture, the history of the populations... The architecture of some villages is known as well as the material culture which contains in some cases a mixture of components NNM from Franche-Comté and the Swiss Plateau Cortalloïd. The spatial distribution of remains between activity areas common to several houses and domestic waste in each house shows an essentially domestic economy, but there are also synergies by groups of houses for some components. The analysis of these distributions has led us to propose a gendered tasks sharing. In this general atmosphere of domestic subsistence, two buildings appear to have a particular function.

TH6-09 Abstract 03

Traces of households, activity areas and social inequality in a Late Copper Age site in Hungary

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Co-author(s) - Serlegi, Gábor, Research Centre for Humanities of HAS Institute of Archaeology, Budapest, Hungary
Keywords: activity areas, household unit, social inequality
Presentation Preference - Oral

The archaeological traces of households and household units as the scenes of community interaction form an important interpretative level, determining numerous characteristics of the life and material culture of the community. My research is based on the premise that the archaeological identification of households and activity areas is possible, since the basic activities of everyday life were carried out in a delimited area and within a delimited timeframe. In my work I made an attempt to define the spatial and temporal limits of households and to determine the remains of which activities within a household have been preserved. The interpretation and comparison of these hypothetical households as units and scope of social and gender inequality was carried out from a variety of standpoints: among others from that of consumption, specialization and diversity. The starting point of the research is provided by the finds and observations on settlement structure made during the excavations at a Copper Age site. The study of the site is complemented by natural scientific – archaeozoological, anthropological, petrographic, geochemical, and radiocarbon dating – analyses, and environmental archaeological data from the region Transdanubia in Hungary. The proceeding of the finds was followed by the detailed qualitative and quantitative analysis of the materials of the pits and the pits themselves (correspondence analysis, one-way correlation analysis) according to the observed groupings. With the help of the spatial statistical and GIS analysis of the finds, the mapping of the distribution of the finds enabled the quantitative and qualitative study of the various classes of finds, which could help us to shed light on the distribution of activities and traces of social inequality taking place within and outside the households.

TH6-09 Abstract 04

Culture and society of a Hellenistic site: houses and artefacts of Sicilian city of Finziade

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Keywords: Hellenistic world, houses, Sicily
Presentation Preference - Oral

The contribution is about housing of the Hellenistic-Roman period of Finziade, in the province of Agrigento, on the southern coast of Sicily.

There are 12 houses systematically excavated by the University of Messina between 2003 and 2014 that constitute a privileged vantage point for understanding the socio-cultural and economic dynamics of Sicily between the III-II centuries B.C.

The houses are in fact one of the rare cases of recent stratigraphic studies of residential complexes of Sicily and also, not recording a settlement continuity in imperial times, have no relevant accretions after periods. The well-preserved houses, in fact, allowed to identify the intended use of the spaces and thus enable to carry out an analysis of a very large sample relative to the daily life of a center of Hellenistic-Roman Sicily, perfectly integrated with Mediterranean examples of the period in southern Italy, Sicily, Greece, and in the coasts of Africa and Asia minor.

All houses have a square plan with a central courtyard that represented the center of domestic life and was equipped with tank for collecting rainwater. Around it revolved every room of the house, including the dining rooms, bedrooms, bathrooms and kitchens.

Themes will therefore be treated associated with daily life, especially in relation to material culture. Some kitchens, for example, are well accessorized with holes, tables and docks as well as the functional ceramic sets to the preparation, the service and food consumption. The most important rooms of the houses have also returned the wall decorations and floor of great value, which are an indicator of the medium-high socio-economic conditions of the owners.

Particular attention will be devoted to domestic cults, in fact every house possessed an environment characterized by the presence of an altar complete with artefacts relevant to the performance of rituals, demonstrating a particularly common practice
in domestic contexts of the Mediterranean in the Hellenistic period, as demonstrated by the cases of Segesta, Eraclea Minoa, Tindari, Delo, Kerkyrane. The altars, as well as the architectural decorations and ceramics documentation from the houses, show different economic realities between the houses excavated. Further aim of the contribution will evaluate individual aspects of different spaces in the houses, analyzed in a contextual way to make a picture of the social reality of downtown Finizzato in relation to the characteristics of the late Hellenistic Koine of Mediterranean, reflected by the artefacts from private contexts.

TH6-09 Abstract 05

Women to the front! Women to the front?

Author - Bauer, Anna, Wien, Austria (Presenting author)
Keywords: female soldiers, Gender, woman and war
Presentation Preference - Oral

We have found women burials that can be dated to the early middle ages. Surprisingly these burials don't show the typical grave goods for women like pottery or jewellery instead weapons were found. The archaeological research has difficulties to accept these burials as women tomb because the grave goods are typical for man ones. The anthropologist results were ignored and the female skeletons were declared to 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 woman 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 21st century emancipation was another reason why women turned into army service. At the first World War it was emancipation which brought woman to the army. War was nearly over woman had to leave the army and be again a housewife and mother. Their performance at war was not remembered and the women were left alone with their troubles and trauma.

An indirect reason why a young woman might have joined the army could be found in the higher wergeld for female babies. In the early Middle Ages 2400 solid gold were paid for a baby girl and 600 solid for a baby boy from this forced marriage can be deviated it. 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 and were needed. At the same time, mining of fossil coal also has a heavy impact on the landscape.

Supply strategies are based on complex political and socio-economic relationships (regulation, control, agreements) between industrial areas and their hinterlands, leading to supply and transportation networks by land, river and sea. Fuel supply is a specific economic market involving a large range of actors (woodcutters, miners, fuel sellers, fuel clients, and clients). The increase in demand for fuel impacts the availability of resources and sometimes leads to environmental crises. Societies must adopt by changing the type of fuel used or by adopting different resource management strategies.

Until now, research has been conducted according to discipline (history/archeology/paleobotany), geographical situation (Mediterranean/Continental or Northern Europe) or theme (plant fuel/mineral fuel). This lack of a multidisciplinary approach has held back the development of global research on fuel supply strategies. This session aims to gather researchers from different disciplines in order to provide a comprehensive overview of fuel supply in medieval and postmedieval crafts and industries, from acquisition to combustion of raw materials, in economic, technical and social dimensions.

TH6-10 Abstract 01

Anthropology of iron craft in the Canigou mountain (Antiquity-Early Middle Ages)

Author - Dr. Vaschaldke, Christoph, ISEM UMR 5554/LA3M UMR 7298, Montpellier, France (Presenting author)
Keywords: Anthropology, Fuel, Iron metallurgy
Presentation Preference - Oral

During ancient and medieval times, iron ore from the Canigou mountain (Pyrénées-Orientales, France) was intensively exploited, transformed into metallic iron and traded. This exploitation was particularly important between the end of the IInd c. B.C. and the beginning of the IInd c. A.D. Although decreased, this activity continued during the late Antiquity and the Early Middle Ages. In the Canigou mountain, and more generally in the whole eastern Pyrénées, archaeological and anthropological researches allowed to realize first synthesis on the relation between charcoal burning and metallurgy, but mostly for the modern period. However, archaeological research on ancient and medieval metallurgical tin remained scarce, probably because of the lack of studied sites for this period. Since 2014, a new interdisciplinary and diachronic research project aims to study Canigou mountain's iron industry and trade. In 2015, archaeological surveys were realized in the valley of the Lentitla (Canigou mountain) in four rejects from iron ore reduction, dated from the Vth to the VIIIth c. AD. The first archeological results led on these surveys provide information on fuel management and on the type of landscapes exploited in this region during the late Antiquity and the Early Middle Ages. At the end of Antiquity, landscapes located between 500 and 1200 m a.s.l. were mostly dominated by the deciduous oak forest, which tended to become a beech forest and/or a sylvester pine forest in altitude. Around 500 m, open landscapes (scrubs) and/or sclerophyllous mixed oak forest might have existed. The presence of some species (Buxus sempervirens, Erica, Leguminosae) might have been related to anthropic activities (pastoralism?). Both the anthropological spectra dominated by the deciduous oak forest and the big caliber of the charcoals identified raise the question of the relation between charcoal burning and iron metallurgy. Furthermore, one of the four sites revealed a broader diversity and the use of smaller calibers, suggesting the use of the charcoal for the roasting of the iron ore and not for its reduction. At last, some of the charcoals show signs of tool marks, testifying of the cutting process. In order to better understand the impact of metallurgical activities on landscapes, future studies...
will continue to focus on sites occupied for large amount of time. By studying the tool marks on archaeological charcoals, we will try to reveal the changes in the socio-professional organization of wood cutting and fuel production. Afterwards, a dendrochronological approach led on charcoals will authorize to inter-date the archaeological sites studied and to discuss the type of wood practised (existence of coppice?).

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**TH6-10 Abstract 02**

The use of charcoal in metallurgy

(15th and 15th centuries)

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Co-author(s) - Cardona de la Llarda, Ricard, University of Córdoba, Córdoba, Spain

Keywords: Charcoal, Middle Ages, Metallurgy

Presentation Preference - Oral

Among the various raw materials offered by the forest, charcoal has played a leading role. This is one of the most used fuels throughout history, thanks to its high calorific value. In the 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 analyse 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 15th and 15th centuries.

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**TH6-10 Abstract 03**

Syntheses of the anthropological approach

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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, anthropological analyses were realized in Mediterranean France on nearly 80 ancient, medieval and modern sites. If several activities are now well documented (charcoal and lime burning, pottery, cremation), no global approach has been attempted so far. An inventory was realized, based on a broad range of activities (ceramic, charcoal, lime, vegetal exudates, food, metal, glass, textiles, leather, soap, salt, plaster) gathered in a same data base. 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 technical and economical necessities (i.e. concentration of fire, or, on the contrary, circulation of fire in the kiln). 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 anthropological data. Generally, anthropologists consider that their data only reflect the choice of the craftsmen and the ecological constraints. But it appears that the role of land/forest owners, who managed the fuel resources, has never really been discussed or taken into account. This communication will propose a first discussion on the subject. Studies of multi-craft sites will be presented, as well as examples of "gestion sur pied" (division of the same taxa to produce from a same tree in order to fuel different activities). Recent methodological developments will be introduced, such as the restitution of calibers, or the observation of tools marks, bringing information on the preparation of the fuel. By crossing anthropological data with medieval and modern texts, a socio-professional approach of the preparation of the fuel will also be possible. At last, the energetic transition towards the use of fossil charcoal will also be attempted.

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**TH6-10 Abstract 04**

Fuel Selection and Forest Management by Middle Age Belgian Brass Blacksmiths Along the Meuse River

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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 paws 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 boilemakers, 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 “Gronin” site, dated to the 6th century. The copper metallurgy boom around the 12th century in both Dinant and Bouvignes are due to several causes. Although the Meuse region lacked cooper and tin ores largely used in Middle Age metallurgy, very good communication ways provided by the Meuse River and its tributaries, as well as the establishment of strong commercial links with the German towns of Cologne and Dortmund for copper supplies and with London for tin supplies, overcome this natural limitation. In addition, merchants were allotted specific privileges with the German towns, while a charter allowed them to establish a trading post on the Thames River. The dynamism of the Mosan merchants cannot however explain this metallurgy industry boom alone. Indeed, the Meuse region is rich in two products that are necessary for brass production: limestone that contains zinc oxide and natural refractory clay, debris that is appropriate to build bricks, hearts, 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 deflated in the Burgundy wars led by Charles the Bold.

Since 1995, several archeological excavations have taken place under the supervision of the Walloon Archæological Service in the towns of Bouvignes and Dinant. Theses excavations uncovered several cooper smiths buildings, with their workshops and domestic spaces. We will present the results of wood charcoal analyses from four different sites – Bouvignes Porte Chevalier, Dinant Olibais, Dinant Rateau and Dinant Churchill – that represent 13 different cooper smiths working spaces dated between the 13th and the 15th centuries. Because Dinant and Bouvignes were competitors and depended on two royal political entities, our results are highly significant in terms of territory exploitation and cultural identities along the Meuse River.
Between the 18th and 20th centuries the Limousin region was notably lacking in woodland: the level of forest in the landscape was less than 10%. However, it was during this period that the development of the Limoges porcelain industry, a major fuel consumer, took place. Alongside this industrial boom, the urban population was also thriving, thus the need for fuel in the city became even greater.

The 19th century was a period that put great pressure on firewood resources and one wonders how, and to what extent, the population and industry in the city of Limoges were able to meet their considerable fuel requirements. We therefore look at sources that can better trace the evolution of fuel consumption in Limoges. By combining historical sources, we analyse the heavy fuel consumption of the city of Limoges in relation to resources available in the region and describe the different procurement strategies implemented. The importance of the porcelain industry is discussed and we make a start on the evolution of the wooded landscape in the Limousin.
Many of the other excavation reports and publications contain notes about piles that have been found, but not much effort has been placed on the interpretation of this kind of information. Archeologists have now found 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 archeological monuments contain evidence also about pile dwelling? And is it not possible to be done with archival research, then which studies and methods could give a result?

**TH6-11 Abstract 03**

The settlements of Kryvina peat-bog region in the context of cultural changes of 3 - 2 millennium BC

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Keywords: Kryvina peat-bog micro-region, Late Neolithic - Bronze Age, Northern Belarus (Lakesh region)

Presentation Preference - Oral

Kryvina peat-bog is an archeological microlake located in Vicebsk region of the Republic of Belarus (south of Belarussian Lakeland geographical region). To date, there are 10 archeological settlements of Neolithic - Bronze Age period. The earliest belongs to the 4th millennium BC, and the most recent - to the middle/ 3rd quarter of the 2nd millennium BC. The majority of the sites of the region are presented by the materials of 3rd - first half of 2nd millennium BC which belongs to Usviaty and North-Belarussian 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 Michael Chaniiakui and Maxim Chramiakui. 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 Usviaty culture into the North-Belarussian culture in the region.

**TH6-11 Abstract 04**

Landscape and natural resources use in the 3rd mill BC by pile-settlements’ dwellers in NW Russia

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Keywords: Neolithic, Northwestern 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 Volga in the Sukhona basin, the site is located at an important river confluence. Its exceptional significance is due to the clearly stratified sequence of archeological 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 Volgoda State Museum and the German Archaeological Institute started in 2015. It combines archaeological research with archeobotany, 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-loggting. They include a concentration of almost 2000 wooden stakes and piles standing upright in several clusters along a 350 m long stretch of the river bank. Radiocarbon dates place the main concentration in the Late Neolithic around 3000 BC. Thus, the concentration of wooden piles at Veksa is chronologically associated with a period of pile dwelling construction in the Late Stone and Early Metal Ages noticeable from the Alps in the south-west to the eastern Omega region in the north-east.

During the field work in 2015, a test trench was excavated within the pile concentration, yielding for the first time information on the stratigraphic association of the timber constructions. Silty and multiple layered sediments rich in organic remains point to rather lacustrine environments, where the area was probably not a river bank but part of a shallow lake. Among the piles, several well preserved wooden fish traps have been found, indicating multiple uses of the shore area. First results of the analysis of botanical macro remains have found charred seeds of water lily, adding new surprising evidence to the exploitation of aquatic plant resources in the Stone Age. Important new insights come from a pollen core, the first in this region, which shows several phases of intensified human activity at Veksa over the millennia that are correlated to phases of increased situation and drying-up of the environment. Ongoing analyses of the documented features and the environmental data will yield new information on character and function of the wooden constructions and their association with cultural, economic and environmental developments.

**TH6-11 Abstract 06**

The Neolithic and Early Metal Age wooden construction of site Okhta 1 in St. Petersburg (Russia)

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Keywords: Neolithic, Early Metal Age, wooden construct

Presentation Preference - Oral

The Neolithic sites Okhta 1 is first archaeological object with gut preserved wooden construction in St. Petersburg region. The territory of sites was occupied by ancient people several times during the Neolithic Age – in the Early Metal Age periods – from 4000 to 2500 BC. The cultural layers of the prehistoric settlements are situated under alluvial sandy sediments 1,1-1,5 m thick, which lie under the buried soil of the Middle Ages. Features of the microlrelief of the site, its stratigraphy and archaeological observations allowed us to select an earlier coastal fishing zone located on the coast of the gulf, and a second fishing and living area, connected to river channels. The archaeological collection includes archaeological finds: pottery, stone tools, products of organic matter and wood, and amber jewelry.

The pile dwelling settlements were situated at the boundary of different landscape types that provided the basis of a productive hunting and gathering economy, and supplied as a resource for different wood, plant and bone material, raw materials for pottery making. It remained the typical settlement pattern for over a millennium. The inhabitants of such settlements left a unique material culture with a particular toolkits and pieces of art.
Characterization of activity areas in the early Neolithic site of La Draga (Spain)

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Keywords: Activity areas, Neolithic, 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. An intra-site spatial analysis of different categories of remains have been explored in order to set boundaries and relationships between different spaces.

Wood architecture in the Early Neolithic (5300-5000 cal BC) site of La Draga (NE of Ibiza)

Author: Dr. Oriol López-Bultó, 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 remnants of wood recovered at the site have been studied with the objective of characterizing the wood management process: obtaining of raw material, woodworking technology and the use as tools or construction elements. All this process is usually hidden for 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 we summarized the result of the analyses of the architectural elements. We outline the main characteristics of the building process of the wood 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.
Wet, Wet, Wet: Neolithic wetland and lakeside settlements in the Balkans

Author: Dr. Naumov, Goce, Museum of Macedonia, Skopje, Macedonia (Presenting author)

Keywords: Balkans, Pit 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 pit 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 establishments on lake shores, river beds and islands in marshes. Pit dwellings were common in the region and some studies on the shore of Lake Ohrid, Lake Prespa and Lake Ohrid, but recent research on ancient villages on the shores of Lake Ohrid, Lake Prespa and Lake Ohrid, but recent findings on the shore of Lake Ohrid, Lake Prespa and Lake Ohrid, but recent excavations on the shore of Lake Ohrid, Lake Prespa and Macedonia indicate such constructions on the periphery of 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 emphasize the thorough frameworks of farming societies that inhabited wetlands and lakes.

Live and survive in prehistory on northern shore of Ohrid lake

Author: Todorska, Valentina, NJ, Museum Nikola Nazdobinski Struga, Macedonia (Presenting author)

Keywords: pit dwellings, tools

Presentation Preference: Oral

Aim of this presentation is to represent the pit dwelling settlements situated in northern part of Ohrid Lake. Valuable archaeological finds in few of them, located in this part of the lake, indicates on fact that we can talk about pit 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.

Neolithic environment and subsistence in the Western Allgäu – first results of the BELAVI project

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Keywords: human impact, Neolithic use, subsistence

Presentation Preference: Oral

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 pile-dwelling period at Lake Constance in the 40th century BC. The outcomes of recent archaeological and palynological prospecting suggest new settlement sites and human impact dating back to the 6th millennium BC (see contribution of Mainberger, this session). Within the tri-national project ‘Beyond Lake Villages – BELAVI’ palaeoecological on-site and off-site data from the Western Allgäu region are synthesised with archaeological records. The chronological basis and with 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 falls. Wood charcoal from cultural layers complement the spectrum of potential selection 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 charcoals can give further chronological as well as information on prehistoric vegetation cover.

Beyond Lake Villages in the Neolithic of Austria

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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 Pfahlbau (pile-dwelling) phenomenon has been characterized by discontinuity and modern transdisciplinary research has been limited in practice and at a theoretical level. This has begun to change with several new research initiatives focussed on the Salzkammergut region in Upper Austria. This paper presents data analysis from the international project ‘Beyond Lake Villages’ (funded by FWF-DFG-SNF 2015-2018). The Austrian part of this project focuses on the Lake Attersee-/Monsee region, including both large and small bodies of water: lakes, bogs and newly discovered ‘hinterland’ sites. The aim is to characterize lake levels in the Neolithic with special focus on the 4th millennium BC. The project goals are (i) to establish a highly resolved Holocene
TH6-11 Abstract 17

Above the lakes – Organic finds from Bronze Age mines in the Alps

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Keywords: Moss, 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 above all research history. Those hot handles, lightning tapers, buckets, mining timber, excavments 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. In addition the alpine finds present important complementary information in the analysis of organic finds from bogs, wetlands and underwater sites is essential in the understanding of the finds from the alpine salt and copper mines. 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. 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. A special focus will be put on new archaeological and palaeoecological results.

TH6-11 Abstract 18

News from prehistoric lakeside settlements in Austria

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Keywords: Austria, Neolithic, pile dwellings

Presentation Preference - Oral

The most recent extensive survey undertaken in Austria and a small but successful study of the prehistoric lakeside settlements took place in the 1970s and 1980s. The inscription on the UNESCO list of World Heritage sites in 2011 provided the crucial impetus to resume the archaeological investigations and the associated protection measures. The Pile Dwellings Curatorship was tasked by the Austrian state authorities with coordinating the work and establishing systems of monitoring the sites. In 2013 a monitoring plan was developed with the aim of maintaining long-term observation and putting in place protection programmes; at the same time, archaeological investigations were mounted at the five Austrian world heritage sites on the list of ‘prehistoric pile dwellings’. Now, three years later, a first up-to-date inventory is available, which will allow us to implement concrete protection measures beginning in 2016. Additionally we have got some new data as a result of our research. A new research programme has been started with an underwater excavation in Lake Attersee in 2015.

TH6-11 Abstract 19

Wet worlds in context–The Bronze Age pile dwelling of Must Farm in the East Anglian Fens (UK)

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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 ‘vannings’ found in Scotland and Ireland, Must Farm consisted of typical Bronze Age roundhouses built on stilts above a formerly 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 unparalleled snapshot of later Bronze Age life and human–environment interaction in the Fens. Moreover, the discovery of this wetland settlement in the ‘deep fens’ beyond the fen edge requires a reconsideration of the later prehistoric Fenland narrative. Although the extraordinary findings from Must Farm are important in their own right, it is crucial that this site is placed within its wider spatial and temporal context. This is also true for other pile-dwellings in Europe. To some extent, all pile-dwellings are ‘unique’ (mostly due to their wet location and the level of preservation at many of these sites), but they should not be studied in isolation. Indeed, to better understanding pile-dwellings, they must be compared with other types of wetland settlements. More importantly, nearby dryland settlements areas should also be considered. Only then can we study the origin of pile-dwellings, better understand their inhabitants’ lifeways and their interactions with the environment. This paper will discuss these issues by introducing Must Farm and placing this site in its wider regional, national and international context.

TH6-11 Abstract 20

Sailing the lakes of the Alps.

Author - Huisman, Floor, Durham University, Durham, United Kingdom (Presenting author)

Keywords: Boats, Lakes, Monoxyle

Presentation Preference - Oral

The aim of this paper is to propose a new framework to deal with the topic of ancient monoxyles and canoes that have been found in great number in different prehistoric sites of the Alpine region, and particularly to deal with those pertaining to pile dwelling sites. Usually considered simple boats, essentially in use for fishing and for short travels on water, these objects have not been studied in the same way around the Alps. Their knowledge is in fact not homogeneous and is essentially linked to single experiences and researches, held by singular scholars, often isolated.

Far from wanting to exhaust the topic, the main aim of the proposed framework is in fact to overview 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 ethnomorphological 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 men and water in lacustrine environment
TH6-11 Abstract 21

Pots, pans and dishes to understand food
in a pile-dwelling Neolithic society

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Keywords: Dairy products, Organic residues, Pottery use

Presentation Preference - Oral

Traditionally, pottery use has been discussed through morphological characteristics and mechanical properties of the vessels (Rice 1987) but amorphous organic residues analysis has also greatly contributed to understand exploitation of natural resources during the Neolithic period (Everhard et al. 2008). Nevertheless these methodologies are rarely combined due to the high fragmentation of pottery and to the impossibility to link ceramic content with specific shape. At the site of Clairvaux XIV (Middle Neolithic, MB3-39e-37e century BC), the large and diversified corpus of ceramic vessels (377 vessels with restituted profiles) combined to aronic condition favors lipids preservation offers a unique opportunity to investigate the use of pottery to better understand lake dwelling Neolithic society (Pétrequin et Pétrequin 2015).

The corpus was first classified based on morphological and morphometric criteria. Chemical analysis of the lipids preserved in the organic residues on the interior surfaces of the preserved pottery walls were then carried out using an analytical strategy combining chromatographic (HT GC, spieometric HT GC-MS, NancEsi MS and MS/MS - Mirebeau at al 2007) and isotopic (IRMS) techniques. The data obtained on 85 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 the volumes of the vessels.

This study highlights some characteristic consumption pattern of the Neolithic people living at Clairvaux XIV in the first half of the 4th millennium BC. First, a clear difference is observed between cooking pots and serving vessels. Dairy substances were preserved into pottery walls or into carbonized surface residues were then carried out using an analytical strategy combining chromatographic (HT GC, spieometric HT GC-MS, NancEsi MS and MS/MS - Mirebeau et al 2007) and isotopic (IRMS) techniques. The data obtained on 85 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 the volumes of the vessels.

TH6-11 Abstract 22

Micro-economic and socio-cultural networks in lakeside settlements

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Keywords: Neolithic-Bronze Age, Network analysis, Settlement archaeology

Presentation Preference - Oral

Urban morphologists are investigating the ‘generic 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 urban pattern is seen as determined for the evolution of configurational networks. These networks, together with spatial agency of ‘local movement’, the flow of people to meet and interact, have a significant impact of land use in modern times. Settlements emerge through micro-economically motivated ground networks which encourage the emergence of ‘generic’ urban 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 lake 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 ‘generic 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, or in above water and marshlands had on human movement and interactions. Did these settlements under such environmental conditions follow the same spatial growth laws as modern cities? And, can such micro-economic and socio-cultural network analysis be a tool for interpreting cultural remains or functions of pile dwellings?

TH6-11 Abstract 23

A new look to late Neolithic plant economy from the site of Parkhaus Opéra (Zürich, Switzerland)

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Keywords: archaeobotany, GIS, sampling strategies

Presentation Preference - Oral

Archaeobotanical research in the Alpine Forland has a long tradition. Abundant quality data have been produced since the seventies of the XIXth century. The Horgen period (ca. 3400 – 2900 cal BC) has been particularly well investigated, especially since the excavation of Arbon Bleiche 3. It was after this project that researchers realized that the representative sampling of lakeshore settlements with paleoecological aims (e.g. characterizing past agriculture and gathering practices, as well as diet) was only possible through the systematically-taken surface samples of large volume (ca. 5 L).

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 is preserved over a surface of 3000 m². Layer 14 was documented in more or less good preservation in a smaller area of around 1000 m². A systematic sampling strategy was conducted and a new method of analysis was developed for the most effective time investment possible. These large samples were subsampled before sieving, producing one large-volume (sieved with 8 and 2 mm sieve fractions, for the recovery of large-sized seeds and fruits) and one small-volume sample (sieved with 2 and 0.35 mm sieve fractions, for the recovery of the small-sized seeds. Around 250 large-volume samples (ca. 5 L) and ca. 120 small-volume samples (ca. 0.3 L) were investigated for layer 13 and 53 large-volume and 33 small-volume samples for layer 14. This allowed the recovery and identification of over 200'001 plant remains for layer 13 and around 49'000 for layer 14. The data were evaluated on the basis of density (remains per litre of sediment) and ubiquity (percentage of samples in which a type of remain is present), as well as through qualitative evaluations of the spatial distribution of the concentration of remains at the site.

The large-scale sampling strategy applied allowed some new observations concerning taphonomy and economic activities taking place at the settlement. The distribution and diversity of plant remains found in our samples seem to show connections to several formation processes and routes of entry that we are trying to disentangle (lake action, animal dung, areas of accumulation of rubbish, etc.). In addition to this, a better evaluation of the role of some of the main crops like barley and pea, as well as the most relevant gathered plants, was possible, thanks to all these methodological improvements. Our aim with this presentation is to propose our strategy as an optimum for paleoecological evaluations of large-scale excavations in wetland settlements.
TH6-11 Abstract 24
Settlement dynamics and mobility in Late Neolithic Southwest Germany

Author - Kaiser, Mirjam, Universität Freiburg, Freiburg, Germany (Presenting author)
Keywords: Late Neolithic, pile dwellings, settlement system
Presentation Preference - Oral

The pile dwelling site Bachwiesen I (Bad Buchau, Kr. Biberach) located at the Federsee fen in Baden-Württemberg, excavated in the years 2005 and 2011, can be assigned to the Late Neolithic Schwäbisch Culture between ~ 4000 and 3800 BC. The site itself is dated by dendrochronology around 3970 BC.

The objective is to model a settlement system during the Late Neolithic by comparing the features, the corpus of finds and the results of natural scientific analysis of this settlement with other known settlements. The main source of information of this comparison are the known wetland sites.

To understand the possibilities and limits of such a model it is crucial to discuss which aspects of life can not be traced in the archaeological record and are forced to remain in the dark. Nevertheless important factors of how life is functioning among human groups can be hidden there. E.g.: Little do we know about what happened on the mineral soil during the same time.

In a first step a comparison of settlement structures, their duration, subsistence strategy, management of resources and the distribution of material culture characteristics in Upper Swabia will be made. In a second step the comparison will be enlarged 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 better understanding of the way of life of past people: How are the humans adapted to their sourroundings? 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 Schwäbisch Culture?

The presentation will give an insight in the current state of this PhD project and discuss the preliminary results.

TH6-11 Abstract 25
Bronze Age pile dwellings in Northern Italy: chronology, environment and architectural features

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Keywords: Cultural interactions, northern Italy, pile dwellings
Presentation Preference - Oral

In Northern Italy the widest spread of pile-dwellings took place between the 22nd and the 15th century B.C., during Early and Middle Bronze Age and endured till the 1st phase of Late Bronze Age (13th century), with a considerable difference with situation North of the Alps. From around 2050 cal BC, we assist to the spread of pile-dwellings, mostly around the Lake Garda and its morainic amphitheatre, but also in the lakes of the inner areas of the Barcis and Euganean Hills. This period is therefore characterized by strong cultural changes and radical reorganization of settlement patterns and socio-economic systems. Some recent excavations allows us to follow the technological and cultural evolution of the communities living in the area and to identify the development of the architectural techniques. Studies of finds shows long distance interactions and cultural relationships within Western, Central and Eastern Europe.

Interesting is the connection between Varese lake and Swiss plateau and between the Garda lake and the Danube basin. In the pile-dwelling villages the extraordinary preservation of organic remains concerns not only wooden structures, but even a lot of tools made with perishable materials. Thanks to those we can build a true-to-life reconstruction of those communities. The study of the finds and the data obtained from multidisciplinary researches show us an economy based on a settled down agriculture and breeding farm. Craftsmanship becomes more organized and integrated in the communities only starting from Middle Bronze Age. Subsistence economy mainly bases on cereals agriculture; hunting and fishing constitute a part of the diet, integrated with harvesting of spontaneous fruits. The abundance of cornels, hazelnuts and acorns shows how the inhabitants of the pile-dwellings intensively exploited the areas around the villages.

TH6-11 Abstract 26
Osseous artifacts from the prehistoric lakeside settlements of Amineon, Western Macedonia, Greece

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Keywords: Greece, osseous technology, Western Macedonia
Presentation Preference - Poster

In the last decade the intensive rescue excavations of the Archaeological Service of Florina unearthed a great number of prehistoric settlements close to the four lakes of the Amminion basin that date back from Greek Early Neolithic (~ 6800-5800 BC) to Greek Middle Bronze Age (~ 2200/2100-1800/1500).

The excavation of these sites yielded an impressive and diverse assemblage (more than 4000) of bone and antler artifacts which shows that, as in the prehistoric lakeside settlements of Central Europe, the osseous artifacts played an important role in the everyday activities of the inhabitants of the wetland sites of the region. In this short paper, there will be an attempt to present the osseous artifacts of some of these settlements.

TH6-11 Abstract 27
Cultural layer formation, production and dwelling areas on pile-settlements of Upper Dvina region

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Presentation Preference - Poster

Different processes, conditions and milieu of cultural layers’ formation were described on Neolithic pile dwellings sites excavated in Upper Dvina region. The site Serjaya II (remnants of pile dwelling settlement from the 3rd mill BC) is situated in the floor of a Holocene post-lake basin and architectural structures occur within coarse-destratified gyttja at the depthess of approx. 80-150 cm b.g.l. Although any sediments synchronous to the time of pile-dwelling settlement existence were not revealed - the conclusion based on the analysis of sediments in trenches and a hand auger coring at the site area and immediate surrounding and radiocarbon dating of organic deposits and different ancient artefacts and constructions’ remains. It testifies that the site was established on the open surface not covered constantly by water. It is an important observation for understanding cultural layers’ formation and process of cultural remains deposition, as well as depositional processes of sedimentation on this place. Several zones with artifacts and ecofacts in situ were uncovered at the site - they were: nuts, fish bones, shells and other materials, not mixed, which occasionally and intentionally were accumulated in pits or garbage heaps, nearby preserved remains of dwellings. They could be interpreted as open production areas. Inside the remains of wooden constructions, sandy platforms for fire-places were recorded - remains of all year production areas, which were deposited in another manner.

We could also suppose a much higher erosion of the upper cultural layer, where material was admixed by environmental factors during milieu changes (lake’s recessions/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 Serjaya 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 Serjaya II site, also in the buried lake shore zone.

TH6-11 Abstract 28
Geophysical prospection of submerged Neolithic settlements in Lake Sennica (Pakov Okt., NW Russia)

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Keywords: geophysics, Neolithic, Sennica
Presentation Preference - Poster

First archaeological sites on the bottom of Lake Sennica (~15 km2, 148 m a.s.l.), located in NW Russia on the border with Belorusia were uncovered in the 1980s. These lacustrine sites, dated to the 4th-3rd mill BC, were located along the shore 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 easternmost megalithic construction of the 3rd mill BC known so far in Europe. Lots of unique
artifacts were found here, among which a wooden Neolithic ski, wooden zoomorphic figures, bone flutes etc. However, during last 20 years the cultural layer on the bottom of the lake was either destroyed due to lake-level drawdown or buried under modern lake sediments. Another particular feature of this lake is its zero visibility caused by shallow bathymetry and high nutrient loads which makes any common archaeological prospection even more difficult.

In order to find further traces of archaeological constructions and cultural layers a range of remote sensing and geophysical methods, both underwater and on the peat bog shore were applied. For magnetic prospections on the peat bog shore of the lake we applied the highly sensitive total field caesium-magnetometer (±0.01 nT) in a variometer configuration. Combined with a high spatial resolution (sampling rate of 12.5 x 25 cm) the results allow us also to detect the weak magnetic signals of 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 paleolandscape, precise distribution of ancient stone and wooden constructions on the sites and to define and to locate the places for further excavations but moreover provides us a comprehensive approach to the site.

TH6-11 Abstract 29
Planigraphy and design features of the Neolithic from the North region of Lake Baikal

Author - PhD Emel'yanova, Yuliana, Irkutsk National Research Technical University, Irkutsk, Russian Federation (Presenting author)

Keywords: Baikal region, Neolithic, Planigraphy

Presentation Preference - Poster

Various functionality of archaeological objects is determined by the characteristics of their layout and design. It's always connected both with practical issues and with the sacred and social views. The ability to follow the example of the sections of the Baikal coast features of the organization of different types of archaeological objects of the Early Bronze Age is unique. Nowhere in the Baikal region is not identified neighborhoods in which would be located close to each other burial grounds, settlements, parking and a Bronze Age sanctuary. Materials from the north-west coast of the lake make it possible to model a mode of human exploration of the surrounding area, taking into account both profane and sacred elements. There are currently aware of only one archaeological site of the Baikal region - Baikal III, wherein the remains of the Early Bronze Age dwellings found. Located on the northwest coast of the lake, Baikal. The preserved part of the monument includes the sanctuary, contourd shaft and a moat, and surrounding it with the southern and western sides of the remains of dwellings. Visually, there are traces of six dwellings. On the ground surface, they are expressed rounded holes. Studied site to the Baikal III, began its existence in the Neolithic period. This is evidenced by the finds at the bottom of peat ceramic impressions mesh braid and radiocarbon dates obtained from the remains of bones and charcoal. With the period of the early Bronze Age associated the second stage of their existence. Saturation pits found this time indicates that at this time in the life of the settlement was the most active. Dwellings were kind of huts. Their lower part occupied square pit with rounded corners, a depth of 0.35-0.50m, oriented along the line northeast - southwest. The walls of the excavation, vertical, floor, or even a slight decrease to the east wall. Dimensions homes ranged from 6.5ht 5.8 to 10.5 m to m. The total area of houses from 50 to 80 square meters.m. In the south-western part of the home is fixed entrance, decorated in the form of an inclined ramp in width from 1 to 2m. The eastern wall of the home was a continuation of the entrance. Along it flowed the total area of houses from 50 to 80 square meters.m. In the south-western part of the home is fixed entrance, decorated in the form of an inclined ramp in width from 1 to 2m. The eastern wall of the home was a continuation of the entrance. Along it flowed

TH6-12 Abstract 01
Ritual continuity and changing monuments in the southern Serrpin Mountains, Northern Ireland

Author - Dr. Brogan, Catrina, Queen's University Belfast, Belfast, United Kingdom (Presenting author)

Keywords: Neolithic/ Bronze Age transition, Northern Ireland, Ritual landscapes

Presentation Preference - Oral

This paper argues that there was a surprising degree of spatial stability between Neolithic and Bronze Age ritual landscapes in Northern Ireland despite substantial changes in funerary/ritual practices. Taking the southern Serrpin Mountains as a case-study, it is shown that Bronze Age ritual activity tended to occur within established Neolithic ritual landscapes. The conclusion of this paper discusses some of the possible reasons behind this stability including functional, ritual and political reasons. The Serrpin Mountains form the largest mountain range in Northern Ireland, stretching across the north-west of the country. Glacial activity during the last ice-age has created a landscape of rolling mountains cut by deep glens. Today the upper slopes of the mountains are largely uninhabited as the spread of blanket 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 course of the Irish Neolithic substantial anthropogenic changes occurred; as people began farming the land and constructing megalithic tombs in which to bury their dead. These tombs are often regarded as being linked to ideas of ancestor veneration, where the remains of the deceased symbolically fed the community to the land they had invested in. Landscape analysis of the Serrpin 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 burial are gradually abandoned as burial within cist and pits becomes more prevalent and new ritual
structures in the form of stone circles and alignments emerge. These dramatic shifts in culture, and possibly even population, speak of change and discontinuity. Analysis of funerary ritual sites within the Vosges Mountains, however, suggests that, despite these dramatic cultural changes, there is a remarkable degree of spatial continuity between the Neolithic and Bronze Age ritual landscapes. While the face of ritual may have changed, the overall evidence indicates that the perceived ritual significance of the land endured.

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TH6-12 Abstract 02

Viking-Age landscapes in the longue durée: change, continuity, and perceptions of place

Author - Dr. Leonard, Alison, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: Landscape, Portable material culture, Viking Age

Presentation Preference - Oral

It is no simple task to assign dates to a landscape. In England, however, metal-detected artefacts recovered from rural contexts provide valuable benchmarks that bring chronological narratives of settlement and activity to light. This can be used to highlight specific ‘moments of crisis’ within narrow timeframes, such as the reduced circulation of coins in certain parts of England during the early Viking Age. When viewed from the perspective of the long 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 reverses 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 remains 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 successive communities requires alternative explanations. It is suggested that in these cases, their integration or avoidance was contingent upon the ways in which communal memories and local perceptions of place were transferred.

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TH6-12 Abstract 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 activities in other eras. Some landing places were naturally usable, but others show evidence for the adaptation of the intertidal shore and other simple alterations designed to improve safety or ease of use. It is sometimes possible to glean from this the reasons the landing places were exploited: fishing and the collection of seaweed are amongst the most obvious uses.

The character and status of the ways to the shore are similarly significant in betraying their former purpose. Some survive only as footpaths, some as tracks leading to individual farms, and others have been transformed into public highways. In this respect, map regression techniques, particularly when allied with GIS, provide a powerful means of gathering and presenting the information.

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TH6-12 Abstract 04

Multidisciplinary data-crossing about settlement and land-use in Jura mountains (5th-17th c.)

Author - PhD student Chevassu, Valentin, MSHE Lieuvaux / Université de Bourgogne-Franche-Comté, BESANCON, France (Presenting author)

Co-author(s) - Gauthier, Emilie, UMR 6249 Laboratoire Chrono-Environnement, BESANCON, France

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 in the diocese of Clermont (Auvergne, centre of France) during the 13th-15th centuries. This is a multidisciplinary approach based on a cross-checking of archaeological, architectural and historical data. It focuses on the reasons why the Mendicants decided to install in specific places in close to the city, particularly for political, economical and social reasons but also due to topographical constraints. It also demonstrates the prevailing reasons for settlement could change according to periods, cities and established urban landscape (e.g. re-use of religious buildings). Thus, this paper sheds light on the study of long-term religious urban landscape in medieval cities.

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TH6-12 Abstract 05


Author - PhD student Bourguignon, Claire, University Blaise Pascal Clermont-Ferrand II, Dijon, France (Presenting author)

Keywords: Diocese of Clermont, Mendicant Orders, settlement Processes

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 architectural studies in cities particularly in Aquitaine (Martin, 1975) or in Alsace and Lorraine (1985) since provided numerous and varied clues allowing a renewal of the problems linked to the settlement and building of 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 remain difficult to answer in most cases.

The 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 in the diocese of Clermont (Auvergne, centre of France) during the 13th-15th centuries. This is a multidisciplinary approach based on a cross-checking of archaeological, architectural and historical data. It focuses on the reasons why the Mendicants decided to install in specific places in close to the city, particularly for political, economical and social reasons but also due to topographical constraints. It also demonstrates the prevailing reasons for settlement could change according to periods, cities and established urban landscape (e.g. re-use of religious buildings). Thus, this paper sheds light on the study of long-term religious urban landscape in medieval cities.
Can humans change their spots? Site location patterns in Mid-to-Upper Paleolithic Cantabrian Spain

Author: Javier, Oroño, University of the Basque Country, Vitoria-Gasteiz, Spain (Presenting author)
Keywords: Late Middle/Early Upper Paleolithic, Settlement patterns, GIS, Spanish Cantabrian region

Presentation Preference - Oral

Research on the European Middle-to-Upper Paleolithic transition has mainly been devoted to issues of long-standing interest like human anatomy, artifact technology, economic strategies, symbolism or, more recently, genetics. By contrast, other aspects of the archaeological record still require further attention, particularly research on landscape perception and use. As a result, very little is actually known on the decisions and conditions that led Late Middle Paleolithic and Early Upper Paleolithic human groups to settle and move back and forth across the geography in this paper, a pilot approach to investigate this issue, we aim to explore how settlement patterns changed or persisted in a quite constrained and archaeologically rich area, the Cantabrian region (northern Spain). To this end, locational analysis has been undertaken on a total sample of 94 sites showing human use in a time-lapse spanning more than twenty millennia (ca. 45 to 22 ky BP) - coincident with the so-called Late Mousterian, Châtelperronian and Gravettian cultures. The study integrates the spatial analysis of different variables relating to factors like topography, geology, hydrography and habitability that are examined and calculated with the help of modern tools, mainly GIS. Results are statistically treated and compared with other archaeological and environmental data, showing a complex mosaic where divergences in settlement patterns through time can sometimes be evident or not, depending on the variables analyzed, and may reveal different - and not necessarily evolutionary - strategies for the peopling of a changing environment. After all, landscape use has always been about decision-making.

The structuring of the Adriatic littoral landscape between Atria and Altinum during Roman times

Author: Dr. Matteazzi, Michele, Catania Institute of Classical Archaeology, Viozena, Italy (Presenting author)
Keywords: Landscape Archaeology, Roman Archaeology, Roman Venetia

Presentation Preference - Oral

The Upper Adriatic littoral zone stretching between the ancient centers of Altinum and Atria (Adria) is a low plain continually redrawn, until the modern age, by an extremely complex hydrographic system, of which rivers Po, Brenta, Adige and Bcgchcione are the main agents; but that also includes a numerous series of canals, drains and ditches that fulfill the excess waters to avoid swelling. To all this great mass of water, which has always been a highly destabilizing factor for the plain itself, we must also add the other high morphological variability component of the landscape, i.e. the southern basin of the Venice Lagoon, where the hydrographic system goes (and went) to run out, and that, since ancient times, has offered those harbour areas that were crucial for the economic development of the territory.

If today the relationship between landscape and water looks very tight, we know that the condition also during Roman times, when classical sources tell us that here was the northernmost part of the great delta of the river Po (as mentioned the road 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 Aquileia (Ravenna) and Atrio), it was not uncommon to observe sea transgressions, and at the same time the progressive advances of the delta along the coast. The classic process of raising of the land, denoted by the term “longue durée”, at the same time, has been here reinterpreted, highlighting the importance of the human agency in the role of the landscape evolution, with an emphasis on 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.

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 Therarchic period: as a matter of fact with the Dacianic and Constantianic reformation she received officially the title of capital of the Venetia at Minta 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 Imperial agenda, firstly in relation with the Danubian times patrol but most of all as a bridge-head for northern and eastern trade routes. This prosperity echoes in the urbanistic evolution both from the point of view of public and private dwellings. Two centuries after, all of this was not there anymore and the town itself was reduced to a third of its original size. Moreover the new city wall (of the half of the VI Century AD) excluded not 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 (541 AD) is strong, but with this paper I will go beyond these single events trying to track those long durée 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 dioceses or as a memento of the unpredictability of fortune. These factors have been both natural (mainly the decrease in the flow rate of the river Natiso) and anthropic (mainly the changes in the power balance of the Roman Empire), the transfer of the capital to Ravenna in 402 AD.
litoral and the hydrologic evolution affected the North Western Etruria sea- and river ports and landing places scattered along the coastline in Antiquity and in the Middle ages. The Roman road network was constructed on stable soils in the coastal strip and in the main river valleys in the frame of a strategic plan. A post-medieval interesting case study is the coastal plain NW of Pisa. Here since the 15th Century several plans aimed to reclaiming a large swampland South of the Massaciuccoli lake were made but not achieved. In 1693 an attempt was made by the Dutch Van der Breecht, who built a few windmills in order to raise the water level. The coastal progression came to end around 1830, the Arno-Serchio rivers sold transport being diverted from their destination to the sea into swamp filling areas in the frame of the systematic land reclamation pursuits by the Lorena. That caused the erosion of the Arno delta since the end of the 19th century. The present courses of the Arno and Serchio rivers result from complex natural transformations and anthropic actions taken over the centuries, ranging from the straightening of river segments and the draining of stagnant waters to the construction of embankments, dikes, cause di colmate and the building of canals to divert flood waters.

**TH6-12 Abstract 10**

**Prosper in Valley, Hide in Mountains: Dynamics of Settlement in Lubuski (Bosnia and Herzegovina)**

**Author:** Dziedzic, Tomasz, Institute of Archaeology, University of Warsaw, Warsaw, Poland (Presenting author)

**Key words:** Late Antiquity, Roman, settlement patterns

**Presentation Preference — Oral**

The paper analyses the changes in settlement brought about by the Roman occupation of the Trebišat valley and its surrounding highlands and mountain ranges, a geographically well-defined microregion which today constitutes the modern community of Lubuski 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 states. 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 but also it was a pasture for the valleys 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 Romans, and the protection of road networks, that resulted in conflicts between the quickly Romanising 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 the 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 hilltops 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 those cyclical developments can be observed also in the medieval and early modern periods. It appears that the choices of places for settlement and of the main economic activities of the population of the region were dependent on the perceptions of safety, which in this difficult, mountainous landscape could be achieved in one of two ways: by resorting to inhabitation of naturally defensive places or by the participation of peacekeeping forces, demanding both an economical and political outside involvement, but giving the possibility for much more intensive local economic development.

**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):** Gaweł, Anna, Jagiellonian University in Cracow, Kraków, Poland

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**Key words:** 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 Malopolska Lowlands, the upper Vistula valley, the Carpathian Forestland, and the West Carpathians), were chosen to test the role of these factors.

We apply the comparative method (using standardised data and a set of ‘middle range’ theories) to analyse similarities and differences. The list of variables we included contains: time (the pace and synchronicity of change in past east areas), space (communication factors in inter-population transmission), environment, with its natural and anthropogenic transformations in time, stylistic diversity in manufacturing traditions, organisation of settlement area (at the site and micro-region level), 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 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 14

It’s always the same old story… or not?
The ‘changing’ landscape of Cappadocia (Turkey)

Author - Dr. Turchetto, Jacopo, University of Padova, Padova, Italy (Presenting author)
Keywords: Cappadocia, Turkey. Local scale vs. macro-regional scale. Road networks and settlements’ patterns
Presentation Preference - Oral

During the course of the centuries, and especially from the Greco-Roman period to the Seljuk times, Cappadocia represented one of the most important hubs and crossing-points of the Anatolian peninsula. Within that chronological framework, it acted as a cultural, economic and political bridge between East and West of both the classical and the medieval world. For those reasons, taking into consideration the interactions occurred between man (with different needs in different periods) and the landscape (which remained almost the same through time), Cappadocia offers a great variety of ‘food for thought’. In this paper, I will focus on three different geographical sectors of Cappadocia, each characterised by its own specific natural features: a) the semi-flat belt between Colonia Archelais/Aksaray and Caesarea/Kayseri, next to the course of the Kizilirmak river; b) the area comprised between Colonia Archelais/Aksaray and Tyana/Kemherisar, with the volcanic groups of the Melendiz Dağları, Hasan Dağ and Göllü Dağ, and the fertile plain surrounding them; c) the mountainous area between Tyana/Kemherisar and the lake Kayseri (the host of the Taurus chain).

In this context, archaeological and topographical evidences point towards the existence of settlements’ choices and itinerary patterns of long duration. However, when examining the matter at a more local scale, what clearly emerges is that (in certain areas, at least) some changes took place through time. Towns or villages were abandoned and replaced by other ones; stretches of routes were no more maintained and fell into disuse; previously exploited areas were for more favourable regions. Trying to recognise those changes and understand the different reasons (of cultural, economic, political, military nature) which subverted them will allow to better appreciate the historical evolution of the Cappadocian landscape and the role it played during the course of the centuries.

TH6-12 Abstract 15

Archeogeography of a border: the roman Limes system in south Romania (frontier, roads, landscape)

Author - Fajol, Philippe, Ministère de la Culture, Rouen, France (Presenting author)
Keywords: archeogeography, longue durée, roman times, south Romania, Olt valley
Presentation Preference - Oral

How to consider the meaning of “border” in archeogeography? (beyond the joke about the title of the session) First, it’s useful to consider the different criteria of the limit between 2 territories, based on the thoughts of sociologists and philosophers. Before to be geographical evidences, frontiers and associated road networks are first, an intellectual constructions of societies, second, a mark of the politics, and third a sign for populations. Therefore, this analysis allows to consider the frontier as a archeogeographical concept because of its « longue durée » meaning.

In the territory of the actual Romania, after the Trajan conquest, at the very beginning of the second century A.D., the new limit of the Roman Empire is on the northern side of the Danube. In the Wallachian plain, archeologists consider two different limits named Limes Alustinus and Limes Transalutanus. The first one is on the western bank of the Olt river, the second one is on the eastern plateau in the Bistrița plain. These two limits may represent a chronological distinction, a functional difference, or both. Using in the same time many data from different sources origins (topography, geology, hydrology, morphology, topology, village and road network, archaelogical settlements’), we’ll try to explain that none of these proposals is the right one. It’s necessary to consider both Limes as a complex system, with a triple function: to create a virtual space between Roman Empire and foreign country, to put a physical limit in a dominant situation, and to organize trade and circulation behind and along the border.

In this case, this organization is in full adequation with all the contraints. The territory of this sector is very specific, including a wide valley with a quite regular slope in the West and a high cliff in the East, before the plateau. The valley is occupied with wetlands and marshes.

This good use of the territory, and its associated organization, has crossed the times until the humankind modify natural landscapes.

The contemporary landscape organization keeps different remains of this situation in the lineaments, in the parceling system and in the road network. It also shows us 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 twelfth century, most of the testimonials of this very organized frontier have disappeared. Because of its originality, it’s now time to look at its last remains as a huge historical monument which needs to be kept for national memory of Romania.

TH6-12 Abstract 16

The Impact of Water on Settlement Development in Western Europe

Author - Donnelly, Harriet, The University of Sydney, St Leonards, Australia (Presenting author)
Keywords: early medieval, settlement patterns, water systems
Presentation Preference - Oral

The establishment or development of any settlement will require a reliable supply of fresh water. The vital nature of this resource creates a significance for water in any discussion of the interaction and relationship between humans and their landscape. During periods of transition, the importance of this relationship, and the effect it has on the development of settlements, can be examined. From the 5th century AD, following the decline of the Roman period in Western Europe, and on into the 12th century AD, the manner in which many of the water systems were used shifted, while other uses remained constant. The movement of various groups into new parts of the continent resulted in changes to the expression of the human relationship to water systems in the urban structures across Western Europe. Places such as Londoinium/Ludovicum experienced a significant transition from their previous urban layouts, while others, including Corduba, appear to continue to function within the original Roman boundaries. This paper seeks to examine the impact that the relationship between the communities that lived in these settlements, and the water systems that they used, had on the urban development of these sites. Does the change or continuity that is displayed through the sites urban development reflect this dynamic relationship? Through examining how water has impacted communities’ decisions regarding their settlements across Europe on a broader scale, wider trends during this period can be identified and understood alongside regional variation to enable a more complex understanding of the nature of the relationships between Early Medieval communities and their landscapes.

TH6-12 Abstract 17

Redistributing of Ancient Grave Stones in Antioch on the Orontes according to their Provenance

Author - Güven, Evrim, Buca/Izmir, Turkey (Presenting author)
Keywords: Antioch on the Orontes, cemeteries, grave stones
Presentation Preference - Oral

The contours of the city of Antioch on the Orontes are revealed in the ancient writings and the excavations conducted on the initiative of Princeton University throughout the 1930s. The grave stones that remained from the Antiquity can provide us with precious data concerning the urban outlines in ascertaining the information we possess in hand.

Nonetheless, we must above all be aware that the grave stones are most often fortuitous finds detached from their original place whose provenance is unidentified. In addition, they are usually acquired by institutions or individual collectors via purchase, donation or confiscation. Therefore, none of the researches executed throughout XXth century has offered a veritable comparative approach between the extant knowledge and the concentration of the find spots, although it may have helped us in mapping out the city.

With this objective in mind, we attempted to find the exact provenances of (around 250) grave stones, as much as possible, within the frame of our doctoral research, in the inventory records of museums (Antakya Arkeoloji Müzesi, Istanbul Arkeoloji Müzesi, Musée du Louvre, Princeton University Art Museum, Worcester Art Museum) and of a local private collection (Özalı Çoşkun Kayıklują). Furthermore, we examined reports, diaries, field notebooks, maps, plans, drawings and sketches of the aforementioned excavations in the Visual Resources Collection of the Department of Art and Archaeology of Princeton University.

We have thus been able to draw the topographical context to which the grave stones originally belong.

In this paper, we will present main results of our study concerning the grave stones that we red in pursuance of delineating the city limits. We will demonstrate by using visual materials how they concentrated in periphery of Antioch on the Orontes.

TH6 Archaeology without borders
The landscape of iron production – from prehistory to the Early Modern Period in present-day Latvia

**Author:** Dita, Auzina, University of Latvia, Latvia (Presenting author)

**Keywords:** Iron production, landscape

**Abstract:**

In the vicinity of city Brežice (southern Slovenia), flood, medieval, post medieval

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**TH6-12 Abstract 19**

**Warfare and Urban Transformation in Late Antique Central Balkans**

**Author:** Jerina, Jairc, Oxford, United Kingdom (Presenting author)

**Keywords:** Late Antiquity, Transformation, Urbanism

**Abstract:**

On the right bank of the Sava River, east of the village Krška as there used to be an area of late medieval and post medieval farm land.

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**TH6-12 Abstract 20**

**Medieval and post medieval village of Zasavje**

**Author:** Mikuš, Miha, Institute for the Protection of Cultural Heritage of Slovenia, Slovenia (Presenting author)

**Keywords:** Medieval and post medieval, landscape

**Abstract:** In the vicinity of city Brežice (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.

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**TH6-12 Abstract 21**

**Phenomenon of Medieval and Post-medieval Rural Settlement Abandonment:**

**Author:** Holata, Lukáš, University of Exeter, Exeter, United Kingdom (Presenting author)

**Keywords:** Abandonment, Medieval and post-medieval period, Rural settlement

**Abstract:**

The abandonment of rural settlement (desertion and shrinkage) is documented over the majority of European countries, especially between the 14th and 17th centuries. In some areas, desertion affected more than half of the all settlement units and significantly influenced the character and shape of today’s landscape. Despite considerable attention being paid to medieval settlement changes within several disciplines (history, historical economy, historical geography, historical demography, natural sciences and archaeology) as well the process of abandonment still remains poorly understood. On the contrary, a large number of reasons for settlement abandonment have been suggested across Europe, both cultural and environmental. In addition to various war events, demographic decline or unfavourable economic development, the human impact on the environment and changes in natural factors (deforestation, soil erosion, drying up of streams or an increase in flooding, climatic deterioration) have been suggested. A general idea of a ‘retreat from the margins’ is spread across European countries. The paper evaluates the conventional concept of abandonment in marginal areas regarding their natural characteristics and tries to discuss the role of natural conditions in shaping of human communities together with their effect in wider transformations of land-use and the emergence of the countryside as a whole. Although the process clearly evokes the considerable change, systematic study in large-scale level has obtained remarkable evidence of continuity as well – if some settlements situated in positions originally regarded as marginal were not deserted at all; 2) some settlements survived in shrinkage forms or in close proximity of deserted sites; 3) there is also increasing evidence of multiple exploitation or utilisation in original settlement areas after settlement desertion (continuity in land-use, field systems, network patterns etc.). Thus, cases of total abandonment as well as an entire retreat from the land are very rare. Although the examples across Europe are included, the paper focuses on Central Europe (esp. the Czech Republic) and England, where the long-term interdisciplinary research concerning deserted settlement and large collections of data gathered and evaluated by the author, enable deeper conclusions.

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**TH6-12 Abstract 22**

**Up and down: Models of landscape use in Middle-Late Bronze Age. A study case from Eastern Romania**

**Author:** Prof. Bolohan, Neculai, Alexandru Ioan Cuza University of Iasi, Romania (Presenting author)

**Keywords:** Landscape, Middle-Late Bronze Age, patterns

**Abstract:**

The Middle Bronze Age is represented by Costișa and Montenou cultures and the Late Bronze Age is represented by Noua culture. For the case under study in the workspace it stands out the different way of using the landscape. This change is due to both natural factors and human factor.

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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
(except mining).

As a consequence, at the transition from the Middle Bronze Age to the Late Bronze Age in Eastern Romania there occurs a
major change in the housing model which was represented by fortified settlements (strongholds, intervening between settlements,
the control of access roads, the placing in the proximity important water courses). This model encountered in the all the Sub-Carpathian area will be replaced with a kind of a micro regional swarming model much closer for
the cattle breeders communities with new preferences (secondary and tiny watercourses, lowlands, Chernozem soil, 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
proposed case study, that took place in a micro region in eastern Romania, there were found the data to support this assumption.

The history of medicine provides the critical hindsight required to fully contextualize the culture of medical treatment and social
care in the past. While Egyptian, Indian, Greek and Roman medicine have been extensively studied, this session focuses upon
the archaeology of medicine in Northern Europe. Archaeological research has identified an array of plants, surgical instruments,
preparations, and formulations of various ingredients, while historical written records have identified alchemical and folk remedies
used throughout northern Europe in the past. This session intends to discuss the negotiation of social roles and concepts
of identity, culture and agency amongst patients, medical practitioners and other individuals involved with spaces of healing.
This session welcomes contributions concerning medical practice, access to medical care, archaeological theory in medicine,
healing, palaeopathology, medicinal archaeobotany, surgery, hospitals, and the treatment of disease, impairment and mental
illness in northern Europe.

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**TH6-13 Abstract 01**

**Provision for both the sick and the poor in relevant institutions from the 12th to the 19th century**

**Author:** Dr. Kahlow, Simone, German Maritime Museum, Bremerhaven, Germany (Presenting author)

**Keywords:** care institutions, health care, medicine

**Presentation Preference:** Oral

In the last thirty years, archaeological research has, together with interdisciplinarity and collaboration, yielded comprehensive
information to reconstruct the development of care institutions from the 12th to the 19th century. These include, amongst others:
hospitals, bath houses, apothecaries and orphanages. Several categories of archaeological finds such as small finds, building
construction and skeletal remains, offer an insight into the provision of the so-called ‘paupers et infirmi’, for those who need to
be cared for. Starting with the support of monastic communities, caring institutions for the poor, the sick, the elderly, orphans and
disabled, to name a few, spanned ever denser threads in the web of an increasingly more complex society.

The presentation will focus on the results of my PhD thesis that were submitted to the University of Bremen in 2014. The
topics of this research are 110 archaeologically 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 backdrop 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.

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**TH6-13 Abstract 02**

**The Bubonic Plague and Monasticism in Iceland**

**Author:** Prof. Kristínegsdóttir, Steinunn, Department of Archaeology, University of Iceland, Reykjavik, Iceland (Presenting author)

**Keywords:** Bubonic Plague, Iceland, Monasticism

**Presentation Preference:** Oral

This paper depicts the impact the bubonic plague had on the medieval monasteries and nunneries in Iceland when it twice struck
the country before their closing during the Reformation. The plague had its first outbreak there in 1402-1404 and again nearly a
century later, in 1494-1495. Inside churchly institutions, such as the monastic ones, the death ratio seems to have been relatively
higher than generally in the society but at the same time they did financially grow more than ever before. The explanation may
originate in the general aims of monasticism to take care of the sick and even the dead, making their servants more vulnerable
against the disease. Synchronously, people did trust the very same institutions to scotch the plague, not at least in their constant presence, and prospective dimension, this project addresses heuristics issues offering a unique interdisciplinary dialogue, and tackling current health, socio-economic, ecological and intangible heritage issues.

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TH6-13 Abstract 03
Surgical treatment at the Danish Cistercian Abbey of Ægir - A critical analysis
Author: - Malene, Lene, Museum Stenderborg, Stenderborg, Denmark (Presenting author)
Keywords: Medieval Abbey, Skeletal paleopathology, Surgical treatment
Presentation Preference - Oral

Through eight decades the Cistercian Abbey of Ægir, 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. 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 undebatable. Modern anthropological analysis is questioning the former interpretation of the human skeletal material. New insight gives the basis to reevaluate the role of the Cistercian monks as physicians and surgeons. This paper looks into the alleged surgical treatment on human bones and deals with the question, whether surgery has taken place at the site, as well as the monastery's role as a medieval hospital.

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TH6-13 Abstract 04
Heavy metal: health, medical tradition and cultural exchange in historic Iceland
Author: - Walter, Joe, Walllake, Reykjavik, Iceland (Presenting author)
Co-author(s) - Prof. Kristjánsson, Steinn, Department of Archaeology, University of Iceland, Reykjavik, Iceland
Co-author(s) - Dr. Hafisdottir, Natasia, Reykjavik, Iceland
Keywords: disease, osteology, alchemy, heavy metals, culture, Iceland, monastery, hospital, medicine, treatment, sulphur, mercury, paleopathology, ICP-MS
Presentation Preference - Oral

Skriðuklaustur, located in the east of Iceland near the Vatnajökull glacier, operated between AD 1493-1554. As an Augustinian monastery, Skriðuklaustur ran a hospital with sophisticated medical practitioners, providing medical and surgical treatments. The specialised medical knowledge, range of medicinal plants and herbs, and evidence of imported objects and food found at the site are indicative of Iceland’s international cultural inclusion in the past. Between 2002-2011, 271 out of 285 individuals were excavated from the site, presenting a vast array of medical conditions including syphilis, tuberculosis, hydatidosis and Paget’s disease, for example. In addition to disease, it is also vital to consider environmental influences on human health as a result of living in the Vatnajökull area 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 color pigment in scholarly work and during the gliding 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 Skriðuklaustur. This presentation will discuss the results of osteological and chemical analyses, considering environmental, medical and occupational exposure to heavy metals. The results of stable isotope analysis for strontium will enable this research to consider the geographic origins of the individuals seeking treatment at Skriðuklaustur, thereby providing further insight into concepts of mobility, isolation and care in historic Iceland.

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TH6-13 Abstract 05
The Archaeology of Zootherapy in Northern Europe
Author: - Dr. Miller, Holly, University of Nottingham, Nottingham, United Kingdom (Presenting author)
Keywords: Animal medicines, Medicine, Zootherapy
Presentation Preference - Oral

The World Health Organization (WHO 1993) estimates that about 80% of the world’s population rely on zootherapy—the use of non-human animals, their parts and products—as a method of primary health care. In the past the percentage of people who utilised zootherapy was certainly higher, as evidenced by Roman medical texts and Anglo-Saxon leechdoms, which are replete with advice about animals as human medicines. Only in the late modern age has there been any marked decline in animal materia medica, yet archaeological studies of animal-derived medicines are rare. Given how widespread animal-based medicine is in societies past and present, it seems inconceivable that the remnants of zootherapy are not preserved in abundance within the archaeological record.

This paper will review archaeological evidence for animal-based medicines in Northern Europe, discussing the socio-cultural importance of zootherapies in the past. In particular, it will draw on the significance of wild and/or exotic animal species and their medicinal role that is likely to have been due to the widely held, cross-cultural belief that geographical distance is equalised with supernatural distance, and that animals derived from ‘outer realms’ (e.g. the wilderness or far-off lands) are more medicinally potent.

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TH6-13 Abstract 06
Curing animals and human with wood tar in the Mediterranean from the Middle Ages to Present
Author: - Burri, Sylvain, CNRS, Simiane Colongue, France (Presenting author)
Co-author(s) - Regret, Martine, CEPAM UMR 7204-CNRS-UNICE, Nice, France
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Keywords: Ethnomedicine, Pharmacology, wood tar
Presentation Preference - Oral

Wood tar, extracted by dry distillation, has been used in human and veterinary medicine since ancient times. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the mankind used to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the research. ONGUENT aims to fill this gap by studying medicinal tar in a systemic way, from the plant raw material to the end product and its use, on both sides of the Mediterranean today and in the past, and by assessing their actual medicinal effects, or even toxicity. Our innovative research is embedded in an inter-disciplinary and cross-sectoral framework, crossing the methodologies and perspectives of the humanities and life, material and environmental sciences (history, archaeology; bio-archaeology: organic chemistry and Phytochemistry; plant biology and molecular biology; pharmacology, toxicology and ecology) carried by a Mediterranean and complementary consortium of scientists. Both diachronic and synchronous, this research takes place in different space-times: medieval and post-medieval Provence (France) on the one hand, and current Atlas and Anatolian mountains (Morocco/Turkey). Through a cross-approach, research is organized into three work packages. The first package deals with natural resources, knowledge and know-how used to produce wood tar and the micro-environmental impact of this activity. The second package aims at providing a better understanding of wood tar as material, of his biological and chemical composition through the acquisition and analysis of current different plant species’ tars, the development of a relational database, the analysis and chemical characterization of archaeological tar residues, and finally comparison of the molecular spectra of tars and essential oils. The goal of the third package is to study the use of these different sorts of tar in human and veterinary medicine in the past and today, to assess their actual medicinal properties and their possible toxicity. By its retrospective and prospective dimension, this project addresses heuristics issues offering a unique interdisciplinary dialogue, and tackling both current health, socio-economic, ecological and intangible heritage issues.
TH6-13 Abstract 07
Written in bone? A critical review of evidence for treatment in human skeletal remains
Author: Dr. Jakob, Tina, Durham University, Durham, United Kingdom (Presenting author)
Keywords: Human skeletal remains, Palaeopathology, Treatment
Presentation Preference: Oral

It is well known that many treatments for diseases and injuries existed in the later Medieval period (ca. 1050-1550 CE) in Northern Europe. Written records, surgical instruments and other artefacts for wound treatment, medicinal plants and various materials used to treat illnesses have been widely discussed. However, very little evidence of such treatments is readily observable when we analyse the actual remains 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 tissue. The most commonly observed skeletal lesions include dental disease and trauma. Dental disease in the form of caries and periapical lesions increased in the later Medieval period, especially with the wider availability of sugar and finely milled flour that would have promoted dental caries. However, according to medical treatises removal of infected teeth was largely avoided and it must be speculated that the high percentage of teeth lost ante-mortem in medieval individuals can be attributed to natural causes. Fumigation was one form of treatment for “tooth worms” thought to cause dental caries and potentially such treatment could irritate the upper respiratory tract and, if chronic, could lead to mastoid infections. 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 unnatural) trepanations is known from almost every continent. Trepanations would have been performed to treat head injuries, epilepsy or other neurological problems. Despite a high survival rate of patients’ in earlier times, the number of skeletons found with trepanations decreases in the later Medieval period in Northern Europe, attesting that other, probably less invasive treatments for cranial trauma and neurological disorders were favoured. Amputations are rarely seen in human remains and the few known examples from late Medieval England and the rest of northern Europe might be due to the low survival rate of affected individuals. Furthermore, unhealed amputations might not be easily observable and they can potentially be mistaken for post-mortem damage. Lastly, fractures, especially of long bones, when healed with little deformities have been viewed as evidence for fracture treatment. However, it has to be acknowledged that fractures of the lower leg are mostly bone, when affecting only one bone might have a natural history with angular, even in the absence of treatment.

In conjunction with these examples, further evidence for treatment can be discussed and critically evaluated, but it has to be concluded that without additional contextual evidence human skeletal remains are not an unambiguous source of information if we want to infer medical treatment in the past.

TH6-13 Abstract 08
Osteoarchaeological Evidence for 18th century Anatomy and Medical Treatment at Wittenberg, Germany
Author: Mayer, Christian, Halle (Saale), Germany (Presenting author)
Co-author(s): Girotto, Chiara, University of Durham, Durham, United Kingdom; Albrecht, Michael, Mecklenburg-Vorpommern, Germany; Alt, Karlheinz Wendler, Krems-Stein, Austria
Keywords: Human Skeletal Remains, Palaeopathology, Palaeoanthropology, Treatment
Presentation Preference: Oral

The Renaissance in Wittenberg, Germany, founded in 1502, is well known for some of its illustrious faculty members, including important historical figures like Martin Luther and Philipp Melanchthon. Both supported and influenced medical teaching at the university during the 16th century, which fostered a period of medical and theological thought at that time. At Wittenberg University a sound understanding of the healthy human body was seen as prerequisite for an understanding and healing the human soul. Especially Melanchthon, with the help of the anatomical drawings of Vesalius (“De humani corporis fabrica”) around the middle of the 16th century.

Recent excavations at Wittenberg and subsequent osteoarchaeological analyses have now discovered evidence for medical practice and pre-Vesalian academic teaching of anatomy during the first half of the 16th century. The remains of several individuals buried in the former Franciscan monastery of Wittenberg, which was utilized by the university for a short time before it was converted into a military facility around 1538, show for example evidence of trauma and syphilitic infection and their respective treatment. Furthermore, rare cases of Renaissance anatomical dissection of complete and partial human bodies have been identified at the site, which can be correlated very well with surviving historical information from different sources.

The aim of this research is to evaluate evidence for accidental and intentional trauma in skeletal populations from Finland. Trauma was studied in 473 individuals dating from the 11th to the beginning of 19th century in Finland. Ancient Finnish populations showed a greater relative prevalence rate for trauma of 18.4%. The occurrence of trauma (including violence related trauma) in spatially and temporally populations close to the Finnish study populations ranges from 15-35%, so this finding falls in the middle of the reported range. Prevalence of cranial trauma, on the other hand, seems lower than in most of the previously published bioarchaeological studies. Trauma studies are usually focusing on violence, and as most of the trauma in the present study is non-violence related, it was more difficult to find appropriate comparative studies. Most of the trauma was observed on the axial skeleton, followed by the upper and lower extremities. Rib fractures are the most frequently fractured bones, followed by the ulna. Distal or midshaft ulna fractures, which may or may not be interpreted as }
terms of head trauma – the former being more susceptible to it. Meanwhile, statistically significant difference was observed between higher-ranking part of society and laymen in spine area, while the males were predisposed to diverse fracture locations. As perimortal – no healing signs suggested an early death. Males correspond to the universal model which indicates their trauma pattern: Cathedral and Liejyklos street (17-18th c.) – elite members of society, church of The Holy Trinity (17-18th c.) – peculiarities in medieval period. Thus, 5 different objects representing varying social status were selected for investigation of plausible explanations for its cause and presumable outcomes.

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.) – clergy and inhabitants, Mindaugas street (16-17th c.) – Vilnius laymen, Mindaugas street (19th c.) – poor.

A total of 109 injured individuals (27.3% of total individual count) were observed among 400 examined males, females, and non-adults. 82 (29.5%) had only one fracture, while 27 (8.8%) suffered more than one injury. Five cases were recorded as perimortal - no healing signs suggested an early death. Males correspond to the universal model which indicates their dependency to a ‘higher-risk’ group; injured males consisted 75.2% of all injured individuals. The most 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. Interestingly 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 larger 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.

One of the objective 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 destroying during II World War in 1945. Accomplishment of the research includes reconstruction of the biological condition of the population based on broadly approached reconstruction of the health status, including comprehensive analysis of the skeletal lesion. So far, during two seasons of field work carried out in the micro-region Tormersdorf-Toporów, excavations were conducted within the relics of the cemetery, located to the northwest of the ruins of the village. During archaeological analysis, only one phase of use of the cemetery was found, dated 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%) intrarticular 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 Tormersdorf thesocal care home (Brüder-undPflegehausZOAR) was functioning. This allows toesta 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.
TH6-14

IN HEAVEN AS IT IS ON EARTH: ARCHAEOLOGICAL TRACES OF MINORITIES AND RADICAL RELIGIOUS IDEAS WITHIN SOCIAL IDENTITIES IN THE MIDDLE AGES

Friday, 2 September 2016, 14:00-16:00
Faculty of Philology, Room SP2
Author: Garcia-Contreras Ruiz, Guillermo, University of Reading, Reading, United Kingdom (Presenting author)
Co-author(s): Tejerizo, Carlos, Universidad del Pais Vasco, Vitoria, Spain
Keywords: Archaeology of religion, Minorities religious, Social identities
Presentation Preference: Regular session

Understood as a part of social identity of past societies, religion shall be contextualized in a historic and social frame that can explain this phenomenon in terms of complexity. Religion can be seen as part of macro-ideological discourses, such as the Crusades or Jihad, or as part of the relationship between States and religious institutions, but also a form to shape social relationships within local communities and a form of political and ideological control among those who profess a different faith of the rulers.

The main aim will be to explore the possibilities and limits of archaeology to study religion as a social phenomenon in past societies and to shape its importance in different case studies within a long-term view. The session will discuss religion both in its importance as a state institution and as a social form of identification within local communities and minority religions, and also the conflicts derived from the contact of those spheres, as for example when internal transformations from radicalization of some groups within major religions are produced. The first groups were targeted by stigma and discrimination, especially when religious differences are correlated with other instances of social identity, such as ethnicity. The seconds have been agents of change at different times, causing not only cultural reforms, but also economic, political and social transformation. Both are needed to understand the role of religion as a part of social identity, and to serve to understand the cultural complexity of the Middle Ages and beyond.

Which kind of material record is available for the study of these groups? What are the main differences of minorities and radical versus majorities beyond the cults? How does religion reinforce their identities in relation to others? These are some of the questions we intend to address in this session.

TH6-14 Abstract 01

Muslim and Protestant religious minorities and funerary spaces in south of France

Author: Glaize, Yes, Pessac, France (Presenting author)
Keywords: Funerary archaeology, Religious minorities, South of France
Presentation Preference: Oral

During the Middle Ages, the institutionalization of the concept of Christian cemetery raises the question of the integration of the religious minorities. Were religious minorities always 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-architectural analysis crossing at the same time archaeological and biological data allow to bring new data on the identity of the deceased, 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 inclusion or not of communities such as the Muslims or the Protestants in the funerary spaces. But it will important to analyze their presence over the long term of history and to try to distinguish potential evolution.

TH6-14 Abstract 02

Dealing with identities. Archaeological traces of Muslims and Dimmi-s in the Middle Mark

Author: Bueno, Maria, Université Paris Est-creteil, Paris, France (Presenting author)
Keywords: Archaeology, Ethnicity, Identity
Presentation Preference: Oral

In this paper I deal with the problems derived from adscription of archaeological data to Berbers, Muslims and Christians in the north of the Middle Mark of al-Andalus. I present both, the results of archaeological surveys integrating data from the Archaeological and Culture Territorial Service of Soria, Castilla-León, and the analysis of materials preserved in the Munumento Museurom (Soria) used in my PhD dissertation. I will pay special attention to confluence sites such as Mirlo de Medinaceli and Conquequela. These sites reflect the different powers successively overlapped and the problems concerning the adscription of identifying bearers in 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 through written Islamic sources: between the 8th and 9th century different Berbers larxes, clients of the Umayyad’s lords were settled in this area, years later, after the nomination of Abi al-Rahman II (939) as Caliph, this area was rebuilt 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 larxes in this area, was as we, 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 elite? Can we demonstrate the religious identities traces of this population?

After 946, Medinaceli was rebuilt and became the administrative centre of the Middle Mark, while the nearby fortress of Gormaz became the military centre, the starting point for the northern expeditions replacing the Atienza fortress. This area became a fortified frontier based entirely in a network of fortress and towers depended on Umayyad power, and the expression of power of the Umayyad Caliphate based on juridical mentality.

However, the new Muslims’ rulers were not installed over an unhabitad areas, they were, 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 are not associated with artifical or osteological remains, thus making it impossible to determine accurate chronologies, so they merit to be integrated in a collective debate.

TH6-14 Abstract 03

From hand to mouth: dietary perspectives on religious minorities in Medieval Portugal

Author: Toso, Alice, University of York, York, United Kingdom (Presenting author)
Co-author(s): Dr. Alexander, Michelle, University of York, York, United Kingdom
Keywords: Diet, Isotopes, Medieval Portugal
Presentation Preference: Oral

Diet had an important cultural and symbolic meaning in medieval societies. In particular, the preparation and consumption of avoiding certain foods played a significant part in the construction of identities by social status, age, sex and faith. This is especially intriguing for the multi-faith societies of Medieval Iberia where Christians, Muslims and Jews co-existed during the medieval period. In multi-faith societies co-existence and rulers’ religious tolerance towards minorities are intrinsically linked, affecting all aspects of socio-religious life including dietary requirements. This paper addresses debates on socio-religious changes in an understood area of Portuguese history, applying carbon (13C) and nitrogen (15N) stable isotope analysis to investigate the diets of Islamic and Christian communities in medieval Portugal under shifting religious political control. Stable isotope analysis, which provides direct evidence of the diet of archaeological individuals, has been applied to the skeletal remains of Muslims and Christians from the medieval sites of Beja (9th-12th C AD) and Slives (9th-13th C AD). These sites are notable for the presence of communities of Muslims and Christians that co-existed before and after the Christian conquest. Beja provides the remarkable opportunity to analyse contemporaneous Muslims and Christians living under Muslim rule and buried in the same burial ground. In addition Slives offers an influence to the Christian conquest onto the economy and lifestyle of the Christian minorities in southern Portugal as well as the effect of the shifting political control on the pre-existing Muslim groups. The combination of the data from these two settlements can provide information on the economies and the subsistence strategies put in place by religious minorities as well as shedding light on the development of medieval pluralistic societies under shifting powers and during transitional periods.
The roads of the Inquisition are related to the power that religion had in Medieval times, representing values as engines of collective lives. As a result, the Catholic Church and the Papacy took over, since the 12th century, the leading role in the fight against heresy. The Inquisition had its origin at that time, and its development through the Catholic world led to its official creation in Portugal in 1538, aiming the surveillance of the ‘purity of faith’, the suppression of heresy, and the discipline of religious beliefs and behaviors, essentially related with the Jewish presence in the Portuguese territory. In 2007/2008 an archaeological excavation took place in approximately 12% of the so-called Jail Cleaning Yard, the dump of the Évora Inquisition court. Having as starting point this archaeological excavation, this work aims to discuss several archaeological traces on how the Catholic Church developed mechanisms currently understood as radical to deal with the presence of religious minorities. Twelve adult individuals in articulation (3 males, 9 females) were recovered and a minimum number of 16 were identified from a commingled context. The absence of funerary ditches suggests that the bodies were deposited directly in the dump. Moreover, the variability of the orientation and position of the body and limbs, and the absence of grave goods are not in accordance with the procedures of a Catholic burial. These results are underlined by the fact that the individuals were recovered from a location that was not sacred. Also, the manuscripts from the Évora Inquisition allowed the identification of 87 prisoners who died during the period in which the dump had been in use (somewhere between 1658 and 1634), and showed that at least 11 (12.6%) of them were confirmed discarded in the dump, likely because they were charged of ‘Judaism, heresy and/or apostasy’. The archaeological traces, as well as the anthropological and historical contexts, are in accordance with the characterization of these individuals as unburied dead, that were not judge by the court of the Portuguese Inquisition and reconciled with the Catholic faith before they died. More than a penalty to the body, this was a punishment to the soul of the deceased. Nevertheless, we will never be certain if these individuals were really Jews, once it could happen that people made their accusations because they were afraid of being accused first. Also, the defendant never knew what crime he was accused or even who made the accusation. From this perspective, the archaeological findings have to be interpreted carefully, but also show us the climate of fear created in people’s everyday life. Even so, these individuals show a unique context which can be used in the future to help interpret other burials which do not fit within the usual scope of the Catholic burial rules in Medieval and Modern times.

**Keywords:** Jewish, Minorities, Persecution

**Presentation Preference:** Oral

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**TH6-14 Abstract 05**

**Archaeology of the Spanish Civil War:** Is new data contributing to a deeper understanding?

**Author:** Dr. Perez-Juez, Amalia, Boston University, Madrid, Spain (Presenting author)

**Co-author(s):** Dr. Morin, J., JUDEN, Madrid, Spain

**Keywords:** archaeology of conflict, Spanish civil war, trenches

**Presentation Preference:** Oral

**Between 1936 and 1939, Spain was bled out in a Civil War, a prelude of what the whole of Europe would go through only months later. After almost 40 years of dictatorship, and the unanimous yearning to reach a peaceful transition into democracy, archaeological research of Civil War sites was all but silenced until just recently. In 2000, our team undertook one of the first excavations of Civil War sites in Spain, “Casas de Murcia”, part of the lines of defenses built by the Republicans to protect Madrid. Trenches, bunkers, machine gun nests, and other features were rapidly built and fiercely occupied for almost three years in order to stop Franco’s armies in his advance towards the capital.**

The site, which was not subject to protection at the beginning of the 21st century, was completely excavated and researched, and the results were fully published and presented to the public in a temporary exhibition. The enormous amount of information that emerged from that excavation surprised everyone. For researchers, it meant more data to add to the documents and recovering material culture; for the general public, it became a way to reconnect to the landscape that had witnessed part of a family chronicle; for politicians, it was another good media story. No one was to remain indifferent to what an excavation from this time period could yield.

In the fifteen years that have since passed, many things have changed in Spain regarding the Archaeology of the Civil War. Legislation protects the sites, excavations are conducted in a variety places, mass graves have been unearthed and bodies identified, and objects of all kinds have been recovered and restored. But these accomplishments, far from bringing the population closer to understanding this part of history, have re-opened wounds of the Civil War -Oral Presentation Preference

**Keywords:** Archaeology of conflict, Spanish Civil War, trenches

**Presentation Preference:** Oral

**Archaeology and religious identities:** the example of the Évora Inquisition court (Portugal)

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**Keywords:** Jewish, Minorities, Persecution

**Presentation Preference:** Oral

**The origins of the Inquisition are related to the power that religion had in Medieval times, representing values as engines of collective lives. As a result, the Catholic Church and the Papacy took over, since the 12th century, the leading role in the fight against heresy. The Inquisition had its origin at that time, and its development through the Catholic world led to its official creation in Portugal in 1538, aiming the surveillance of the ‘purity of faith’, the suppression of heresy, and the discipline of religious beliefs and behaviors, essentially related with the Jewish presence in the Portuguese territory. In 2007/2008 an archaeological excavation took place in approximately 12% of the so-called Jail Cleaning Yard, the dump of the Évora Inquisition court. Having as starting point this archaeological excavation, this work aims to discuss several archaeological traces on how the Catholic Church developed mechanisms currently understood as radical to deal with the presence of religious minorities. Twelve adult individuals in articulation (3 males, 9 females) were recovered and a minimum number of 16 were identified from a commingled context. The absence of funerary ditches suggests that the bodies were deposited directly in the dump. Moreover, the variability of the orientation and position of the body and limbs, and the absence of grave goods are not in accordance with the procedures of a Catholic burial. These results are underlined by the fact that the individuals were recovered from a location that was not sacred. Also, the manuscripts from the Évora Inquisition allowed the identification of 87 prisoners who died during the period in which the dump had been in use (somewhere between 1658 and 1634), and showed that at least 11 (12.6%) of them were confirmed discarded in the dump, likely because they were charged of ‘Judaism, heresy and/or apostasy’. The archaeological traces, as well as the anthropological and historical contexts, are in accordance with the characterization of these individuals as unburied dead, that were not judge by the court of the Portuguese Inquisition and reconciled with the Catholic faith before they died. More than a penalty to the body, this was a punishment to the soul of the deceased. Nevertheless, we will never be certain if these individuals were really Jews, once it could happen that people made their accusations because they were afraid of being accused first. Also, the defendant never knew what crime he was accused or even who made the accusation. From this perspective, the archaeological findings have to be interpreted carefully, but also show us the climate of fear created in people’s everyday life. Even so, these individuals show a unique context which can be used in the future to help interpret other burials which do not fit within the usual scope of the Catholic burial rules in Medieval and Modern times.**

**Keywords:** Jewish, Minorities, Persecution

**Presentation Preference:** Oral

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**TH6-14 Abstract 06**

**The Fact of the Mother Goddess**

**Author:** PhD Sozer Kolemenolu, 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 waves 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 waves in the history of culture, as evidences made of different materials in various museums in Anatolia, were classified. Particularly, the waves which were taken out in the Neolithic period, was tried to be correlated with the archaeological narratives, the social events in the world conjuncture through philosophy, religion and mythological accumulation. The Mother Goddess waves were evaluated in compliance with the environment which they emerged in rules, principles and style as well as the social structure they addressed to. In describing the human being, we widely observe that he is connected with the mythological legends and holy scripture doctrines. FINDINGS: The role of the semantic integrities in the history of religions and their connections in the holy scriptures, may be needed to be examined.

We think that some critical scientific theories in art, religion and archaeology may have correlation with the idols. By taking the interpretations in the holy scriptures and the mythologies, their theses and antitheses were frequently compared. The fixed most important topic was that the observability of whether the abstract symbolic knowledge which is necessary in knowing humanbeing, the sociological ideas realized in the life environment by coming to know the nafs. RESULT: We found out that the conquists 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 (egy), (con was observed to be absent: 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.
TH6-15 Abstract 03

Heritage for convivencia: The Inter-American and Caribbean Cultural Heritage Working Group Meeting

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Keywords: convivencia, cultural heritage, disciplinary heterogeneity
Presentation Preference - Oral

In response to ever-growing threats to intangible and tangible cultural heritage in the region, the Anthropology Department of the State University of Campinas (UNICAMP), Campinas, Brazil, organized and held the inaugural meeting of the Inter-American and Caribbean Cultural Heritage Working Group on August 11-12, 2015, at UNICAMP. The goal of the meeting was to establish a permanent collaborative forum to explore ways to improve practical and theoretical approaches to cultural heritage practice. Representatives from major anthropological and archaeological associations based in the Americas and the Caribbean, the UNICAMP Anthropology Department, and interested individuals discussed how stakeholders should engage with these issues to foster outcomes in the best interest of society. In less than two days of working together, the group drafted a declaration on the need to protect and safeguard cultural heritage in the Americas and the Caribbean and stressed the need for improvements in the theoretical and practical approaches used to develop community-based investigations about and interpretations of cultural heritage.

The declaration is expected to foster increased discussion and collaboration on cultural heritage studies. Created in English, the document has already been translated into Spanish, French, and Portuguese. The group is currently seeking formal approval from each of the professional societies and academic institutions that sent representatives to the inaugural meeting that they will become convening signatories to the declaration. A number have already agreed to “sign on.”

Participants in the working group include 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 share organizations to allow the network to flourish and establish working procedures that allow for its independent operation. If 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 group can contribute much to the success of the relationship because of their experience working with stakeholder communities concerned with both intangible and tangible heritage.

TH6-15 Abstract 02

Developing First Nations to live with Muslims. A Basque reflection on existance and coexistence

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Co-author(s) - Azkarate, Agustin, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain

On 23rd October 2015 last, several unidentified persons threw rubbish in the mosque of Llodio (Araba). Several days after, a hooded person threatened and insulted those who were congregated inside. Nobody knows who these kinds of incidents before 13th November in a village that is proud to coexist with one of the largest Saharan communities of the Basque Country. This duality, which links emerging xenophobia with consolidated internationalist activities, represents a recurring ideological structure in the Basque Country. The attachment is greater with respect to oppressed peoples of which we empathize and whom we support. Indifference is the prevailing attitude with those groups that are not defined politically. Apathy turns into hate when certain tragic events, intensified by devastating media coverage, at precise times shatter peaceful coexistence.

The Basque Country is also going through other internal processes focused on restoring peace coexistence. The disappearance of ETA and efforts to achieve mutual understanding are today two milestones of the Basque social and political agenda. So much so that in the opening ceremony of the recent debut of Donostia/San Sebastian as European culture capital, the main slogan represented was peaceful coexistence. The concepts of coexistence and culture come together in a programme in which archaeology is not represented. As Basque citizens and archaeologists, we want to avail of the opportunity of debate offered by this session to reflect on the potential of the mediation of archaeology in processes of coexistence and perspective-sharing in our geographical environment.

On outlining one of the characteristics of the Basque idiosyncrasy with respect to the “other,” we found that one of the principal characteristics generating empathy is the identification with a particular condition of this social subject. Therefore, we suggest that one of the paths towards sustainable coexistence is the generation of emotional connections with the peoples under debate. In synthesis, we have to look for cases that enable us to identify ourselves with the “other” societies with whom we coexist or at least obligate ourselves to understand them. A common denominator could be emigration, a very well-represented aspect in the Basque past and which today defines Muslim communities. And one of the most paradigmatic examples of Basque coexistence is the case of fisheries of the North Atlantic, which involved the interaction between Basques, Europeans and Canada's First Nations. In the proposed paper, we will reflect on the manner in which the socialisation of this example can generate mechanisms of proximity and tolerance between the Basque and Muslim peoples.
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 francoist regime as a model of ‘social peace’, the city saw the emergence of armed resistance by ETA and a significant labor unrest. Strikes of 1976 ended in a bloodbath. The crackdown on March 3, 1978 is a milestone for the city’s population. The arrival of democracy in 1978 led to the conversion of Vitoria-Gasteiz in the capital of the Basque Autonomous Community. This region has a nationalist majority claiming independence for the Basque Country or at least converting Spain into a federal state.

In recent years the city has experienced a second wave of migration, with newcomers from the countries of Eastern Europe, Latin America, North Africa and sub-Saharan Africa. With 250,000 inhabitants, the Basque capital has become today in a multiethnic 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’) 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.

This paper examines the origins of this science and technology we are so proud of and shows that it is as a result of co-operation and trade of ideas and goods and that a lot of what we consider western science is anything but. It also examines how modern technology can learn from archaeology. Religion is mostly a social code for a population to live by, that is acceptable to that population. Extremism is found when that religion becomes fundamentalist due to ill considered emphasis on modernity. This paper examines the origins of this science and technology we are so proud of and shows that it is as a result of co-operation and trade of ideas and goods and that a lot of what we consider western science is anything but. It also examines how modern technology can learn from archaeology. Religion is mostly a social code for a population to live by, that is acceptable to that population. Extremism is found when that religion becomes fundamentalist due to ill considered emphasis on modernity. This paper examines the origins of this science and technology we are so proud of and shows that it is as a result of co-operation and trade of ideas and goods and that a lot of what we consider western science is anything but. It also examines how modern technology can learn from archaeology. Religion is mostly a social code for a population to live by, that is acceptable to that population. Extremism is found when that religion becomes fundamentalist due to ill considered emphasis on modernity.
Testing 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 base. 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 silhouettes 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. Respecting 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.

New experimental data for discussing bone and antler softening methods in the Stone Age

During the speech results of the latest experimental works conducted at the Institute of Archaeology, Nicolaus Copernicus University shall be presented, aiming to see the most effective methods for softening bone raw materials. The subject of the research was both the ease of processing with the use of flint tools and the possibility to shape the material by bending. The aim of the experiments was to identify the method or methods that could have been used by prehistoric communities.

The experiments involved deer antler as well as bovine long bones and ribs. Seven methods most commonly referred to in the literature were subjected to testing, which include soaking in water, lactic acid, oxalic acid, urine, flax oil, lime and boiling in water. Additionally, an unsoftened raw material was subjected to processing as part of a comparative test. In the case of soaking-related literature were subjected to testing, which include soaking in water, lactic acid, oxalic acid, urine, flax oil, lye and boiling in water.

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.
The swatch samples of swatch have been analysed to determine their elemental composition and their patina, so as to compare them to the archaeological material. Initial results suggest that the colours of bronze luxury furniture vary greatly, and that the spectrum of colours is a product of the composition of bronze alloy and the techniques used in finishing the surface, either polishing or patina application.

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**TH6-16 Abstract 08**

A Romano-British glass bracelet: rediscovering a technique

**Author:** Dr. Ilea, 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 bracelet production, yet the later 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 craftsmen of Continental and British origin in the late Iron Age and Roman European Northwest.

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**TH6-16 Abstract 09**

Teaching Experimental Archaeology at Vilnius University

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**Co-author(s):** Luchtainas, Aleksandras, 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 1940s, 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-galleries "Amatu gildija", workshop-living museum "Senųjų amatų dirbtuvės", club for craft reconstruction "Dvaro meistrai", club for craft reconstruction "Pajauta"), as well as some museums (Archaeological and Historical Museum of Korytosinga, Open-Air Museum of Lithuania at Rumšiškės). The studio 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 oral presentation and a presentation of a particular committed archaeological experiment. At the end of the course, 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. 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. They also use their skills at a group of 8–15 students.

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**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):** Barkowska, Maria, Adam Mickiewicz University in Poznan, Poznan, Poland

**Keywords:** archaeoceramic, experimental archaeology, pottery

**Presentation Preference:** Oral

The undertaking research addresses a problem of provenance of ceramic assemblages from southern part of Iberian Peninsula in the early Iron Age, particularly differentiation between local and foreign origin of so-called Tartessian pottery through experimental studies. This investigation took into consideration mainly the technological aspects of pottery production and focused on both different applied techniques (hand-made and wheel-made) and the morphological and typological diversity of analysed assemblages. The proposed paper makes an attempt to examine the Tartessian ceramics not from a traditional typological posture seeking the chronological sequences, the dominant approach used in this research is based on archaeological up-to-date methodology, and thereby shed a light of these, still relatively weak recognized aspects in the study of the Iron Age pottery from the 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 Guadalupe region. The major 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, starting from 850°C and ending at 1200°C. The phycocyanin 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.

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**TH6-16 Abstract 07**

The swatch of antiques bronzes

**Author:** PhD student Devogelaere, Jonathan, Aix-Marseille Université, Aix-en-Provence, France (Presenting author)

**Keywords:** Antiques bronzes, Colours, Swatch

**Presentation Preference:** Oral

As part of my thesis, entitled "The colours of bronze ceremonial furniture in the Graeco-Roman world, 200 B.C.E. – 200 C.E.: from technical characterization to symbolic values", I have developed an experimental archaeology project to create a swatch of the variegated colours of antiques bronzes, and to restore the original colours of Graeco-Roman bronze furniture. I intend to change the presumed image of ancient bronze as green, lacking rather for evidence of polychromy and a spectrum of copper alloys. This swatch combines the technical processes of the lost wax method and the addition of polychrome bronze surfaces (via patina and inlay). I intend to use this study as a repository both for my research and for other studies related to bronze production.

Bronze is an alloy of copper and tin, lead may also be added. From technical characterization to symbolic values, I have developed an experimental archaeology project to create a swatch of the variegated colours of antiques bronzes, and to restore the original colours of Graeco-Roman bronze furniture. I intend to change the presumed image of ancient bronze as green, lacking 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. In the objects examined in this study, copper alloys suffer 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.

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In this paper, we will present the results of five-year Experimental Archaeology Project on making Eneolithic pottery, based on our research in the Kojadarem-Gumehthira-Karawan VI tell settlement from Subtan-Malou Rou, south-east Romania. In our work, we have experimented with different hand-making techniques such as building the vessels from one lump of clay, cooling and also molding. Experimenting with the molding technique came as a necessity in our effort to understand the presence of large and shallow plate-like vessels (sometimes larger than 50 cm in diameter), in the pottery assemblages characteristic of these two communities. To understand better the making pots process, we have also tested a series of hypothesises regarding the types of clay, temper, modeling, burnishing, decorating, drying and firing.

Our work is backed up by petrographic and chemical analysis which not only helped us identify the local clay source as the raw material for these Eneolithic pottery but also gave us a more precise recipe for the mixture of clay and temper. The data collected over these years now help us to refine observations when studying new assemblages, thus leading to a better understanding of the pottery resulted from the excavation, and the people who made it.

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

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TH6-16 Abstract 10

Six years of experimental traleose in Klaipėda University: accomplishments and future prospects

Author - PhD Rimkus, Tomas, Institute of Baltic region History and archaeology, Klaipėda, Lithuania (Presenting author)

Keywords: Experimental archaeology, Stone Age - Early Bronze Age, Use-wear analysis

Presentation Preference - Oral

In Lithuanian archaeology experimental-traleose method currently is a very research area. Very first rudiments of this method originates in the last decade of the 20th century, when with the assistance of use-wear method in foreign laboratories, West and East Lithuania Stone Age sites flint material were 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 specialists in Lithuania, was also studied in foreign laboratories (Russia and Poland). Since 2010 experimental-traleose studies were launched at the University of Klaipėda (Lithuania). Systematically studies in this institute 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-traleose research of Stone and Bronze Ages flint tools, and to summarize executed experimental results. The research includes archaeological data from major Stone Age and Early Bronze Age settlements and cemeteries from West and South Lithuania sites.

TH6-16 Abstract 11

Experimental archaeology in Latvia: some aspects possibilities for the future development

Author - Dr. Tomsons, Antors, Latvian National History museum, Riga, Latvia (Presenting author)

Keywords: education, experimental archaeology, reconstruction

Presentation Preference - Oral

The presentation is dedicated to main stages of the development of experimental approach and applying its methodology in the archaeology of Latvia. Presentation examines main stages of development of the scientific thought and various expressions both in reconstructive experiments and interpretations, both in future possibilities of using it in future scientific research as well as a powerful tool in education of archaeology students and tourist.

TH6-16 Abstract 12

Microwear analysis on early medieval combs

Author - Pi, Nathalie, Vrij Universiteit Brussel, Gengelom, Belgium (Presenting author)

Co-author(s) - Tys, Dries, Vrij Universiteit Brussel, Brussels, Belgium

Keywords: bone antler, comb, microwear

Presentation Preference - Oral

The typological study of bone or antler combs can give useful information in their chronological and regional diversity. Macroscopic research and chemical analyses on the other hand help us to identify aspects such as the origin of the raw material, the native aspect of the comb as well as their trade value. The possible use of different tools in early medieval ages is well documented through literature. However, much less attention went so far to questions as what tools and techniques were applied on individual combs as well as questions about their use.

Through microwear research, an attempt is made to reconstruct the production of the comb, as well as its possible life biography. This microwear method was originally, in 1933 by Sernov, applied on lithic objects, but later it was also used on other materials, such as bone and antler. However, the application of early medieval tools on antler with the aim of making combs was not conducted yet. The method contains three stages. First, starting from a functional hypothesis, an experimental program is established. In this stage combs are processed respecting both the type of raw materials and technical transformation sequences. Secondly, usage traces, developed on the experimental samples and archaeological samples are recorded with low and high power magnification. Finally, the traces on the experimental and archaeological objects are compared. The interpretation of the production techniques in chronologically and regional different contexts can so confirm or refute typological subdivisions. The maintenance of local techniques can be explored, distinct ruptures in used techniques may be associated to other context-based roles, as social, economic and ideological meaning of a material.
Keywords: experimental work, Middle Neolithic, single-chambered kiln
Presentation Preference - Poster

Among the wide variety of decoration techniques discovered at the Alba Iulia-Lumea Noua site (Transylvania, Romania), a specific painted decoration is to be found in the present state of research the only technique that can be definitively attributed to the small middle Neolithic communities called Lumea Noua cultural group. Being the only material evidence that could lead to the configuration of this cultural aspect for the moment, various archaeometric analysis were made on a large number of samples, in order to extract all the informations regarding the technology that has been used to produce such painted decorations. Based on the material analysis, this paper represant an experimental foray into the manufacturing and firing of painted pottery, that we know so little about, in the Transylvanian Middle Neolithic.

The starting point was a detailed analysis of typical installation discovered in the painted pottery cultural areas that have evolved in the Transylvanian territory. We selected a single-chambered kiln type, which could have been used for the mentioned goal. We conducted several experiments in order to understand better how these kilns were constructed and we have tested the functioning system of the device.

The experimental results are a clear indicator of the presence of skilled potters and they could also change the traditional archaeological approach that links the quality of the pots with the elaborate installation for firing Neolithic pottery.

TH6-16 Abstract 16

Flint awls: theory and practice

Author - PhD Student Slah, Gvidas, Klaipėda University, Klaipėda, Lithuania (Presenting author)

Keywords: Flint awls, Mesolithic and Neolithic, Tracingology

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 tracingological results in order to represent the data of this research. The material was collected from Lithuanian settlements of Stone Age, which is divided into mesolithic and neolithic time-period. In addition, there were made several copies of mentioned material and completed experiments by using different kinds of animals' skin: bison, deer, roe deer, beaver and mink. Skins and fur, especially the latter were chosen according to fauna of Mesolithic period. However, the mink is also an example according to group of small mammals, for instance, martens. This is the evidence not only of fauna of that particular time-period, but, also, shows the thickness of different animals' skin. Also, attention was paid to the functionality of flint awls utilization in different time-period according to faunal processing. The experiments were tested by using flayed furs, which were strict, full of vegetal tannin and prepared skin. According to the data, it might be considered the effectiveness of flint material usage. Also, it has been established, which edges felt the biggest pressure during the process and which were worn out. After the research, it has been created the technological database, which are orientated to specifically one matearial 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 a common, if sometimes controversial, tool within archaeological study. Today, there are numerous GIS packages that allow the creation of cost surfaces and least cost paths at the “push of a button” (ArcGIS, 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, 36). 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-Sáka, et al 2012, Herzog 2014).

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.


TH6-16 Abstract 18

New experimental works conducted at the Institute of Archaeology NCU (Poland)

Author - MA Kurina, Justyna, Institute of Archaeology, Nicolaus Copernicus University, Toruń, Poland (Presenting author)
Co-author(s) - Gaipowicz, Grzegorz PhD, Institute of Archaeology, Nicolaus Copernicus University, Toruń, Poland

Keywords: experimental archaeology, Stone Age, tools

Presentation Preference - Poster

This presentation aims to introduce selected experimental works that have been recently executed at the Institute of Archaeology, Nicolaus Copernicus University in Toruń. At our institute, experimental archaeology has a long nearly 50-year tradition. However, for the last ca. 18 years, most works of this sort have been conducted by members of the student Society for Experimental Prehistoric Archaeology (SEPA).

Among the studies conducted over the last years several projects deserve particular attention. Above all, it is worth to note the new experiments related to the non-ceramic tar production method developed by members of the SEPA. Moreover, experiments with the use of replicas of a Neolithic drill for stone have also continued, aiming to provide an interpretation of the methods for drilling holes in areas made of this raw material. At present, works have been focused on the possibility to employ wooden drill bits. Other project was dedicated to substances that could have been used in the prehistoric times as adhesives. Here, analyses involved binders, such as, tar, pine resin or hoof glue. Experiments with bone or antler softening techniques are also conducted. Within the frame of a project that is currently executed methods with the use of water, lactic acid, oxalic acid, urine, flax oil and tye are examined. What is more, two large projects related to experimental construction of a Mesolithic hut and a graffito-type shallow pit house have been completed recently.

Projects planned for the future involve, i.a., a series of experiments regarding wood processing with the use of burning as well as adzes made of stone and horn. We hope, that these experiments will prove an excellent opportunity to make a replica of a prehistoric dugout boat.
The Institute of Archaeologists of Ireland: An update on our Activities

Author: Dr. Bonsall, James, Institute of Archaeologists of Ireland, Dublin, Ireland (Presenting author)
Co-author(s): MacDonagh, Michael, Institute of Archaeologists of Ireland, Dublin, Ireland
Co-author(s): Sullivan, Eoin, Institute of Archaeologists of Ireland, Dublin, Ireland
Keywords: Advocacy, Ireland, Professional
Presentation Preference: Oral

The Institute of Archaeologists of Ireland (IAI) is the representative organisation for archaeologists throughout the island of Ireland. The aim of the IAI 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 reflect our core principles. The Institute maintains that a vibrant and sustainable archaeological profession actively contributes to the protection of our rich archaeological resource, which in turn contributes to the social and economic well-being of the entire community, driving tourism, social cohesion and local pride. To achieve our aim and vision, we are committed to a range of long-term measures, one of which includes the facilitation of CPD for our members and for non-members. CPD activity is monitored annually by the IAI via an easy-to-use CPD Record.

Over the last year the IAI has:

- Produced and funded our regular annual Journal of Irish Archaeology and bi-annual newsletters
- Carried out a wide-reaching membership consultation on the direction of the Institute as the profession seeks to recover from recession
- Initiated an internal strategic three-year plan for the Institute
- Supported and been a key partner in the all-island Archaeology 2025 strategy review of the archaeology sector
- Represented our members views to government and public agencies
- In addition to our own Annual Conferences, the IAI held our 3rd annual Archaeofest heritage outreach event for the public in the centre of Dublin, which celebrated the work of archaeologists across Ireland and Northern Ireland
- Hosted and organised a variety of CPD events

Keywords:
- Sullivan, Eoin, Institute of Archaeologists of Ireland, Dublin, Ireland
- Co-author(s)

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TH6-17 Abstract 02

Professional archaeology without borders

Author: Peter, Hinton, Chartered Institute of Archaeologists, Reading, United Kingdom (Presenting author)
Co-author(s): Wait, Gerry, Chartered Institute of Archaeologists, Reading, United Kingdom
Keywords: Association, CIfA, Professional
Presentation Preference: Oral

Archaeology should be without borders, and professional archaeology must be without borders. Professionalism depends on an individual’s commitment and accountability to an ethical code, and that involves more than just complying with relevant national legislation. The professional is therefore an international phenomenon. In many disciplines, professional institutes have members in many countries – and professional bodies are either multinational or work in strategic partnerships across borders. Archaeology is no different. Over the last year, the Chartered Institute for Archaeologists has been in discussion with other professional associations for archaeologists and other organisations with an interest in professionalism. This paper will report on some of the ideas and plans, and will ask session participants what they would like to see.

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TH6-17 Abstract 03

Professionalising archaeology in Europe – 2016: a year of progress

Author: Dr. Wait, Gerry, Witney, United Kingdom (Presenting author)
Co-author(s): Hinton, Peter, Chartered Institute for Archaeologists, Reading, United Kingdom
Keywords: Archaeologists, Foresight and Horizon Scanning: the future of the Partnerships, Professional associations
Presentation Preference: Oral

Do people join organisations as members anymore? Or do they support campaigns and movements on a topic-by-topic basis, depending on electronic media to collaborate? If present social trends continue, membership of associations generally will continue to fall, with many either running out of money and ceasing to be effective and influential, or urgently needing to find new purposes. Professional associations are different, probably because membership is the price of professional recognition. Since the EAA meeting in Glasgow in 2015, the Chartered Institute for Archaeologists has been in discussion with professional associations for archaeologists in Europe and beyond, and other organisations that have identified a need for a professional association for archaeology in their country. This paper will report on some of the models for cooperation, collaboration or formal partnership under consideration, and will explore both the opportunities and difficulties of professionalising across borders. Subject to the meeting organisers’ timetable, CIfA hopes to be able to invite participants in this session to an informal reception at which stronger partnerships can be made.

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SPECIAL SESSION ON BREXIT
Thursday, 1 September 2016, 11:30-13:00
Faculty of History, Room 211
Author: Cristo-Biado, Félix, Institute of Heritage Sciences (Incipl, 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, solidary 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 EAA must be flexible but prompt to address this situation and its specific requirements, and this also means we must be practical. We do not see a risk in structuring awareness and discourse. Moreover, we thank the Vilnius local organizers for making possible to create space for this Round Table, when the whole of the academic program was organized and in place.

GENERAL SESSION
Friday, 2 September 2016, 09:00-13:00
Faculty of Philology, Room A7
Author: Margaret Gowen, Heritage Consultant; EAA Treasurer, Denmark
Presentation Preference - Regular Session

GS Abstract 01
The economic factors of Spondylus gaederopus exchange during the Neolithic of Europe
Author: Windler, Arne, University of Bonn, Bonn, Germany (Presenting author)
Keywords: Economics, Foreign-trade theory, Spondylus exchange
Presentation Preference - Oral

The distribution of Spondylus gaederopus, a shelf from the Mediterranean Sea, is one of the earliest examples for long distance exchange in Europe and is associated with the process of Neolithisation during the late 6th Millennium BC. Artefacts made of Spondylus can be found throughout Europe, from Greece to Central Germany and from the Ukraine to the Parisian Basin. Although the shell has been in the focus of prehistoric archaeology for nearly 130 years, there is still an ongoing debate about the sources, meanings and modes of exchange.

The distribution is often mentioned as a prestige good or gift exchange par excellence, but we have to be aware of a premature categorisation. Not only Polanyi's trichotomy of reciprocity, redistribution and market exchange can be applied to this case study, but also alternative models from economics, anthropology or sociology need to be taken into account. In this case study, modern economic theories shall be applied to Spondylus exchange during the second half of the 6th Millennium BC and combined with statistical methods.

GS Abstract 02
The earliest appearance of agriculture in Lithuania. Myths and reality
Author: PhD student Girkpėdis, Mindaugas, Vilnius university, Vilnius, Lithuania (Presenting author)
Co-author(s): Motuzaitė Matuzevičiūtė Keen, Giedrė, Vilnius university, Vilnius, Lithuania
Keywords: archaeobotany, AMS, farming, Neolithic
Presentation Preference - Oral

The earliest evidence of agriculture in Lithuania are coming from the Cerealia type pollen records that are attributed to the 5-4th millennium BC layers. However, the Cerealia type pollen count are very scarce and increase in number only by the Late Neolithic at ca. 3rd millennium BC. During this time macro botanical remains of cultural plants have been reported for the first time at the Late Neolithic settlements of eastern Lithuania along with various tools that are associated with agricultural activities. However, none of the cereal grains have been directly radiocarbon dated to precisely attribute them to the associated archaeological layers. The chronology of the grains of cultural plants found in Lithuanian Neolithic settlements was a priori based on the typological dating of the artefacts found in the same contexts.

In this presentation we report the re-evaluation of our current state of knowledge regarding the beginnings of agriculture in Lithuania. In our opinion, pollen data should be interpreted with caution while interpreting the beginnings of agriculture in the east Baltics. As the most reliable indicator of agriculture must be macro botanical remains of cultural plants and their direct dating using AMS, we present the newest dating results of cereal grains from the Neolithic Lithuanian settlements.

The dating results gives a new perspectives on the chronology of the earliest agriculture in Lithuania pointing toward re-evaluation the chronologies and the geographical origins of the early farming in the northern regions of the eastern Europe.

GS Abstract 03
Animal iconology: identifying animal representations to aid archaeological analysis
Author: Dr. Gransand Daamond, Jean-Olivier, Arktotopia, une eure voix pour l’archéologie, Paris, France (Presenting author)
Keywords: animal iconology, farming techniques, methodology in archaeology
Presentation Preference - Oral
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 dog use 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 in Italy during the Bronze Age using feline and bovine analysis.

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**GS Abstract 04**

**Natural factors in early metallurgical production in Egypt and southern Levant**

Author - MA Bialobrzeska, 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.

The use of animals by political and religious powers and communities of craftspeople in Italy during the Bronze Age using feline and bovine analysis.

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**GS Abstract 05**

**Mosaics of Ulpiana**

Author - Assoc. Prof. Dr. Getikayka, Haluk, Mimar Sinan Fine Arts University Istanbul, Istanbul, Turkey (Presenting author)

Keywords: Early Christianity, Mosaics, Roman

Presentation Preference - Oral

Archaeological excavations of Ulpiana begun in 1953 and continued with intervals in the following decades. During these excavations, trapezoidal city walls and gates on it; cemeteries in North and West; urban villas and simple houses; workshops; military installation outside the city; three Early Christian churches and a baptistery were discovered. During early years of excavations, mosaics were discovered at two different locations. At the church on the Northern cemetery and a Roman villa. The latter is believed to be a church by some scholars. In 2012 excavations under my direction brought out to light an Early Christian baptism. It was followed by the discovery of the main church of the city, most probably dedicated to the Saints Flora and Laurus, who were martyred at Ulpiana. Inside this church mosaics were discovered in 2013. They were unearthed until 2015.

Other than the newest series of excavations, deposits of the mosaic discovered earlier at Ulpiana is unknown. This work intends to shed light on all the mosaics discovered at Ulpiana and compare them in style, material and technique. All the mosaics have geometrical patterns. The only exception is the three bird figures. Deductively inscriptions in Latin were found in the church on Northern cemetery and church of Saints Flora and Laurus. Limited colour scheme on tesserae and only a handful patterns may be taken as an indication of local workshop. In order to support this theory, laboratory analysis were made on the tesserae found in the later series of excavations. Mosaics, which were discovered in early years of excavations started in 1953. But, with the help of technical analysis and sources it may be safe to assume that all of the mosaics discovered in Ulpiana were made in mid 4th century. Comparison of mosaics regionally and globally may provide further information on similarities and differences in technique and choice of patterns. By doing so we may obtain data which could help us understand movement of workforce and popular design and techniques. Our work is the first step of our larger project, namely, Corpus of mosaics of Kosovo.

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**GS Abstract 06**

**Calculated Harmony**

Author - Richter, Éva, Budapest, Hungary (Presenting author)

Keywords: geometrical evolution system, pattern-family, plating, form creation, mathematical thinking

Presentation Preference - Oral

Evolution system of a geometrical pattern group which includes the earliest motifs and symbols of the cultural history

In the end of the Upper Paleolithic a basic geometrical pattern-family was born. It can be originated back to the plating basketry technique and has been surviving up to the present. The earliest motifs and religious symbols, such as cherson, checker board, mombo and the forms based on meander hook (meander and swastika) belong to this pattern-group. Each can be found in the European Neolithic cultures in different proportions and is presented in varied style. The extensive spread of this pattern-family due to the geometrical rules of 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 simple basic structure step by step by little structural changes. In this universal pattern-family geometric form creation is based on counting, so the manifestation of mathematical thinking can be undoubtedly observed.

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**GS Abstract 07**

**Celtic cart graves from Brežice**

Author - Mrko, Mila, Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana, Slovenia (Presenting author)

Co-author(s) - Bavec, Urko, Institute for the Protection of Cultural Heritage of Slovenia, Nova mestlo, Slovenia

Co-author(s) - Nasdab, Barbara, Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana, Slovenia

Co-author(s) - Carne, Mija, Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana, Slovenia

Keywords: Brežice (southern Slovenia), celtic cart, late Iron Age cemetery

Presentation Preference - Poster

In the vicinity of city Brežice (southern Slovenia) Centre for the Protection of Cultural Heritage of Slovenia, Centre for Preventive archaeology is carrying out a large-scale archaeological project new Hydropower plant is being built on the Sava River. A number of archaeological sites are under threat of being destroyed by different infrastructural building works and by flooding of huge areas in order to make the accumulation lake. Archaeological research of the area, started in 2008, is still not finished.

During the last third of 2014 and the first half of 2015, a part of late Iron Age cemetery was excavated. Archeological excavations took place in the area of a previously known archaeological site of Brežice - Sejmišče (Fairgrounds).

The site is well known in Slovenia and is renowned for its wealthy grave inventory, especially weapons and parts of Celtic uniaxial cart that were found in the graves. Investigations of the archaeological site 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 Gultin (first archaeologist curator in Posavski museum in Brežice). During 1982 he and his team excavated 58 graves. In 1997, another 10 graves were excavated west of the veterinary station. Until 2014/2015 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, fibulae, glass beads, rings etc. Grave 36 contained parts of cart represented as crushed (during burial ritual) iron wheel alloys.

Chronologically, the graves can be dated in Middle and Late La Tene period (lt C. D). Majority of metal artifacts are still undergoing conservation process, thus final chronological and typological evaluation and interpretation of excavated artifacts will be done after all the conservation works finished.
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